

**STAFF REPORT FOR CALENDAR ITEM NO.: 10
FOR THE MEETING OF: December 13, 2018**

TRANSBAY JOINT POWERS AUTHORITY

BRIEF DESCRIPTION:

Requesting that the TJPA Board: (1) certify the Final Supplemental Environmental Impact Statement/Environmental Impact Report (“Final SEIS/EIR”) for refinements to the previously approved Downtown Rail Extension (“DTX”) component of the 2004 Transbay Terminal/ Caltrain Downtown Extension/Redevelopment Project (“Transbay Program”) in San Francisco, California, other transportation improvements associated with the Transbay Program, and future surplus land development adjacent to Transbay Program components (together, the “Project”); (2) adopt California Environmental Quality Act (“CEQA”) Findings for the Project, including a Statement of Overriding Considerations, attached as Exhibit A to the accompanying Resolution; (3) approve amendments to two previously adopted 2004 EIS/EIR mitigation measures that are now part of the Transbay Program; (4) adopt and incorporate into the Project all of the mitigation measures and improvement measures within the responsibility and jurisdiction of the TJPA that are identified in the Final SEIS/EIR; (5) adopt the Mitigation Monitoring and Reporting Program for the Project, attached as Exhibit B to the accompanying Resolution; (6) select the site at 689–699 Third Street and 180 Townsend Street as the preferred location for the Third and Townsend streets ventilation/egress structure; and (7) approve the Project.

EXPLANATION:

The TJPA and the Federal Transit Administration (“FTA”) have prepared the Final SEIS/EIR to satisfy both the requirements of CEQA and the National Environmental Policy Act (“NEPA”). The TJPA is the lead agency for purposes of compliance with CEQA, while the FTA is the lead federal agency for purposes of compliance with NEPA. The Federal Railroad Administration (“FRA”) is a NEPA cooperating agency pursuant to 40 C.F.R. section 1501.6.¹

Phase 2 of the Transbay Program will bring both commuter and future high-speed rail to downtown San Francisco. The Phase 2 scope includes the design and construction of the DTX tunnel and the build-out of the below-grade train station facilities at the Salesforce Transit Center (transit center). Phase 2 will also build a new underground rail station along the DTX alignment, an intercity bus facility, and a pedestrian tunnel between the transit center and the Embarcadero BART/Muni Metro station. The Project analyzed in the Final SEIS/EIR consists of the following refinements to the previously approved Phase 2 project: refinements to the track curvature entering the transit center, extension of the below-grade rail levels of the transit center to enable high-speed rail, refined designs and siting for the ventilation structures and emergency exits in response to updated safety standards, and other transportation improvements. The scope of Phase

¹ The following agencies are NEPA participating agencies pursuant to 23 U.S.C. section 139: Federal Railroad Administration; U.S. Department of the Interior, Office of Environmental Policy and Compliance; U.S. EPA Region 9; Caltrans District 4; San Mateo County Transit District/SamTrans; AC Transit; California High-Speed Rail Authority; Caltrain; Golden Gate Transit; San Francisco Office of Community Investment and Infrastructure; and San Francisco Planning Department.

2, along with the additions and modifications to the Phase 2 project in the Final SEIS/EIR, are discussed in the following section, Scope of Phase 2 Refinements and Other Transportation Improvements, and shown on Figure 1.

In November 1999, the voters of San Francisco approved Proposition H, which requires the prompt extension of Caltrain from its present terminus at Fourth and King streets to the site of the transit center. Proposition H stipulated that there should be no conflicting use or development of the Caltrain extension right-of-way.

The Final SEIS/EIR is supplemental to the 2004 Transbay Program Final EIS/EIR (State Clearinghouse No. 95063004) (“2004 EIS/EIR”). The previously approved Transbay Program, including the approved DTX component, was evaluated in the 2004 EIS/EIR and subsequent addenda. The 2004 EIS/EIR for the Transbay Program was certified by the predecessor agencies to the TJPA, and the project was approved in April 2005. A Record of Decision (“ROD”) for the Transbay Program was signed in 2005 by the FTA.

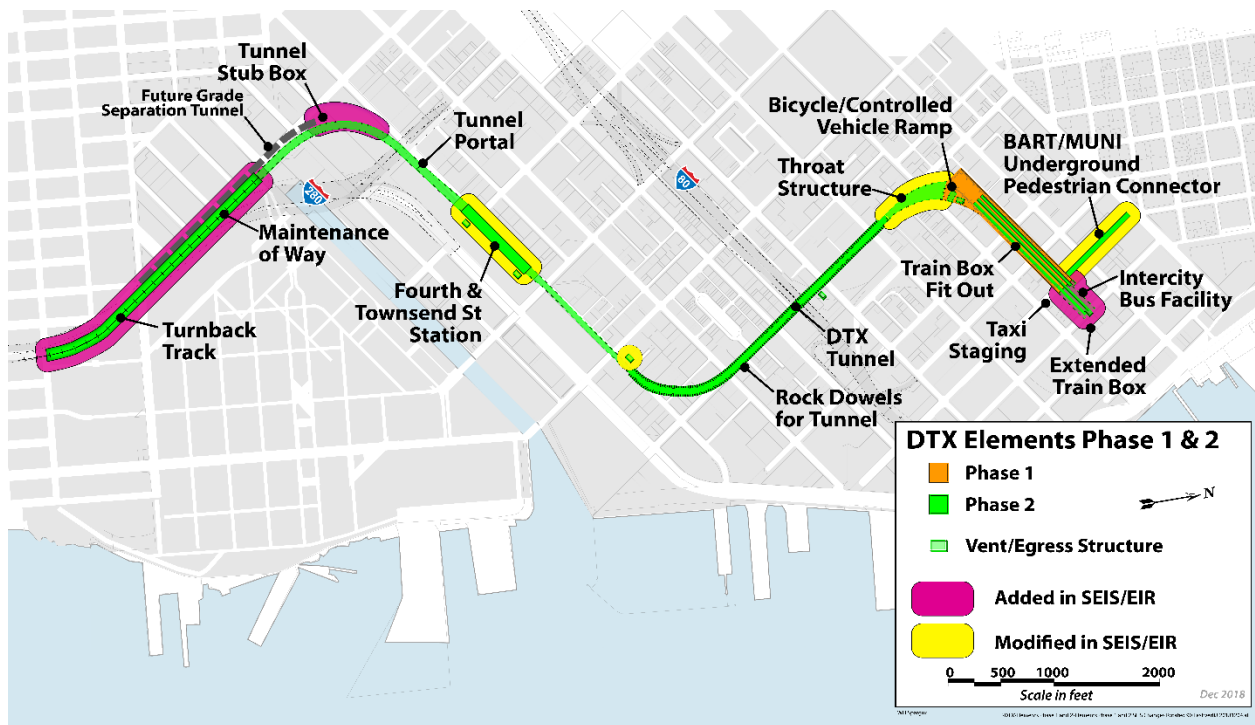


Figure 1. Phase 2 Scope Elements Added or Modified in the SEIS/EIR

Scope of Phase 2 Refinements and Other Transportation Improvements

Preliminary engineering (PE) for many components of Phase 2 was completed in July 2010. Subsequently, new requirements by the California High-Speed Rail Authority (CHSRA), Caltrain, and the City, as well as other factors, added or modified elements of Phase 2. These additions and modifications included in the SEIS/EIR include six structures for emergency exit and ventilation along the alignment (four of which are co-located with stations); additional at-grade trackwork; a new tunnel stub; a widened throat structure, where the alignment turns into

the transit center; an extension of the transit center train box; a change in location (from Fremont to Beale Street) of the BART/Muni pedestrian connector; and realignment of the Fourth and Townsend Street Station.

Additional Trackwork South of the Caltrain Railyard. New at-grade trackwork has been added to the Phase 2 scope. This new trackwork includes a turnback track and a maintenance-of-way (“MOW”) track, which relocates the current MOW track to the west side of the mainline tracks. The turnback track is needed for Caltrain operations to allow train movements between the surface Caltrain railyard and the transit center. The Draft SEIS/EIR, which was provided for public comment in December 2015, assumed that no trains would be stored at the transit center, including during the middle of the day. Caltrain has since committed to storing trains at the transit center, both overnight and during off-peak periods to reduce the number of train movements on the turnback track. Caltrain has also committed that it will not use the turnback track during morning (AM) and afternoon (PM) peak hours.

There is potential for Caltrain to perform the turnback track movements to coincide with times the gates are down, due to a revenue train passing, which would result in no additional gate downtime as a result of turnback track movements. The turnback track has been specifically designed to allow trains to entirely cross 16th Street to allow for these sorts of advantageous train movements in both directions because the trains can wait south of 16th Street before moving onto the mainline.

Tunnel Stub. A tunnel stub box, located in the Caltrain yard at Fourth and King streets, was added to the Phase 2 scope as a connection point to allow construction of a future southward underground extension of the DTX with minimal disruption to train operations. The future extension of the DTX southward would allow the DTX to be grade-separated from Mission Bay Drive and 16th Street.

Fourth and Townsend Street Station. The new underground station at Fourth and Townsend streets, which will serve Caltrain commuters, was included in the 2004 EIS/EIR. However, the City requested that the station be relocated into the public right-of-way to allow for potential future development of the Caltrain railyard. During reviews of this potential relocation, Caltrain requested that the two side platforms be consolidated into one center platform. The station will include a concourse level for passenger amenities such as ticketing machines, a staffed station agent booth, maps and schedule information, restrooms, and a bicycle shop and storage. This level will also house mechanical and electrical rooms and Caltrain staff areas. The relatively shallow depth of the station will provide efficient passenger walk times and high flow volumes between entrances and the platform.

Ventilation and Emergency Egress Structures. Six ventilation and emergency egress structures (four of which are co-located with stations) are proposed along the DTX alignment. It was previously envisioned in 2004 that sidewalk hatches would be provided for emergency exiting along the alignment, which is no longer permitted by code. The TJPA has committed to designing these ventilation and emergency egress structures in keeping with the architectural heritage of the historic districts in the Project area. The TJPA plans to work with the San

Francisco Office of Community Investment and Infrastructure to determine if the ventilation structures can be co-located with affordable housing units.

Widened Throat Structure. The throat structure connects the three-track tunnel to the constructed transit center train box. New requirements by the CHSRA required the widening of the throat structure. The widened throat structure does have new right-of-way impacts requiring temporary construction easements and permanent underground easements at two additional parcels; however, it also allows the TJPA to save a historic structure (165–173 Second Street) that was previously identified for demolition.

Transit Center Train Box Extension. The train box was designed prior to new requirements by the CHSRA, which necessitate fully tangent platforms for 400-meter-long trains. Recently, the CHSRA, in a technical memorandum to designers, shortened this requirement to 200 meters; however, the CHSRA has confirmed to the TJPA that this reduction does not apply to the transit center. Therefore, the train box must be extended across Main Street to achieve the desired length for platforms on five of its six platforms.

Rock Dowels. Construction of the mined tunnel segment from the Townsend Street curve onto and along Second Street that was adopted and included as part of the approved Transbay Program in the FTA 2005 ROD would require installation of rock dowels to temporarily support the tunnel during construction. The use of rock dowels was not previously described as part of the approved Transbay Program. Providing such support elements would reduce ground movements around the tunnel and protect adjacent properties affected by creation of the tunnel opening.

Intercity Bus Facility (IBF). The IBF, proposed at-grade above the train box extension across the street from the east end of the transit center between Beale and Main streets, will be dedicated to intercity bus services, such as Greyhound and Amtrak. These bus services will operate from the transit center bus deck during Phase 1 and are anticipated to be relocated to the IBF in Phase 2 to accommodate the operational needs and anticipated increase in ridership of the transit center's primary bus agency tenant, AC Transit. The IBF's main public entrances will be located along Beale and Natoma streets, and the building will include a bus canopy on its north side where a bus parking and passenger-loading zone are planned. The facility will house a passenger waiting area, ticketing counters, retail space, transit agency operations space, and mechanical space. An escalator and elevator located in the lobby will lead to the lower concourse of the transit center, giving passengers direct access to rail ticketing and waiting areas. An exterior escalator and elevator on Beale Street will descend directly to the transit center's lower concourse.

BART/Muni Pedestrian Connector. The BART/Muni pedestrian connector will connect the east end of the transit center's lower concourse with the Embarcadero BART/Muni Metro station, providing passengers with a direct connection between the two stations. The block-long pedestrian tunnel will run down the center of the Beale Street right-of-way, entering the Embarcadero Station at the mezzanine level outside paid fare zones. Several alignments for the BART/Muni pedestrian connector were included in the 2004 EIS/EIR, and the Final SEIS/EIR selects the Beale Street alignment as the preferred alignment.

Bicycle/Controlled Vehicle Ramp and Below Grade Bicycle Facilities. A bicycle ramp from Howard Street on the south side of the transit center to the lower concourse of the transit center would provide access to a proposed 500-bicycle storage facility, with room to potentially expand storage to 1,000 bicycles. Bicycle storage is intended for all users of the transit center, and would have sufficient capacity to accommodate demand from future high-speed rail passengers. The bike ramp would reduce conflicts between bicycles, pedestrians, and vehicles. A separate controlled vehicle ramp for service and maintenance vehicles would run parallel to the bike ramp to access the lower concourse.

Potential Future Land Development. There is additional development potential at the vent structure sites and above the intercity bus facility; however, the assumptions regarding future potential development are highly conceptual and only suggest possible land uses and development intensities consistent with applicable City plans and zoning. The project refinements do not include plans for future development of the adjacent sites, and no development applications for these sites have been filed. Thus, this component of the Project is analyzed in the Final SEIS/EIR at a program level.

Public Involvement and Outreach

An extensive public outreach and involvement program was implemented throughout the development of the Project, beginning with a public scoping meeting in May 2013 and continuing throughout the CEQA process. The public outreach activities included presentations for community, business, and transportation organizations and meetings with stakeholders. The Draft SEIS/EIR was made available for public review and comment for a period of 60 days that began on December 28, 2015, and ended on February 29, 2016. The TJPA held a meeting to receive public comments on the Draft SEIS/EIR on February 10, 2016. In total, 19 submissions (e.g., comment cards, e-mails, and letters) containing 140 individual comments were received during the comment period for the Draft SEIS/EIR. After the close of the comment period, the TJPA received 3 late comment letters containing 13 additional comments. On June 9, 2016, staff updated the TJPA Board on the progress of the environmental review process as part of a presentation on Phase 2. On March 9, 2017, staff again updated the Board on the SEIS/EIR, identifying the number and nature of the comments received on the Draft SEIS/EIR.

During and after the close of the Draft SEIS/EIR comment period, the TJPA briefed property owners, project area residents, community groups, civic organizations, neighborhood associations, business and planning professionals, transit agencies, transportation advocacy and environmental groups, local elected officials, state and federal agencies, and other interested parties. Since initiating the outreach program, staff has coordinated and consulted with agencies, including, but not limited to, the San Francisco Planning Commission, TJPA Citizens Advisory Committee, San Francisco Bay Area Rapid Transit District, Caltrain, CHSRA, San Francisco City Planning, San Francisco County Transportation Authority (SFCTA), and San Francisco Municipal Transportation Agency (SFMTA).

The Project and Prior Environmental Review

The 2004 EIS/EIR for the Transbay Program was certified by the predecessor agencies to the TJPA, and the project was approved in April 2005. A ROD for the project was signed in 2005 by the FTA. The three principal components of the Transbay Program are a new transit center on the site of the former Transbay Terminal at First and Mission streets, the DTX, and the establishment of a redevelopment area plan. The purpose of the Transbay Program is to improve public access to bus and rail services, modernize the Transbay Terminal and improve service, reduce non-transit vehicle usage, alleviate blight, and revitalize the Transbay Terminal area.

The Transbay Program is divided into two construction phases. Phase 1 consists of the above-ground portion of the new transit center and the train box, which is the subterranean portion of the transit center that would house the future Caltrain and high-speed rail station and all train-related systems and components of the transit center building. Construction of Phase 1 began with the Temporary Terminal in 2008. Phase 2 includes the DTX and completion of the transit center's below-grade levels for rail operations.

In 2010, the FRA prepared a reevaluation of the 2004 EIS/EIR to consider modifications to the train box design under Phase 1 and to update environmental information contained in the 2004 EIS/EIR pursuant to FRA's procedures for considering environmental impacts. The 2010 reevaluation acknowledged that construction of the DTX component under Phase 2 of the Transbay Program would require modifications to the track curvature in the throat structure and an increase in the tangent length of the high-speed rail platforms in accordance with the CHSRA design criteria and to provide sufficient capacity for high-speed rail service.

Final SEIS/EIR

Since approval of the Transbay Program, a number of changes have been made to its components. Six addenda to the 2004 EIS/EIR have been adopted by the TJPA. A ROD for the project was signed in 2005 by the FTA. In 2010, the FRA published a ROD adopting those portions of the 2004 EIS/EIR dealing with Phase 1 of the Transbay Program as it relates to FRA funding of the train box in Phase 1. The Final SEIS/EIR describes these project changes, which were approved between 2006 and 2011.

Pursuant to Sections 15162 and 15163 of the CEQA Guidelines,² a supplemental EIS/EIR is required to provide environmental analysis of the Project components and to supplement the 2004 EIS/EIR because the proposed refinements may have a new or substantially increased significant effect on the environment that was not analyzed in the 2004 EIS/EIR. The Final SEIS/EIR consists of the Draft SEIS/EIR (December 2015) and the November 2018 Transbay Transit Center Program Final Supplemental Environmental Impact Statement/Environmental Impact Report, which contains responses to comments received during the Draft SEIS/EIR public review period and text revisions. The Final SEIS/EIR incorporates by reference information contained in the 2004 EIS/EIR and evaluates:

² The CEQA Guidelines are found at California Code of Regulations, title 14, sections 15000 *et seq.*

- New potential significant environmental impacts or substantial increases in the severity of previously identified significant environmental impacts due to specific refinements to Phase 2 components of the Transbay Program
- The potential impacts of other transportation improvements proposed for consideration by the TJPA
- The potential impact of additional acquisitions and easements necessary to accommodate Project components that were not sited as part of the approved Transbay Program, as well as conceptual land development that these sites could offer adjacent to Transbay Program components
- Changes in circumstances and existing conditions under which the Project would be implemented since the original documentation was prepared
- New information as required by federal and state environmental legislation and NEPA

The Final SEIS/EIR was published and distributed on November 26, 2018. Responses to comments were mailed to 9 public agencies as required by CEQA. All other commenters were sent notices that the Final SEIS/EIR was available. Notices of document posting to the TJPA website were mailed to over 160 agencies, organizations, and individuals. Also, an email was sent by info@tjpa.org to about 13,000 addresses for those who had previously signed up requesting updates on the Transbay Program.

Areas of Focused Interest

Turnback Track and Maintenance of Way Storage Track. The Project includes additional trackwork in the existing Caltrain right-of-way, south of the Caltrain railyard and along Seventh Street. The first improvement would be a turnback track, which would be required for Caltrain to move trains between the Caltrain railyard and the transit center. The turnback track would be constructed at-grade on the east side of the existing mainline tracks from Hubbell Street to the north, extending southward for approximately 1,400 feet under the elevated Interstate 280 freeway across 16th Street, and terminating at Mariposa Street. The turnback track would cross 16th Street at grade, but it would not cross Mission Bay Drive to the north or Mariposa Street to the south. According to Caltrain, trains would use the turnback track for an estimated 24 crossings a day, starting about 4:00 am and ending about 11:00 pm. There would be no at-grade crossings during the critical AM/PM peak hours (7:30–8:30 am and 4:30–5:30 pm) of 16th Street, which is a primary route in and out of the Mission Bay South area and the University of California San Francisco medical center. Conservatively assuming there may be up to two crossings per day during the PM peak period (4:00–4:30 pm) just before the PM peak hour, the delay would be up to 70 seconds for each crossing.

The second track improvement is a maintenance-of-way storage track. This track would be constructed on the west side of the main tracks between Hooper Street to the north and Daggett Street to the south, for approximately 850 feet. The MOW storage track would be used for the storage of equipment needed for railway maintenance. The MOW track would not cross any through streets.

RAB Study. The City is undertaking a Rail Alignment and Benefits (“RAB”) Study that is part of an ongoing planning process. As part of that planning process, in September 2018, the SFCTA Board of Directors, after careful consideration, adopted the Pennsylvania Avenue Alignment as the preferred alternative for achieving grade separations at the intersections of 16th/7th streets and Mission Bay Drive/7th Street on the approach to the DTX, which will connect the Caltrain/CHSRA alignment to the transit center. The recommendation from the RAB study will not affect the construction schedule of the underground rail station at the transit center or the DTX and reaffirmed the DTX alignment previously approved and modified as part of the Project.

SFCTA Rail Operations Peer Review. The SFCTA assembled an independent peer review panel to conduct a review of three prior operational studies of the DTX. The peer review panel’s final report, which was issued on April 2, 2018, and presented to the TJPA Board on April 12, 2018, confirmed that three tracks are operationally necessary for the DTX to provide reliable and dependable service into the transit center. The report also noted the need for continued coordination with stakeholders in order to explore opportunities to minimize required right-of-way. Staff will continue to work with the operators to identify these opportunities while maintaining safety and operational efficiency. In addition to coordinating on the minimization of right-of-way acquisition, at the recommendation of the peer review panel, the TJPA will examine whether there is any operational benefit from the addition of a platform face at the Fourth and Townsend Street Station.

Intercity Bus Facility. After the extended underground train box for the transit center is complete, construction of an intercity bus facility above the train box is proposed to accommodate regional and long-haul bus operators, such as Greyhound and Amtrak. Located behind 201 Mission Street (south side), the IBF would be two levels above-grade (nearly 40 feet), with the ground floor serving passengers and administrative offices and an above-ground level accommodating mechanical equipment and additional administrative offices for service providers to the facility.

The addition of non-transportation uses to the IBF, specifically surplus land development as part of the Project, is included in the scope of the project refinements analyzed in the Final SEIS/EIR. That is because the adjacent land development is linked to the Project and is considered a reasonably foreseeable consequence of the Project.³

As disclosed in the Final SEIS/EIR, the IBF would have a less-than-significant effect on circulation or access to surrounding properties, such as the Millennium Tower. The Project would enable Amtrak and Greyhound buses to continue service to the transit center from across the street on the east side of Beale Street. With respect to traffic circulation at the IBF driveways, buses would exit the facility from a driveway on the opposite side of Beale Street from the Millennium Tower, and activity at the IBF along Beale Street would consist entirely of buses exiting the facility and continuing onto southbound Beale Street. Given the total width and capacity of the roadway, the physical separation of the Millennium Tower access from the IBF

³ For the same reason, development opportunities at two of the vent structure sites where the footprint for the proposed ventilation shaft and emergency exit would not require use of the entire parcel have been included in the scope of the Final SEIS/EIR.

egress and the expected level of bus activity at the IBF, conflicts would not be expected between these two traffic flows such that ingress and egress for Millennium Tower residents would be adversely or significantly affected. Pedestrian activity associated with the proposed IBF would be expected to consist of passengers primarily transferring between regional and long-haul intercity buses at the facility and connecting modes (primarily Caltrain and high-speed rail, but potentially other transit operators) at the transit center. Pedestrians would connect to other transit operators directly through the lower concourse level of the transit center and the BART/Muni pedestrian connector. Therefore, the IBF would not generate an adverse/significant traffic impact.

Alternative Ventilation Structure Site Option and Adjacent Land Development

Construction of the DTX would require installation of emergency ventilation/smoke evacuation structures co-located with emergency tunnel exits when possible. The 2004 EIS/EIR evaluated potential impacts from ventilation shafts and emergency exit shafts; however, the locations changed as the design advanced. The street-level design and appearance of ventilation structures would be coordinated with the City. According to the DTX design criteria, above-grade vent structure exteriors may require specific design features such as contextual materials to be compatible with new development or existing adjacent buildings. Specific location options and detailed engineering of these emergency structures are identified in the Final SEIS/EIR.

The Draft SEIS/EIR evaluated two possible locations for the Third and Townsend vent structure: one at 701 Third Street and an alternate location across Townsend Street at the corner of 689–699 Third Street and 180 Townsend Street. After publication of the Draft SEIS/EIR, the location at 701 Third Street site was purchased for redevelopment and construction of a new hotel is nearly complete; therefore, it is no longer a feasible site for the vent structure. The alternative site, 180 Townsend/689–699 Third Street, is now proposed for this Project component.

At the 180 Townsend/689–699 Third Street location, the vent structure would be within the boundaries of the South End Historic District and Rincon Point/South Beach Historic Industrial Warehouse District and would require demolition of one building that contributes to these districts (the building located at 180 Townsend Street). The loss of one contributing structure would not be considered an adverse effect on the South End Historic District or the Rincon Point/South Beach Historic Industrial Warehouse District because the historical integrity of the district would remain intact, with the remaining contributors continuing to be a high percentage of the total number of buildings in the districts and because the visual quality and character of the remaining row of contributing buildings to the east of 180 Townsend Street to Second Street and to the north along Third Street would continue to convey the districts' significance. Introduction of the vent structure at this corner location could result in an adverse visual change to the historic setting. To avoid this potential effect, the TJPA has agreed to ensure that the design of the structure is consistent with accepted preservation standards for context-sensitive infill development in historic districts, such as the Secretary of the Interior's Standards for the Treatment of Historic Properties. As a result, the Project would not adversely affect the integrity of the historic districts.

Cut and Cover Construction and Possible Other Construction Methods. As analyzed in the Final SEIS/EIR, the underground DTX component of the Project would be constructed using cut-and-cover techniques through the western end of the Caltrain railyard and along Townsend Street; mined tunnel methods along Second Street under Rincon Hill between Townsend and Folsom streets, with cut-and-cover sections north and south of the tunneled section; and cut-and-cover techniques for the throat structure.

Cut-and-cover construction techniques can vary from “bottom up” to “top down” to “semi-top-down.” All these techniques are commonly used, and the eventual choice will depend on site constraints at the time of construction, the traffic management plan approved by the City, shoring systems, construction schedule, and the contractor’s preference. The extent of cut-and-cover construction for the DTX is approximately 3,000 feet along Townsend Street, between Sixth Street and Clarence Place; about 700 feet along Second Street for the widened throat structure; and about 800 feet along Beale Street for the underground BART/Muni pedestrian connector. Regardless of the particular cut-and-cover construction technique used, the proposed approach to constructing the DTX alignment, including the Fourth and Townsend Street Station, would be to allow vehicles and pedestrians to travel at street level by installing excavation and decking support for the open-cut in incremental amounts. This would allow work to continue below the traffic decking so that street level activities can be restored and construction can continue. In addition, the construction along Townsend Street would be phased and sequenced to reduce impacts to traffic movements, to circulation by bicycles and pedestrians, and to property access.

In response to concerns regarding impacts to the community, the TJPA studied options to reduce the extent of cut-and-cover construction along the DTX alignment (“Tunnel Options Study”). The Tunnel Options Study identified several feasible options to reduce the extent of cut-and-cover that could be studied further to balance the desire to reduce surface disruptions with the costs of reducing the cut-and-cover. The final report for the initial scope of the study was issued on November 8, 2017. On November 9, staff hosted a constructability workshop with the SFCTA, its oversight consultant, and the SFMTA to identify options for further study. Five addenda to the study report were completed in late March 2018.

As clarified in the Final SEIS/EIR, based on the results of the Tunnel Options Study, construction of the DTX alignment would use a combination of cut-and-cover and other construction methods that involve excavation and construction from below the street level, such as sequential excavation method (“SEM”) or SEM with tunnel boring machines. These construction methods will continue to be investigated in order to reduce surface level impacts to the extent feasible. Two segments evaluated for cut-and-cover construction in the Final SEIS/EIR could be constructed using these other methods. The selection of the preferred construction method will depend on further evaluation using risk assessment criteria and consideration of the trade-offs in cost and schedule after completion of 30 percent PE for the Project.

The TJPA received a letter from Representative Nancy Pelosi dated May 7, 2018, expressing her appreciation for the time and resources that were dedicated to the rail operations peer review for the DTX alignment and for the consideration of potential impacts to the surrounding

neighborhood as a result of construction of the DTX. Leader Pelosi also provided her support for approval of the SEIS/EIR.

With the conclusion of the SFCTA's operations peer review and the Tunnel Options Study, the TJPA has addressed concerns regarding construction impacts to the community and will continue coordination with stakeholders as the design moves forward to minimize these impacts where possible.

RECOMMENDATION:

Adopt the accompanying Resolution to (1) certify the Final SEIS/EIR for the Project; (2) adopt CEQA Findings for the Project, including a Statement of Overriding Considerations, attached as Exhibit A to the Resolution, (3) approve amendments to two previously adopted Transbay Program mitigation measures; (4) adopt and incorporate into the Project all of the mitigation measures and improvement measures within the responsibility and jurisdiction of the TJPA that are identified in the Final SEIS/EIR; (5) adopt the Mitigation Monitoring and Reporting Program for the Project, attached as Exhibit B to the Resolution; (6) select the site at 689–699 Third Street and 180 Townsend Street as the preferred location for the Third and Townsend streets ventilation/egress structure and (7) approve the Project.

ENCLOSURES:

1. Resolution
2. Exhibit A to Resolution: CEQA Findings and Statement of Overriding Considerations for the Project
3. Exhibit B to Resolution: Mitigation Monitoring and Reporting Program for the Project
4. Letter to Mark Zabaneh from Representative Nancy Pelosi (May 7, 2018)

**TRANSBAY JOINT POWERS AUTHORITY
BOARD OF DIRECTORS**

Resolution No. _____

WHEREAS, in April 2004, pursuant to the provisions of the California Environmental Quality Act of 1970 (Public Resources Code Section 21000 *et seq.*) (“CEQA”) and the State CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 *et seq.*) (“CEQA Guidelines”), the Transbay Terminal/Caltrain Downtown Extension/ Redevelopment Project Final Environmental Impact Statement/ Environmental Impact Report (“2004 EIS/EIR”) (State Clearinghouse No. 95063004) was certified by the City and County of San Francisco, the Peninsula Corridor Joint Powers Board, and the San Francisco Redevelopment Agency, which were the predecessor agencies to the Transbay Joint Powers Authority (“TJPA”); and

WHEREAS, in April 2004 the Board of Directors of the TJPA approved the Locally Preferred Alternative of the Transbay Transit Center Program (“Transbay Program”); and

WHEREAS, the approved Transbay Program is divided into two construction phases; and

WHEREAS, Phase 1 of the Transbay Program, which is completed, consists of the above-ground portion of the new Transit Center and the train box, which is the structural box for the subterranean portion of the Transit Center that would house the Caltrain and high-speed rail (“HSR”) station and all train-related systems and components of the Transit Center building; and

WHEREAS, Phase 2 of the Transbay Program, as approved in 2004, includes the underground Downtown Rail Extension (“DTX”) component of the Transbay Program, fit out of the Transit Center below-grade levels for rail operations, as well as a new underground station along the DTX alignment, ventilation and emergency access structures, a pedestrian tunnel between the Transit Center and the Embarcadero BART/Muni Metro station, and adjacent development; and

WHEREAS, in 2010, the Federal Railroad Administration (“FRA”) prepared a reevaluation of the 2004 EIS/EIR (the “Reevaluation Report”) to consider modifications to the train box design under Phase 1 and to update environmental information contained in the 2004 EIS/EIR pursuant to FRA’s procedures for considering environmental impacts; and

WHEREAS, the Reevaluation acknowledged that the construction of Phase 2 of the Transbay Program would require modifications to the track curvature and an increase in the tangent length of the HSR platforms to provide sufficient capacity for HSR service; and

WHEREAS, the TJPA Board of Directors desires to refine the design of Phase 2 of the Transbay Program involving changes to the rail components of the Transbay Program and other transportation improvements and development opportunities (the “Project”); and

WHEREAS, the Project consists of the following refinements to the previously approved Phase 2 project and other transportation improvements: refinements to the track curvature entering the Transit Center, including widening the throat structure; extension of the below-grade rail levels of the Transit Center from Beale Street to Main Street to enable HSR; refined designs and siting for the ventilation and emergency egress structures in response to safety standards; additional

trackwork south of the Caltrain Fourth and King Railyard; realignment of the underground Fourth and Townsend Street Station as well as a tunnel stub at the Caltrain railyard; using rock dowels to construct the mined tunnel; an Intercity Bus Facility; the BART/Muni Underground Pedestrian Connector; bicycle facilities and a taxi staging area at the Transit Center; off-hours public parking at the AC Transit bus storage facility; additional acquisitions and easements to accommodate Project components that were not sited as part of the approved Transbay Program; and potential future land development at the sites of the ventilation structures and the Intercity Bus Facility; and

WHEREAS, pursuant to Public Resources Code Section 21166 and CEQA Guidelines Sections 15162 and 15163 a Supplemental EIS/EIR (“SEIS/EIR”) is required to provide environmental analysis of the Project components and to supplement the 2004 EIS/EIR because the proposed refinements may have a new or substantially increased significant effect on the environment that was not analyzed in the 2004 EIS/EIR; and

WHEREAS, on April 30, 2013, the TJPA issued a Notice of Preparation (“NOP”) of the Draft SEIS/EIR; and

WHEREAS, the NOP was filed with the State Clearinghouse and circulated for review and comment by responsible and trustee agencies and members of the public for 44 days, from April 30, 2013 through June 13, 2013, during which time the TJPA held a public scoping meeting on May 14, 2013; and

WHEREAS, the Draft SEIS/EIR, consisting of the Draft SEIS/EIR volume and the Draft SEIS/EIR Appendices provided on CD, was issued on December 28, 2015, and was circulated for public review and comment through February 29, 2016, for a total of 60 days, during which time the TJPA held a public meeting to receive comments on the Draft SEIS/EIR on February 10, 2016; and

WHEREAS, the TJPA received 19 letters and emails commenting on the Draft SEIS/EIR during the public comment period and 3 letters and emails following the close of the public review period; and

WHEREAS, following the close of the public review period, the Transbay Transit Center Program Final Supplemental Environmental Impact Statement/Environmental Impact Report was prepared, which contains the comments on the Draft SEIS/EIR, responds to those comments, and makes revisions to the Draft SEIS/EIR; and

WHEREAS, the Project involves a combination of cut-and-cover and tunneling techniques to construct the DTX component; and

WHEREAS, on April 4, 2018, the San Francisco County Transportation Authority (“SFCTA”), in cooperation with the TJPA, released a Peer Review Panel Report, which was presented to the Board of Directors on April 26, 2018 and is incorporated herein by this reference, that was prepared in cooperation with the TJPA, which concludes that three tracks are operationally necessary for the DTX to provide reliable and dependable service into the Transit Center; and

WHEREAS, on March 23, 2018, the TJPA completed the last of five addenda to the November 8, 2017 Tunnel Options Study which concludes that there are feasible options to reduce

the amount of cut-and-cover construction by tunneling methods (such as sequential excavation, sequential excavation with tunnel boring machines, and other techniques that excavate and construct from underground) but which need to be evaluated further to identify a preferred construction method, and the selection of the preferred construction method will depend on further evaluation using risk assessment criteria and consideration of the trade offs in cost and schedule after completion of the next phase of design, 30 percent Preliminary Engineering, for the project; and

WHEREAS, increasing the proportion of tunneling used to construct the DTX component of the Project will not create any new or substantially more severe significant effects on the environment requiring major revisions to the Draft SEIS/EIR, and is likely to reduce the impacts from construction of that Project component; therefore, recirculation of the SEIS/EIR is not required; and

WHEREAS, the SEIS/EIR is presented to the TJPA Board of Directors for action on the Final SEIR pursuant to the requirements of CEQA and the FTA has issued the Final SEIS pursuant to the requirements of NEPA; and

WHEREAS, the Transbay Transit Center Program Final Supplemental Environmental Impact Statement/Environmental Impact Report was issued on November 26, 2018; and

WHEREAS, the TJPA sent written responses to public agencies that commented on the Draft SEIS/EIR on November 26, 2018; and

WHEREAS, as a courtesy, the TJPA also sent notices to other commenters and interested agencies, organizations, and individuals about the availability of the Final SEIS/EIR on November 26, 2018; and

WHEREAS, the Final SEIS/EIR consists of the December 2015 Draft SEIS/EIR and the November 2018 Transbay Transit Center Program Final Supplemental Environmental Impact Statement/Environmental Impact Report; and

WHEREAS, the Final SEIS/EIR is a project-level SEIS/EIR, except with regard to the potential future surplus land development component which is reviewed at a program level; and

WHEREAS, the Final SEIS/EIR evaluated two possible locations for the site of the Third and Townsend Streets ventilation and emergency egress structure, one at 701 Third Street and one at 689–699 Third Street and 180 Townsend Street; and

WHEREAS, the proposed site of the Third and Townsend Streets ventilation and emergency exit structure at 701 Third Street has been determined to be infeasible because it is being developed as a hotel; and

WHEREAS, the alternate site of the Third and Townsend Streets ventilation and emergency access structure at 689–699 Third Street and 180 Townsend Street would require demolition of the structure at 180 Townsend Street, which is a contributor to the Rincon Point/South Beach Historic Industrial Warehouse District and South End Historic District, but this would not be a significant effect on the environment because it is one contributing building in a district of 66 remaining contributors and the integrity of the district to which this property

contributes would remain and the demolition would not affect the features and attributes that qualify the district for protection; and

WHEREAS, the historic property at 165–173 2nd Street, which is a contributing structure to the Second and Howard Streets NRHP Historic District, will no longer be demolished as part of the project but will be preserved; and

WHEREAS, the Final SEIS/EIR has been presented to the TJPA Board of Directors and the information contained in the Final SEIS/EIR has been reviewed and considered by the Board; and

NOW THEREFORE BE IT RESOLVED, that the TJPA Board of Directors:

1. Certifies that the Final SEIS/EIR for the Project has been completed in compliance with CEQA, and reflects the independent judgment and analysis of the TJPA.
2. Adopts the Findings and Statement of Overriding Considerations for the Project, attached hereto as Exhibit A, and incorporated herein by reference.
3. Approves amendments to previously adopted 2004 EIS/EIR Mitigation Measures CH 11 and CH 12 to reflect that 165–173 2nd Street will no longer be demolished, and to update the effects of cut and cover construction on two structures (580–591 Howard Street and 165–173 2nd Street) and clarify the applicable construction methods.
4. Adopts and incorporates into the Project all of the mitigation measures and improvement measures for the Project identified in the Final SEIS/EIR that are within the responsibility and jurisdiction of the TJPA.
5. Adopts the Mitigation Monitoring and Reporting Program for the Project, attached hereto as Exhibit B, and incorporated herein by reference.
6. Selects the site at 689–699 Third Street and 180 Townsend Street as the preferred location for the Third and Townsend Streets ventilation and emergency exit structure.
7. Approves the Project.

I hereby certify that the foregoing resolution was adopted by the Transbay Joint Powers Authority Board of Directors at its meeting of December 13, 2018.

Secretary, Transbay Joint Powers Authority

EXHIBIT A

CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS AND STATEMENT OF OVERRIDING CONSIDERATIONS FOR REFINEMENTS TO THE DOWNTOWN RAIL EXTENSION COMPONENT OF THE TRANSBAY PROGRAM, OTHER TRANSPORTATION IMPROVEMENTS ASSOCIATED WITH THE TRANSBAY PROGRAM, AND FUTURE SURPLUS LAND DEVELOPMENT

I. INTRODUCTION

The Transbay Joint Powers Authority (“TJPA”), as lead agency under the California Environmental Quality Act (“CEQA”), Public Resources Code section 21000 *et seq.*, has prepared the Final Supplemental Environmental Impact Statement/Environmental Impact Report (“Final SEIS/EIR”) for the refinements to the Downtown Rail Extension (“DTX”) component and other improvements of the Transbay Terminal/Caltrain Downtown Extension/Redevelopment Project Transbay Program (“Transbay Program”), other transportation improvements associated with the Transbay Program, and future surplus land development (together, the “Project”). The Final SEIS/EIR is a project-level SEIS/EIR pursuant to sections 15162 and 15163 of the State Guidelines for implementation of CEQA (“CEQA Guidelines”),¹ except with regard to the future surplus land development component, which is reviewed at a program level. The Final SEIS/EIR consists of the December 28, 2015 Draft Supplemental Environmental Impact Statement/Environmental Impact Report (“Draft SEIS/EIR”) and the November 2018 Transbay Transit Center Program Final Supplemental Environmental Impact Statement/Environmental Impact Report (“Final SEIS/EIR”), containing responses to comments on the Draft SEIS/EIR and revisions to the Draft SEIS/EIR.²

In determining to approve the Project, which is described in more detail in Section II, below, the TJPA makes and adopts the following findings of fact and statement of overriding considerations, and adopts and incorporates into the Project all of the mitigation and improvement measures identified in the Final SEIS/EIR, all based on substantial evidence in the whole record of this proceeding (“administrative record”). Pursuant to section 15090(a) of the CEQA Guidelines, the Final SEIS/EIR was presented to the TJPA, and the TJPA reviewed and considered the information contained in the Final SEIS/EIR prior to making the findings in Section IV through XVI, below. The conclusions presented in these findings are based on the Final SEIS/EIR and other evidence in the administrative record.

II. TRANSBAY PROGRAM BACKGROUND

The 2004 Environmental Impact Statement/Environmental Impact Report for the Transbay Program (“2004 EIS/EIR”) was certified by the predecessor agencies to the TJPA and the project was approved in April 2004. A Record of Decision (“ROD”) for the project was signed in 2005 by the Federal Transit Administration (“FTA”). The Transbay Program includes the DTX, the establishment of a redevelopment area plan, and the construction of the Transit Center on the site of the then-existing Transbay Terminal at First and Mission Streets. The purpose of the Transbay Program is to improve public access to bus and rail services, modernize the Transbay Terminal and improve service, reduce non-transit vehicle usage, alleviate blight, and revitalize the Transbay Terminal area.

¹ The CEQA Guidelines are found at California Code of Regulations, Title 14, Section 15000 *et seq.*

² An environmental impact statement (“EIS”) is an environmental document prepared under the National Environmental Policy Act (“NEPA”), 42 U.S.C. section 4321 *et seq.* The Federal Transit Administration and TJPA prepared the SEIS/EIR as a joint environmental impact statement/environmental impact report to satisfy the requirements of both NEPA and CEQA.

The Transbay Program is divided into two construction phases. Phase 1, consists of the above-ground portion of the new Transit Center and the train box, which is the subterranean portion of the Transit Center that would house the Caltrain and high-speed rail (“HSR”) station and all train-related systems and components of the Transit Center building. Construction of Phase 1 began in 2008 with the Temporary Terminal. Phase 1 of the Transit Center opened for operation in August 2018. Phase 2 includes the DTX and completion of the Transit Center below-grade levels for rail operations.³ Since 2004, the TJPA has adopted six addenda to the 2004 EIR/EIR and approved refinements and changes to the project.

In 2010, the Federal Railroad Administration (“FRA”) prepared a reevaluation of the 2004 EIS/EIR to consider modifications to the train box design under Phase 1 and to update environmental information contained in the 2004 EIS/EIR pursuant to FRA’s procedures for considering environmental impacts.⁴ The Reevaluation consisted of four main components:

- updating the analysis associated with slightly widening the train box compared to that described in the 2004 EIS/EIR (including method and staging of construction);
- updating high-speed train ridership projections based on 2009 forecasts from the California High-Speed Rail Authority (“CHSRA”);
- reevaluating elements of the environmental analyses in the 2004 EIS/EIR that are pertinent to providing HSR service at the Transit Center, specifically air quality, greenhouse gas emissions, transportation and circulation, noise and vibration, construction impacts, and cumulative impacts of HSR service; and
- updating the financial analysis in the 2004 EIS/EIR.

The 2010 Reevaluation acknowledged that the construction of the DTX component under Phase 2 of the Transbay Program would require modifications to the track curvature in the throat structure, a widened throat structure, and an increase in the tangent length of the HSR rail platforms in accordance with the CHSRA design criteria and to provide sufficient capacity for HSR service. The FRA issued a ROD on August 4, 2010 adopting the portions of the 2004 EIS/EIR relating to Phase 1 of the Transbay Program for the purpose of FRA funding of the train box under the High-Speed Intercity Passenger Rail Program that would serve both Caltrain and HSR.

In 2012, the City and County of San Francisco (“City”) approved the Transit Center District Plan (“TCDP”) to provide a land use, transportation and public realm vision for the 145 acres that surround the Transit Center. The TCDP provides the planning context for how the development pattern, visual landscape, and transportation network will evolve. The TCDP area overlaps most of the Redevelopment Plan component of the 2004 approved Transbay Program.

³ The Caltrain line is a vital regional commuter rail service connecting San Francisco to the Peninsula, Silicon Valley, and San Jose, but its current northern terminus in San Francisco is approximately 1.3 miles from downtown and the heart of the San Francisco financial and office core. The DTX would provide this “missing link” by constructing a tunnel between the existing terminus and the new Transit Center that can accommodate Caltrain and future high-speed rail service and connect to other rail and bus lines at the Transit Center.

⁴ Transbay Program Final EIS Reevaluation (FRA, May 2010).

III. PROJECT DESCRIPTION

Phase 2 of the Transbay Program will bring both commuter and future HSR to downtown San Francisco. The Phase 2 scope includes the design and construction of the DTX tunnel and the build-out of the below-grade train station facilities at the Transit Center. Phase 2 will also build a new underground train station along the DTX alignment at Fourth and Townsend Streets, an intercity bus facility, and a pedestrian tunnel between the Transit Center and the Embarcadero BART/ Muni Metro station. Preliminary engineering (30% design level) for many components of the DTX was completed in July 2010. Subsequently, new requirements by CHSRA and the City, as well as other factors, have added or modified elements of Phase 2. The new elements that constitute the Project, as described below, have not been designed to the same level as the approved DTX components.

The Project consists of the following refinements to the previously approved Phase 2 project and other transportation improvements, which are discussed below and set forth in Chapter 2 of the Final SEIS/EIR: refinements to the track curvature entering the Transit Center, including widening the throat structure; extension of the below-grade rail levels of the Transit Center to enable HSR; using rock dowels to construct the mined tunnel along 2nd Street; and refined designs and siting for the ventilation structures and emergency exits in response to safety standards. In addition, as clarified in the Final SEIS/EIR, based on the results of a November 2017 Tunnel Options Study and addenda to that study, construction of the DTX alignment would be performed using a combination of the cut-and-cover technique and the Sequential Excavation Method, which involves excavation and construction from below the street level. Implementing the Sequential Excavation Method in combination with tunnel boring machines and other tunneling methods would continue to be investigated in order to reduce surface level impacts to the extent feasible. Two segments evaluated for cut-and-cover construction in the Draft SEIS/EIR (i.e., along Townsend Street and around the Howard and Second Street intersection) could be constructed using these other methods. The selection of the preferred construction method will depend on further evaluation using risk assessment criteria and consideration of the tradeoffs in cost and schedule after completion of the next phase of design, 30 percent Preliminary Engineering, for the Project. The Project also includes other transportation improvements necessary for implementing the Transbay Program and enhancing connectivity to the regional rail and bus services that will be available at the Transit Center.⁵ The Final SEIS/EIR fully describes the environmental impacts of the Project and incorporates measures to mitigate those impacts into the Project. The Project represents the combination of components and features that most closely meets the Project objectives and purpose and need, as discussed below and set forth in Chapter 1 of the Draft SEIS/EIR.

The Project includes additional acquisitions and easements to accommodate Project components that were not sited as part of the approved Transbay Program. To the extent that TJPA would not require use of the entire site for the transportation facilities, these sites could also offer additional development potential at the ventilation structure sites and above the intercity bus facility, however, the assumptions regarding the future potential development are highly conceptual and only suggest possible land uses and development intensities consistent with applicable City plans and zoning. The project refinements do not include plans for future development of the adjacent sites, and no development applications for these sites have been filed. Thus, this component of the Project is analyzed in the Final SEIS/EIR at a program level.

⁵ In November 1999, the voters of San Francisco approved Proposition H, which requires the prompt extension of Caltrain from its present terminus at Fourth and Townsend Streets to the site of the Transit Center. Proposition H also calls for no conflicting use or development of the Caltrain extension right-of-way.

A. DTX Refinements

The Project includes the following refinements to the DTX:

1. *Additional Trackwork South of the Caltrain Railyard*

The Project would include additional trackwork in the existing Caltrain right-of-way, south of the Caltrain railyard and along Seventh Street. The first improvement would be a turnback track, which would be required for Caltrain to move trains between the Caltrain railyard and the Transbay Transit Center when not in use or when maintenance is required. The need for this refinement was identified by Caltrain in 2014 based on information regarding the need for trains to move between the Caltrain railyard and the Transit Center without interfering with rail service on the mainline. Caltrain has committed to storing trains overnight and during off-peak hours at the Transit Center, which will reduce movements on this track and avoid blocking vehicular traffic, bicycles and pedestrians during the AM/PM peak hours. The turnback track would be constructed at-grade on the east side of the existing mainline tracks from Hubbell Street on the north, extending southward for approximately 1,400 feet under the elevated Interstate 280 freeway across 16th Street, and terminating at Mariposa Street. The turnback track would cross 16th Street at grade, but it would not cross Mission Bay Drive to the north or Mariposa Street to the south. According to Caltrain, trains would use the turnback track for an estimated 24 crossings a day, starting about 4:00 am and ending about 11:00 pm. There would be no at-grade crossings during the critical AM/PM peak hours (7:30 - 8:30 a.m., and 4:30 - 5:30 p.m.) of 16th Street, which is a primary route in and out of the Mission Bay South area and the University of California San Francisco Medical Center. There may be up to two crossings per day during the PM peak period just before the PM peak hour (4:00 - 4:30 pm.).

The second track improvement is a maintenance of way (MOW) storage track. This track would be constructed on the west side of the main tracks between Hooper Street on the north and Daggett Street to the south, for approximately 850 feet. The MOW storage track would be used for storage of equipment needed for railway maintenance. The MOW track would not cross any through streets.

2. *Tunnel Stub*

A “tunnel stub,” located in the Caltrain yard at Fourth and King Streets, is proposed to be added to the Phase 2 scope to facilitate construction of a future southward underground extension for Caltrain and HSR service, if an underground alignment were determined to be preferable to the current at-grade Caltrain alignment. Construction of the tunnel stub would allow a possible future underground connection with minimal disruption to train operations. The future underground extension of the DTX southward, by others, would allow the train tracks to be grade separated from the current at-grade crossings with Mission Bay Drive and 16th Street.

3. *Fourth and Townsend Street Station*

The City requested that the Fourth and Townsend Street Station be relocated entirely into the public right-of-way under Townsend Street, to allow for potential future development of the Caltrain Fourth and King Railyard; the previously approved station was aligned at an angle to Townsend Street and extended partially into the Caltrain railyard. During reviews of this potential relocation, Caltrain requested that the two side platforms be consolidated into one center platform. The new underground station at Fourth and Townsend streets will serve Caltrain commuters. A concourse level will accommodate passenger amenities such as ticketing machines, a staffed station agent booth, maps and schedule information, restrooms, and a bicycle shop and storage. This level will also house mechanical

and electrical rooms and Caltrain staff areas. The relatively shallow depth of the station will provide efficient passenger walk times and high flow volumes between entrances and the platform.

4. *Ventilation and Emergency Egress Structures*

Construction of the DTX would require installation of six emergency ventilation/smoke evacuation structures that are co-located with emergency tunnel exits or stations (collectively referred to as vent structures). Under the Project, changes to the previous vent structure design have been made to comply with revisions to National Fire Protection Association Standard 130 which governs life safety features for fixed guideway systems, and to update the specific locations of these emergency structures. As identified in the Final SEIS/EIR, these structures would be located at the west end and the east end of the Fourth and Townsend Street Station; Third and Townsend Streets; Second and Harrison Streets; the west end of the Transit Center train box; and the east end of the Transit Center near Natoma and Main Streets. An alternative location for the Third and Townsend Street vent structure was analyzed in the Draft SEIS/EIR, but the original preferred site at 701 Third Street is now unavailable because redevelopment of the site has been approved by the City and construction is underway with completion expected in late 2018; therefore, the preferred location for this vent structure is at 699 Third Street and 180 Townsend Street.

Each of the vent structures would contain a shaft, electrical room, fan room, emergency generator, and stairway, which would tie into the DTX tunnel/stations. The vent structures would serve to exchange air, moving fresh air underground and removing stale air. In the event of an emergency such as a fire, the reversible fans would enable smoke to be removed from underground facilities; passengers would be evacuated from the tunnel via the emergency structure stairways. According to the DTX Design Criteria, above-grade vent structure exteriors may require specific design features such as contextual materials to be compatible with new development or existing adjacent buildings. The TJPA has committed to designing the ventilation and emergency egress structures in keeping with the architectural heritage of the historic districts in the project area. The street-level design and appearance of ventilation structures would be coordinated with the City.

5. *Widened Throat Structure*

The Project would widen the throat structure on the northeast side of the DTX alignment entering the west side of the Transit Center. The previously approved throat structure at the southwest corner of the Transit Center occupies 64,610 square feet. The Project would widen the throat structure eastward and increase the footprint of the throat structure by 14,059 square feet, for a total area of 78,669 square feet. This increased area is to comply with updated design specifications that were released by the CHSRA in 2010 regarding track curvature and platform design. The widened throat structure is needed to accommodate changes to the track curvature that is desired to reduce track and wheel maintenance and noise from wheel squeal that can occur as trains travel over tight curves. The Project would enable a minimum 650-foot curve radius, an increase from the previously approved DTX track curve radii of 498 to 545 feet. The widened throat structure has new right-of-way impacts affecting two structures at 589 Howard Street and 235 Second Street, which will not need to be acquired, yet also allows the TJPA to save a historic structure that was previously identified for demolition.

6. *Transit Center Trainbox Extension*

The trainbox was designed prior to new requirements by the CHSRA that necessitate fully tangent platforms for 400 meter-long trains. Thereafter, CHSRA issued a technical memorandum to designers which shortened this requirement to 200 meters, however, CHSRA has confirmed to TJPA that this reduction does not apply to the Transit Center. Therefore, the trainbox must be extended east of Beale

Street one block to Main Street to achieve the CHRSA design specifications for five of the six platforms at the Transit Center. The northernmost platform is not proposed to be extended due to right-of-way concerns.

7. *Rock Dowels*

Construction of the mined tunnel segment from the Townsend Street curve onto and along Second Street that was adopted and included as part of the approved Transbay Program in the FTA 2005 ROD would require installation of rock dowels to temporarily support the tunnel during construction. The use of rock dowels were not previously described as part of the approved Transbay Program. Providing such support elements would reduce ground movements around the tunnel and protect adjacent properties affected by creation of the tunnel opening.

B. *Other Transportation Improvements*

The Project also includes the following transportation improvements associated with the Transbay Program:

1. *Intercity Bus Facility*

The Intercity Bus Facility (“IBF”) is proposed at grade above the trainbox extension between Beale and Main streets, across the street from the bus plaza of the Transit Center, and will be dedicated to intercity bus services such as Greyhound and Amtrak. These bus services will initially operate from the Transit Center bus deck during Transbay Program Phase 1, but will need to be relocated to the IBF in Phase 2 to accommodate the operational needs and anticipated increase in ridership of AC Transit, which is the Transit Center’s primary bus operator on the bus deck. The IBF’s main public entrances will be located along Beale and Natoma streets, and the building will include a bus canopy on its north side where a bus parking and passenger-loading zone are planned. The facility will house a passenger waiting area, ticketing counters, retail space, transit agency operations space, and mechanical space. An escalator and elevator located in the lobby will lead to the Lower Concourse of the Transit Center, giving passengers direct access to rail ticketing and waiting areas. An exterior escalator and elevator on Beale Street will descend directly to the Transit Center’s Lower Concourse.

2. *BART/Muni Pedestrian Connector*

The BART/Muni Pedestrian Connector will connect the east end of the Transit Center’s Lower Concourse with the Embarcadero BART/Muni Metro station, providing passengers with a direct, below-ground connection between the two stations. The block-long pedestrian tunnel will run down the center of the Beale Street right-of-way, entering the Embarcadero Station at the mezzanine level outside paid fare zones. Several alignments for the BART/Muni Pedestrian Connector were included in the 2004 EIS/EIR, and the Final SEIS/EIR selects the Beale Street alignment as the preferred alignment.

3. *Bicycle/Controlled Vehicle Ramp and Below-Grade Bicycle Facilities*

A bicycle ramp from Howard Street on the south side of the Transit Center to the Lower Concourse of the Transit Center would provide access to a proposed 500-bicycle storage facility, with room to potentially expand storage to 1,000 bicycles. Bicycle storage is intended for all users of the Transit Center, and would have sufficient capacity to accommodate demand from future HSR passengers. The bike ramp would reduce conflicts between bicycles, pedestrians, and vehicles. A separate controlled vehicle ramp for service and maintenance vehicles also would run parallel to the bike ramp to access the

Lower Concourse level. The vehicle ramp would be limited to a maximum speed of 15 miles per hour and would include speed control measures.

4. AC Transit Bus Storage Facility Parking

The AC Transit bus storage facility is bounded by Perry, Stillman, Second and Third Streets, with bus access from Perry Street. This facility accommodates up to approximately 73 buses. The AC Transit bus storage would be publicly used for off hours/nighttime or event parking (e.g., nighttime sporting or special events) when not in use by AC Transit for regular operations. No additional construction activities would be necessary to use this facility for public parking during off hours.

5. Taxi Staging Area

Taxi pick-up/staging would occur at the Ground level of the Transit Center at the following locations:

- Along the south side of Minna Street between First and Second Streets, providing taxi service to passengers as they exit from elevators and escalators near the Shaw Alley entrance, the elevators located near First Street, and from the Grand Hall.
- Along the north side of Natoma Street between Beale and Main Streets and along the west side of Main Street between Natoma and Howard Streets, with a pick-up area on the south side of the intercity bus facility. This location would provide taxi services to passengers at the intercity bus facility and persons exiting the Transit Center at Beale Street.

C. Adjacent Land Development

Additional acquisitions and easements are included in the Project to accommodate components that were not sited as part of the approved Transbay Program. To the extent that TJPA would not require use of the entire site for the transportation facilities, these sites could offer additional development potential at the ventilation structure sites and above the Intercity Bus Facility; however, the assumptions regarding the future potential development are highly conceptual and only suggest possible land uses and development intensities consistent with applicable City plans and zoning. The Project refinements do not include plans for future development of the adjacent sites, and no development applications for these sites have been filed. Thus, this component of the Project is analyzed in the Final SEIS/EIR at a program level.

Above the Intercity Bus Facility: The Project would include two floors above the IBF that could be developed by others (for a maximum of four stories above the street level). The development would be approximately 45,000 gross square feet. Two options are considered for this Project component: all office space (assuming 45,000 square feet) or all residential development (assuming a single-room-occupancy development with a maximum of 350 square feet per unit, resulting in 128 housing units).

Adjacent to the ventilation structure at either of the optional locations at Third and Townsend Streets: The Project would allow 76,000 square feet of new development. City zoning regulations allow a mix of uses at both of the optional sites, including retail, office, and housing. While no specific development program has been established, it is assumed that a 4,000-square-foot restaurant and either 72,000 square feet of office space or residential development (72 units) up to 105 feet tall could be built adjacent to the ventilation structure at the southeast corner site option, or 72,000 square feet of office or other commercial space at the northeast corner site option up to 65 feet tall.

D. Project Objectives

The Transbay Program was developed to address the following objectives and needs set forth in the 2004 EIS/EIR:

- Provide a multi-modal transit facility that meets future transit needs;
- Improve the Transbay Terminal as a place for passengers and the public to use and enjoy;
- Alleviate conditions of blight in the Transbay Terminal area;
- Revitalize the Transbay Terminal area with a more vibrant mix of land uses that includes both market-rate and affordable housing;
- Facilitate transit use by developing housing next to a major transit hub;
- Improve Caltrain service by providing direct access to downtown San Francisco;
- Enhance connectivity between Caltrain and other major transit systems;
- Enable direct access to downtown San Francisco for future intercity and/or high-speed-rail service;
- Accommodate projected growth in travel demand in the San Jose–San Francisco corridor;
- Reduce traffic congestion on U.S. Highway 101 and Interstate 280 between San Jose and San Francisco and other routes;
- Reduce vehicle hours of delay on major freeways in the Peninsula corridor;
- Improve regional air quality by reducing auto emissions;
- Support local economic development goals; and
- Enhance accessibility to employment, retail, and entertainment opportunities.

As set forth in Chapter 2 of the Draft SEIS/EIR, the Project includes the following additional objectives:

- Enhance pedestrian, bicycle, and transit connections to further reinforce the Transbay Program’s emphasis on transit and alternative means of local and regional travel;
- Modify the train box and advance construction of other rail-related infrastructure to respond to design specifications issued by the CHSRA to enable HSR service and Caltrain;
- Offer additional opportunities for parking within convenient walking distance of the area’s existing and proposed restaurants and entertainment, performance, and sports venues; and
- Locate sites for and construct ventilation and emergency egress structures in compliance with safety standards for underground facilities and to meet emergency response needs of system operations.

IV. ENVIRONMENTAL REVIEW PROCESS

The TJPA and the FTA have prepared the Final SEIS/EIR to satisfy the requirements of both CEQA and the National Environmental Policy Act (“NEPA”). The TJPA is the lead agency for purposes of compliance with CEQA, while the FTA is the lead federal agency for purposes of compliance with NEPA. The FRA is a NEPA cooperating agency pursuant to 40 C.F.R. section 1501.6.⁶ The Final SEIS/EIR is supplemental to the 2004 Transbay Program Final EIS/EIR (State Clearinghouse No. 95063004).

Pursuant to Sections 15162 and 15163 of the CEQA Guidelines, a Supplemental EIS/EIR is required to provide environmental analysis of the Project components and to supplement the 2004 EIS/EIR because the proposed refinements may have a new or substantially increased significant effect on the environment that was not analyzed in the 2004 EIS/EIR. The Final SEIS/EIR incorporates by reference information contained in the 2004 EIS/EIR and the addenda to the 2004 EIS/EIR, and evaluates:

- New potential significant environmental impacts or substantial increases in the severity of previously identified significant environmental impacts due to refinements to Phase 2 components of the Transbay Program;
- The potential impacts of other transportation improvements proposed for consideration by the TJPA;
- The potential impact of conceptual land development adjacent to Transbay Program components, made possible by additional acquisitions and easements necessary to accommodate Project components that were not sited as part of the approved Transbay Program;
- Changes in circumstances and existing conditions under which the Project would be implemented since the original documentation was prepared; and
- New information as required by federal and state environmental legislation.

On April 30, 2013, TJPA issued a Notice of Preparation (“NOP”) of the Draft SEIS/EIR. The NOP was filed with the State Clearinghouse and circulated to government agencies and the public for review and comment. A scoping meeting was held in May 2013 to solicit input on the scope and content of the SEIS/EIR from public agencies, individuals, and organizations. The Draft SEIS/EIR was published on December 28, 2015, for a 60-day public comment period that ended on February 29, 2016. During that time, the Draft SEIS/EIR was reviewed by various public agencies, individuals, and organizations, and TJPA held a public meeting during the comment period on February 10, 2016. Nineteen comment submittals (2 submittals from federal agencies, 4 from state agencies, 3 from local agencies, and 10 from individuals and organizations) were received during the public comment period. Two members of the public spoke during the public meeting. Three comments were received after the close of the comment

⁶ The following agencies are NEPA participating agencies pursuant to 23 U.S.C. section 139: Federal Railroad Administration; U.S. Department of the Interior, Office of Environmental Policy and Compliance; U.S. EPA Region 9; Caltrans District 4; San Mateo County Transit District/SamTrans; AC Transit; California High-Speed Rail Authority; Caltrain; Golden Gate Transit; San Francisco Office of Community Investment and Infrastructure; and San Francisco Planning Department.

period. On June 9, 2016, staff gave an update on the Project to the TJPA Board of Directors and described the components of the SEIS/EIR. On March 9, 2017, staff gave a presentation to update the Board on the SEIS/EIR, identifying the number and nature of the comments received on the Draft SEIS/EIR.

The Final SEIS/EIR document, posted to the TJPA website on November 26, 2018, includes comments on the Draft SEIS/EIR, responses to those comments, and revisions to the Draft SEIS/EIR. Responses to agency comments were sent to agencies that commented on the Draft SEIS/EIR on November 26, 2018. As a courtesy, TJPA also sent notices to other commenters and interested agencies, organizations, and individuals about the availability of the Final SEIS/EIR on November 26, 2018.

On December 13, 2018, the Final SEIS/EIR was presented to the Board for review. The analysis and conclusions contained in the Final SEIS/EIR reflect the independent judgment of TJPA. The Board considered the comments on the Draft SEIS/EIR and the responses to comments, as well as the whole of the administrative record, and determined that the Final SEIS/EIR should be certified as adequate under CEQA.

V. FINDINGS

These findings summarize the environmental determinations of the Final SEIS/EIR about project impacts before and after mitigation, and do not attempt to repeat the full analysis of each significant impact contained in the Final SEIS/EIR. Instead, these findings provide a summary description of and basis for each impact conclusion identified in the Final SEIS/EIR, describe the applicable mitigation or improvement measures identified in the Final SEIS/EIR, and state the TJPA's findings and rationale about the significance of each significant impact following the adoption and incorporation of mitigation measures into the Project. A full explanation of these environmental findings and conclusions can be found in the Final SEIS/EIR, and these findings hereby incorporate by reference the discussion and analysis in the Final SEIS/EIR supporting the Final SEIS/EIR's determinations regarding mitigation measures and the Project's impacts.

VI. SIGNIFICANT OR POTENTIALLY SIGNIFICANT IMPACTS THAT CANNOT BE AVOIDED OR MITIGATED TO A LESS-THAN-SIGNIFICANT LEVEL

The SEIS/EIR identifies the following significant and unavoidable adverse impact associated with approval of the Project, and it identifies related mitigation measures. It is hereby determined that the following significant and unavoidable adverse impact is acceptable for the reasons specified in Section XII, below.

A. Impact CU-WQ-9. Sea-level rise due to climate change would inundate portions of the project area by 2100.

Sea level rise is evaluated in the SEIS/EIR as a cumulative effect because it is the result of global contributions to greenhouse gas emissions. The Final SEIS/EIR finds that there is a potential for components of the Project and previously approved Transbay Program, as well as other nearby areas, to be significantly affected by sea-level rise and associated flooding in the year 2100. Portions of the extended train box, ventilation structures, portions of the MOW storage track, the IBF, and the taxi staging areas could be subject to 0 to 2 feet of flooding. In addition, Project components, including the realigned Fourth and Townsend Street Station and related facilities (e.g., the ventilation structures) and the tunnel stub box, could be inundated to depths of up to 6 feet. This climate change impact is considered significant.

Implementation of New Mitigation Measure WQ-4.1 and New Mitigation Measure CU-WQ-9.1, which are hereby adopted and incorporated into the Project, would reduce this impact, but not to a less-than-significant level. At this time, the feasibility of implementing all resiliency measures necessary to avoid future inundation associated with sea-level rise is not known because assessment of such solutions will be an ongoing, long-term, and multi-agency process. In addition, regional sea-level rise protection measures are under discussion presently but no firm commitment exists to strategies to implement flood protection. Therefore, even with implementation of New-MM-WQ-4.1 and New-MM-CU-WQ-9.1, the Project would result in a cumulatively considerable contribution to this cumulative impact and the impact would be significant and unavoidable.

New-MM-WQ-4.1. Modify DTX Design Criteria to Avoid Flood Hazards.

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 new 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.

New-MM-CU-WQ-9.1: Prepare a Sea-Level Rise Adaptation Plan.

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.

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.

The TJPA shall complete the first Sea-Level Rise Adaptation Plan as part of DTX final design. The Plan shall include the following:

- a. *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.*
- b. *Improvements will meet the flood design criteria as feasible and unconstrained by surrounding development not owned by the TJPA.*
- c. *The plan may also rely on flood improvements implemented separately by agencies other than the TJPA, but that will also provide flood risk reduction benefits for Transbay Program Phase 2 facilities.*
- d. *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.*
- e. *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.*

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.

B. Impact C-NO-3. The Project would result in construction noise impacts, if a waiver is issued by the City that would permit nighttime construction to occur.

Construction of the Project would require the use of noise-generating equipment and result in temporary increases in ambient noise levels in the Project area on an intermittent basis. Noise levels would fluctuate depending on the construction phase, equipment type and duration of use, distance between the noise source and receptor, and presence or absence of noise attenuation barriers.

The construction activity locations and processes, and the type of construction equipment used, would not change significantly from the assumptions used in the 2004 EIS/EIR as a result of the Project components. Similar to the analysis presented in the 2004 EIS/EIR, construction activity near the Transit Center potentially would impact adjacent land uses.

New areas of construction activity would include those related to ventilation structures at the Fourth and Townsend Street Station, at Third and Townsend Streets, and at Second and Harrison Streets. The adjacent land development at the intercity bus facility and at the ventilation structures at Third and Townsend Streets and at Second and Harrison Streets also would result in additional construction noise and vibration. Certain construction activities (e.g., demolition) would be likely to generate noise levels that would exceed the City standard of 80 dBA at 100 feet without mitigation. Mitigation Measures NoiC 1 through NoiC 6, which were previously adopted and incorporated into the Transbay Program, would continue to apply, and would be implemented as part of the Project revisions.

Consistent with the San Francisco noise ordinance, Mitigation Measure NoiC 1 prohibits construction activity between 8 p.m. and 7 a.m. if it causes noise that exceeds the ambient noise plus 5 dBA. Occasions may occur when nighttime construction is desirable (e.g., lane restriping in commercial districts where nighttime construction would be less disruptive to businesses in the area) or necessary to

avoid unacceptable traffic disruptions. Nighttime construction is not prohibited, and such activity would include equipment and associated back-up alarms. Nighttime construction that could occur in the urban environment, such as the Project area that includes residential land uses, potentially would increase ambient noise levels by 5 dBA or more and would be considered a significant and unavoidable impact.

VII. SIGNIFICANT OR POTENTIALLY SIGNIFICANT IMPACTS THAT CAN BE REDUCED TO A LESS-THAN-SIGNIFICANT LEVEL BY MITIGATION MEASURES ADOPTED AND INCORPORATED INTO THE PROJECT

The Final SEIS/EIR identifies the following significant impacts associated with approval of the Project. These impacts are reduced to a less-than-significant level by mitigation measures identified in the SEIS/EIR. It is hereby determined that the impacts addressed by these mitigation measures will be mitigated to a less-than-significant level or avoided by adoption and incorporation of these mitigation measures into the Project.

A. Impact TR-1. The Project, after implementation of mitigation, would not result in levels of service that would exceed the City's threshold for acceptable operations or result in localized circulation and access effects.

Since publication of the Draft SEIS/EIR, Caltrain has confirmed that planned operations on the proposed turnback track would not involve using the turnback track during the AM and PM peak hours (7:30 - 8:30 a.m., and 4:30 - 5:30 p.m.). Accordingly, use of the turnback track by Caltrain would avoid potential traffic impacts at the at-grade crossing with 16th Street during peak hours. This commitment not to use the turnback track during the AM/PM peak hours by Caltrain is based on current best operating and service assumptions. It is conservatively assumed that there may be up to two crossings per day during the PM peak period just before the PM peak hour (4:00 - 4:30 pm.), and that the delay would be up to 70 seconds for each crossing; however, this would not be a significant impacts. Should future service requirements and operational plans result in the need to use the turnback tracks and cross 16th Street during these critical travel periods, the following mitigation measure would be implemented to address potential traffic effects.

New Mitigation Measure TR-1.1, which is hereby adopted and incorporated into the Project, would reduce this impact to a less-than-significant level by requiring that a traffic/train operation analysis be conducted prior to Caltrain use of the turnback track during the AM/PM peak hours. The purpose of the analysis would be to identify traffic impacts along 16th Street due to Caltrain operations along the turnback track and feasible mitigation measures. If needed, the mitigation measures would include traffic and crossing signal modifications to achieve the performance standard specified in New Mitigation Measure TR-1.1 of no greater than a 10 percent increase in additional traffic delays at the 16th and Seventh/Mississippi Street intersection and the 16th and Owens Street intersection due to the proposed change in Caltrain operations.

New-MM-TR-1.1. Modify Signal Operations at the 16th Street Intersection with Seventh Street/Mississippi Street, the Caltrain tracks, and Owens Street.

If Caltrain's service and operations plan requires the use of the 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 tracks to evaluate traffic operations along 16th Street at Seventh/Mississippi Street, the Caltrain turnback track, and Owens Street. Changes to the PCEP OCS and specialty trackwork, such as control points, switches, and train signals, will be undertaken by the TJPA to allow Caltrain to continue its operations at the level of service defined in the PCEP EIR. 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 Seventh/Mississippi Street or at Owens Street (already operating at LOS E and F) such that the overall intersection v/c ratio would worsen by more than 10 percent (i.e., a v/c ratio increase of more than 0.10), then improvements shall be implemented so the resulting v/c ratio is no greater than 10 percent above the v/c ratio without use of the turnback track during the AM/PM peak hours. Actions or improvements that could achieve the performance standard, either individually or in combination, include but are not limited to:

- *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.*

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 these crossings to attain the v/c performance standard. These changes to the crossing will also satisfy the performance standard for safe pedestrian and bicycle circulation identified in New-MM-TR-3.

Although the potential impacts to levels of service for acceptable operations and localized circulation and access effects would be reduced to a less-than-significant level with implementation of New Mitigation Measure TR-1.1, New Improvement Measure TR-1.1, which is hereby adopted and incorporated into the Project, would further reduce this less-than-significant impact through development of a traffic mitigation and adaptive management plan, including monitoring, for the intersections of 7th Street/Mission Bay Drive and 16th Street/7th Street.

New-I-TR-1.1. Traffic Mitigation and Adaptive Management Plan

A traffic improvement plan and adaptive management plan will be developed for the two at-grade intersections along the turn-back track length (7th Street/Mission Bay Drive and 16th Street/Mississippi Street/7th Street) which will outline all aspects of avoiding, minimizing, and compensating for all temporary and permanent impacts associated with the project. The traffic improvement plan will be reviewed and approved by the City and County of San Francisco prior to implementation.

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 will 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 will 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 will be submitted to the City and County of San Francisco which will 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 City and County of San Francisco-approved mitigation plan.

B. Impact TR-3. The Project, after implementation of mitigation, would not result in substantial overcrowding on public sidewalks, create hazardous conditions for pedestrians, or interfere with pedestrian accessibility to the site and adjoining areas.

The addition of a turnback track would result in a three-track at-grade crossing at 16th Street east of Seventh Street, increasing the distance of this crossing by up to 50 feet. This change at the east/west crossing along 16th Street would increase crossing time for pedestrians by up to 15 seconds.

New Mitigation Measure TR-3.1, which is hereby adopted and incorporated into the Project, would reduce this impact to a less-than-significant level. The mitigation measure would change the signal timing and make other modifications at this intersection for the Peninsula Corridor Electrification Project (PCEP), and further design review of this segment along 16th Street by TJPA in collaboration with Peninsula Corridor Joint Powers Board and the City would reduce potential effects on pedestrians by providing sufficient time for pedestrians to completely cross the widened crossing and by avoiding the creation of potentially hazardous conditions for pedestrians and bicyclists.

New-MM-TR-3.1. Modify 16th Street Intersection with the Caltrain and turnback track to provide a safe crossing for pedestrians and bicyclists.

At the time of the construction and operation of the proposed turnback track, the Caltrain electrification project (including mitigation measures adopted by Caltrain for this intersection), SFMTA's 22 Fillmore Transit Priority Project, and the Warriors Arena project may have been implemented. The combination of these projects will modify the intersection configuration and operation at the time of the proposed project. As a result, the TJPA is using a safety-based performance standard, explained below, to guide future improvements for pedestrian and bicyclist safety.

At the time of final design, the TJPA shall determine the then-current overall time required by pedestrians and bicyclists traveling along 16th Street to cross the Seventh Street/Mississippi Street intersection, the Caltrain mainline tracks, and the turnback track, and the TJPA shall coordinate and consult with Caltrain, the California Public Utilities Commission, and the City to identify the changes to the intersection and grade crossing warning devices, including signal timing, that are needed to provide adequate time for pedestrians and bicyclists to safely cross the widened intersection that results from the construction of the turnback track as determined by the Institute of Transportation Engineers, Caltrans, and the City.

The TJPA shall commit to implementing these changes, which will also include measures to protect pedestrians and bicyclists from potential safety issues, prior to operation of the new turnback track. Specific changes are expected to be determined during final design, which will be after the location of the crossing gates for the turnback track along 16th Street has been determined and based on the then-current signal timing at that time and which is expected to account for other major development and transit projects in the vicinity. The changes to the intersection due to the turnback track will be included in the design specifications for the project. Possible improvements that may attain the above performance standard include:

- *Adjust signal timing for the warning devices and adjacent traffic signals. The warning phase before the gates start to come down shall be extended to take into account the additional time needed for pedestrians and bicyclists to clear the track zone based on industry standards (such as the Federal Highway Administration's Manual on Uniform*

Traffic Control Devices for Streets and Highways or the Institute of Transportation Engineers' Design and Safety of Pedestrian Facilities) or City guidelines that define the walking speed of a pedestrian.

- *Provide sufficient refuge areas for pedestrians and bicyclists to wait while the crossing gates are down. The refuge, or waiting, area shall be sufficient to accommodate the projected pedestrians and bicyclists and be ADA compliant.*
- *Install a smooth surface in the areas next to and between the rails to reduce tripping hazards and unintended forces on bicycle tires.*

C. Impact TR-4. The Project, after implementation of mitigation, would not be expected to substantially interfere with bicycle accessibility to the site and adjoining areas.

The addition of the turnback track would result in a three-track at-grade crossing at 16th Street east of Seventh Street, increasing the distance of this crossing by up to 50 feet. This change at the east/west crossing along 16th Street would increase crossing time for bicyclists by up to 10 seconds.

New Mitigation Measure TR-3.1, set forth in the discussion of Impact TR-3 and adopted and incorporated into the Project above, would reduce this impact to a less-than-significant level by changing the signal timing and making other modifications at this intersection for the PCEP. Improvement measures will be identified and implemented by TJPA in consultation with Caltrain, the CPUC, and the City, which would reduce potential effects on bicyclists by providing sufficient time for bicyclists to completely cross the widened crossing and by avoiding the creation of potentially hazardous conditions for bicyclists.

D. Impact C-TR-7. The Project, with continued implementation of previously adopted mitigation, and compliance with City regulations and DTX Design Criteria, would not result in temporary impacts on the surrounding transportation network as a result of construction activity.

New Project components that were not identified in the 2004 FEIS/EIR that involve considerable excavation, hauling, and materials delivery include the extended train box and the tunnel stub box, which would result in additional construction-period transportation disruption. Because of the extent of excavation associated with both of these proposed project components, the number of truck trips and the duration of construction activities would be substantial compared to the other refinements and improvements. The throat structure, ventilation structures, and underground Fourth and Townsend Street Station were all addressed in the 2004 FEIS/EIR, but the Project updates the designs or locations for these facilities. Therefore, these Project components would not substantially alter the construction traffic impacts identified in the 2004 FEIS/EIR, but would result in greater disturbance around the widened throat structure, more site-specific impacts for the ventilation structures along the mined tunnel segment, and additional street closures along Townsend Street for the realigned underground station. Mitigation Measures PC 2 (implementation of traffic control and detour plans), PC 4 through PC 7 (requiring development of traffic management plans), and GC 1 through GC 4, specifically relating to pre-construction and general construction measures, which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level.

The DTX Design Criteria would also apply to the Project. The DTX Design Criteria, developed by the TJPA for use in the design and construction of DTX-related facilities, includes a section specifically devoted to the maintenance and protection of traffic.

E. Impact SE-1. The Project, with continued implementation of previously adopted mitigation, would not displace homes, and displaced businesses would have adequate replacement resources in the Project area.

The Project would not displace any homes or people necessitating construction of replacement housing elsewhere. Acquisition of private properties required for the Project would represent a loss of approximately 86,306 square feet of building space, most of which is office space. Mitigation Measure Prop 1 (requiring provision of relocation assistance to all businesses in accordance with state and federal laws), which was previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this non-CEQA impact to a less-than-significant level.

F. Impact C-SE-6. The Project, with continued implementation of previously adopted mitigation, would not result in significant temporary socioeconomic impacts associated with construction of the Project.

Construction of the Project would result in temporary physical changes to the Project area, such as aesthetic, noise and vibration, and air emissions related changes, that could detract from community cohesion and use of social institutions and community facilities. In addition, access to businesses, community facilities, and recreational facilities in the Project area would be more difficult and inconvenient. Mitigation Measures PC 2 and PC 7 (implementation of traffic control and detour plans, and development of traffic management plans), Mitigation Measure GC 2 (general construction mitigation), and Mitigation Measures PC 4, PC 5, PC 6, and GC 1 (public outreach efforts, complaint hotlines, and early dissemination of notifications regarding construction activities), which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level.

G. Impact CR-1. The Project, with continued implementation of previously adopted mitigation, would not cause a substantial adverse change in the significance of archaeological resources.

Project components with a potential to disturb sediments to considerable depths could pose adverse effects on unknown archaeological resources and are similar to previous design components evaluated in the 2004 EIS/EIR. No new or substantially more severe impacts have been identified or are anticipated to be identified, nor would these elements substantially change the severity or significance of the environmental impacts disclosed in the 2004 EIS/EIR. There are no known archaeological resources or documented human remains within the Project footprint.

The proposed project would not cause a substantial adverse change in the significance of archaeological resources, because this potential effect would be avoided in accordance with stipulations in the 2004 Memorandum of Agreement that include previously adopted mitigation measures for the Transbay Program. Mitigation Measures CH 15 through CH 20, which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level.

H. Impact CR-2. The Project, with continued implementation of previously adopted mitigation and after implementation of revised mitigation, would not cause direct adverse impacts on historic architectural resources.

As explained above in Section III, the Draft SEIS/EIR evaluated two possible locations for the 3rd and Townsend ventilation structure: one at 701 3rd Street, and an alternate location across Townsend Street at the corner of 689-699 3rd Street and 180 Townsend Street. Since publication of the Draft SEIS/EIR, the location at 701 3rd Street is no longer a feasible site for a ventilation structure because redevelopment of the site has been approved and construction is underway with completion expected in late 2018. Therefore, the alternative site, 180 Townsend/689-699 3rd Street, is proposed for this Project component. This location would require the demolition of buildings located within the South End Historic District and Rincon Point/South Beach Historic Industrial Warehouse District. Of the two buildings that would be demolished, the 1903–1905 California Wine Association Building at 180 Townsend was identified as a contributor to the South End Historic District and the Rincon Point/South Beach Historic Industrial Warehouse District. The building located at 687–699 Third Street was identified as a non-contributor to these historic districts.

The demolition of one contributor and one non-contributor would not result in a significant impact on the South End Historic District or the Rincon Point/South Beach Historic Industrial Warehouse District, because the historical integrity of the district would remain strong as a whole, with 66 remaining contributors and with the retention of a strong row of contributing buildings to the east of 180 Townsend to Second Street. However, the introduction of the ventilation structure at this corner location at the edge of the historic district could result in a significant impact unless the new design follows accepted preservation standards for context-sensitive infill development in historic districts, such as the Secretary of the Interior’s Standards for the Treatment of Historic Properties. TJPA will therefore require that the new design follows guidelines protective of the historic character of the area, such as the Secretary of the Interior’s Standards for the Treatment of Historic Properties.

The widened throat structure, extended train box, and the BART/Muni underground pedestrian connector could affect the San Francisco Fire Department Auxiliary Water Supply System (AWSS) pipes. The pipes would be taken out of service temporarily and replaced during Project construction. Less than one mile of AWSS pipes, out of a total of 135 miles, could be affected, which would not impair the historic water supply system’s ability to convey its historical significance or alter its eligibility status.

The proposed project would not cause a substantial adverse change in the significance of historical resources, because this potential effect would be avoided in accordance with stipulations in the 2004 Memorandum of Agreement that include previously adopted mitigation measures for the Transbay Program. Mitigation Measure CH 11 and Mitigation Measure CH 12, which were previously adopted and incorporated into the Transbay Program, continue to apply and are hereby amended as follows to reflect that 165-173 2nd Street would no longer be demolished but would be preserved and that construction of the widened throat structure would require an easement at this property and at 589 Howard Street. These changes would be recorded.

MM CH-11 (amended). In consultation with property owners, develop and implement measures to protect contributing elements of historic properties.

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.

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 shown in the following table.

Affected Historic Properties During Construction				
Address/ Assessors Parcel Number	NRHP Status	Contributing Element of	Const. Date	Type of Impact
589-591 Howard Street/3736-098	1D	Second & Howard District & New Montgomery/Second Street	1906	Cut-and-cover construction nearby; <u>need easement</u>
163 Second Street/3721-048	1D		1907	Cut-and-cover construction nearby
<u>165-173 Second Street/3721-025</u>	<u>1D</u>		<u>1906</u>	<u>Cut-and-cover construction; need easement</u>
166-78 Townsend Street/3788-012	3D	Rincon Point/South Beach District & South End District	1910 [1] 1988 [2]	Cut-and-cover construction nearby. Need construction easement
640 Second Street/3788-002	252	Rincon Point/South Beach District & South End District	1926	Tunnel under or near property
650 Second Street/3788-049 through 3788-073	252		1922	
670-680 Second Street/3788-043, 3788-044	252 (670), 3D (680)		1913	
301-321 Brannan Street/3788-037	3D		1909	
130 Townsend Street/3788-008	3D		1910 [1] 1895-6 [2]	
136 Townsend Street/3788-009	3D		1902 [1] 1913 [2]	
144-46 Townsend Street/3788-009A	3D		1922	
148-54 Townsend Street/3788-010	3D		1922	
162-164 Townsend Street/3788-081	3D		1919	
Notes: National Register Status Codes are as follows: 1 Listed on the NRHP 2S1 Determined eligible for listing by the Keeper of the Register 2S2 Determined eligible for listing by the consensus of the SHPO and federal agency 1D Listed on the National Register as a contributor to a district or multi-resource property 2D2 Determined eligible as a contributor by consensus determination 3D Appears eligible as a contributor to a fully documented district [1] Caltrans, 1983, [2] Corbett and Bradley, 1996 Source: JRP Historical Consulting, Parsons Transportation Group, 2001				

MM CH-12 (amended). Updated recordation of affected properties upon consultation with State Historic Preservation Office (“SHPO”).

TJPA will take the effect of the Project on the ~~three~~ historic properties listed below into account by recording these properties in accordance with the terms herein set forth. These buildings are:

- 191 2nd Street (APN: 3721-022), and
- 580-586 Howard Street (APN: 3721-092 through 3721-106), ~~and~~
- ~~165-173 2nd Street (APN: 3721-025).~~

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.

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.

Mitigation Measure CH 13, which was previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level.

I. Impact C-CR-4. The Project, after implementation of mitigation, would not result in damage or destruction of previously unknown unique paleontological resources during construction-related activities.

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 similar, additional fossils. Therefore, construction activities involving ground disturbance could damage or destroy previously unknown, unique paleontological resources. These proposed project components include the widened throat structure, extended train box, the ventilation and emergency egress structures, the BART/Muni underground pedestrian connector, bicycle/controlled vehicle ramp, and the tunnel box stub.

New Mitigation Measure C-CR-4.1, which is hereby adopted and incorporated into the Project, would reduce this potentially significant impact to a less-than-significant level.

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:

- *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 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.*

J. Impact CU-CR-7. The Project, in combination with past, present, and reasonably foreseeable development, would not result in significant cumulative impacts on paleontological resources after implementation of mitigation.

Foreseeable development throughout the City, and particularly along the former waterfront, has the potential for ground disturbance. Such projects have the potential to encounter paleontological resources. Fossil discoveries resulting from excavation and earthmoving activities are occurring more frequently throughout California. Because the proposed project could result in discovery of fossilized remains, and because other similar construction activities throughout the Bay Area in areas with rock units that are of a sedimentary nature could also affect paleontological resources, there is potential for cumulatively adverse effects.

Implementation of New Mitigation Measure C-CR-4.1, set forth in the discussion of Impact C-CR-4 and adopted and incorporated into the Project above, would reduce the project-related impacts on paleontological resources by requiring TJPA to retain a qualified paleontologist to train all construction personnel before starting earth-moving activities; requiring construction crews to immediately cease ground-disturbing work in the vicinity of any find and notify the TJPA; and requiring TJPA to retain a qualified paleontologist to evaluate the resource and prepare a recovery plan. Therefore, the Project would not result in a cumulatively considerable contribution to this cumulative impact and the impact would be less than significant.

K. Impact C-BR-1: The Project, after implementation of mitigation, would not disturb nesting birds when buildings/structures with potential nesting habitat would be disturbed as part of an individual Project component and/or during removal of trees and shrubs during Project construction.

The Project construction activities have the potential to affect migratory and nesting birds at several locations within the Project area, including the ventilation structure at the realigned Fourth and Townsend Street Station, the IBF, AC Transit bus storage facility parking, and BART/Muni underground pedestrian connector. These areas are generally at Main and Howard Streets, along Townsend Street, in the vicinity of Second and Stillman Streets, and along Beale Street, respectively. These areas contain a number of mature trees that could serve as nesting habitat during the nesting and migratory bird seasons. In addition, temporary or permanent buildings and structures associated with the Project may be attractive as nesting habitat to certain migratory bird species.

Disruption of nesting birds is not permitted under the federal Migratory Bird Treaty Act (“MBTA”) or the California Fish and Game Code. The loss of any active nest (i.e., removing a tree or shrub or demolishing a building containing a nest) must be avoided under federal and state laws. The loss of an active nest would be considered a significant impact if that nest were occupied by a special-status bird species.

New Mitigation Measure C-BR-1.1, which is hereby adopted and incorporated into the Project, would reduce this potential impact to a less-than-significant level.

New-MM-C-BR-1.1. Require preconstruction bird surveys.

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.

L. Impact CU-BR-2. The Project, in combination with past, present, and reasonably foreseeable development, would not result in significant cumulative impacts on biological resources after implementation of mitigation.

The Project would require the removal of mature trees at several of the Project component sites. Cumulative effects could occur if construction associated with the Project were in proximity to that of other foreseeable development (within 250 feet) and construction schedules overlapped during the peak migration periods (mid-March to early June and late August through late October). Those specific development projects within 250 feet of the Project, as well as development that is anticipated to occur in accordance with the Transbay Program and the TCDP, in combination with the Project, could have a significant cumulative effect on nesting birds or their eggs.

Implementation of New-MM-C-BR-1.1, set forth in the discussion of Impact C-BR-1 and adopted and incorporated into the Project above, would reduce the project-related impacts on migratory and nesting birds to a less-than-significant level by requiring preconstruction bird surveys and prohibiting activities in no-work buffer zones that could harass birds or disrupt bird nesting. Cumulative projects that involve the removal of mature trees would be required to comply with local laws, the California Fish and Game Code, and the MBTA, as well as all applicable permitting requirements of the regulatory and oversight agencies regarding migratory birds, and Project-specific mitigation measures. Therefore, the Project would not result in a cumulatively considerable contribution to this cumulative impact and the impact would be less than significant.

M. Impact WQ-4. The Project, after implementation of mitigation, would not expose life or structures to substantial flood hazards or flooding.

The extended train box, ventilation and emergency egress structure at the Transit Center, IBF, and taxi staging area would be within the 500-year floodplain. These Project components, in addition to the Fourth and Townsend Street Station, could also be inundated by up to 6 feet of water by 2100, when taking into account worst-case, conservative sea-level rise assumptions and using a Mean Higher High Water (“MHHW”) tidal datum.

New Mitigation Measure WQ-4.1, set forth in the discussion of Impact CU-WQ-9 and adopted and incorporated into the Project above, would provide protection from the flood depths defined as 100 year base flood elevations plus 2 feet by requiring modification of DTX Design Criteria to avoid flood hazards. As a result, this impact would be reduced to a less-than-significant impact level.

N. Impact C-WQ-6. The Project, with continued implementation of previously adopted mitigation, would not violate water quality standards or waste discharge requirements during construction.

The Project would not involve substantial excavations that affect groundwater resources. With the exception of the additional trackwork south of the Caltrain railyard (i.e., the turnback track and MOW storage track), IBF, the taxi staging area, and the AC Transit bus storage facility parking, all of the Project components would be situated below or near the groundwater table. Therefore, construction for most of the Project components may require dewatering. The IBF, taxi staging area, and ACT transit bus storage parking, however, would be constructed at-grade and would involve minimal grading, so that groundwater dewatering is not expected to be needed during construction of those components. Mitigation Measures HMC 2 through HMC 7, which were previously adopted and incorporated into the Transbay Program, require appropriate handling of contaminated soil and groundwater, treatment of effluent produced during dewatering to reduce the sediment load and contaminants, designing dewatering to minimize downward migration of contaminants, and covering soils removed during excavation and grading. These measures would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level.

O. Impact CU-WQ-8. The Project, in combination with past, present, and reasonably foreseeable development, would not result in significant cumulative flood hazard impacts, after implementation of mitigation.

The Project, in combination with other cumulative projects, would be subject to flood hazards. This exposure to flood risks would indicate a cumulatively significant impact for development in this portion of the City.

The Project, in combination with other reasonably foreseeable projects, would result in a new potentially significant flooding impact not identified in the 2004 EIS/EIR. Implementation of New-MM-WQ-4.1, set forth in the discussion of Impact CU-WQ-9 and adopted and incorporated into the Project above, would reduce this project-related impact by requiring modification of DTX Design Criteria to avoid flood hazards; therefore, the Project would not result in a cumulatively considerable contribution to this cumulative impact and the impact would be less than significant.

P. Impact GE-1. The Project, with continued implementation of previously adopted mitigation, would not expose people or structures to strong seismic groundshaking during a major earthquake.

Potential impacts from groundshaking would be considered less than significant because all structural components would be designed and built in compliance with the prevailing building codes and standards (such as the CBC and American Society of Civil Engineers [ASCE] 7, the latter being a set of technical manuals for design loads for buildings and other structures). In addition, Mitigation Measures SG 2 (applying geotechnical and structural engineering principles and conventional construction techniques similar to the design and construction of high-rise buildings and tunnels) and SG 3 (design and construct structural components to resist strong ground motions approximating the defined maximum anticipated earthquake), which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level. Also, designers and builders would comply with the TJPA DTX Design Criteria, which includes specific chapters on seismic design and structural design.

Q. Impact GE-2. The Project would not expose people or structures to seismic-related ground failure, including liquefaction.

Ground failure associated with liquefaction, lateral spreading, and earthquake-induced spreading are possible results of earthquake-induced settlement. Based on the soil profile, approximately 6 to 12 inches of settlement and liquefaction throughout the project area may occur during a major earthquake. Potential impacts from seismic and non-seismic ground failure are considered less than significant because all structural components would be designed and built in conformance with applicable building codes and standards. Mitigation Measures SG 2, SG 3, and SG 5, previously identified in the 2004 EIS/EIR and adopted and incorporated into the Transbay Program, which address the potential for seismically induced and non-seismic ground failure impacts, and would continue to apply and would be implemented as part of the Project. In addition, designers and builders would be required through contractual obligations to comply with the TJPA DTX Design Criteria, which includes specific requirements related to geotechnical, seismic, and structural design, and protection of existing buildings.

Although impacts related to ground failure would be less than significant, New Improvement Measure GE-2.1, which is hereby adopted and incorporated into the Project, would further reduce this less-than-significant impact with techniques to augment the DTX Design Criteria.

New-I-GE-2.1. Augment DTX Design Criteria at the Extended Train Box, Transit Center Ventilation Structures, and any Above-Ground Structure or Facility.

The TJPA shall require the consideration of the following additional measures to reduce the risk of ground failure. The inclusion of these techniques shall be evaluated by the TJPA on a case-by-case basis, considering soil and ground conditions, overhead clearances, subsurface impediments, schedule effects, cost efficiencies, and other factors that the TJPA may deem important.

- *Vibro-replacement stone columns: A vibrator could be used to penetrate to the required depth by means of its weight, and vibrations and horizontal vibrations are generated at treatment depth with the use of eccentric weights that are rotated by electric motors; this is effective in reducing the liquefaction potential of sands and low-plasticity silt.*
- *Deep soil mixing: Soil is blended with cementitious and/or other reagent materials through the tips of the auger during auger penetration and removal to form continuous soil-cement columns.*
- *Grouting techniques (compaction, permeation, deep mixing, chemical, and jet grouting).*

Although the DTX Design Criteria and compliance with applicable codes are expected to reduce potential ground failure impacts from liquefaction to less than significant, these techniques would be adopted to augment the DTX Design Criteria to further reduce this less-than-significant impact.

R. Impact C-GE-4. During excavation, the Project, after implementation of mitigation, would not cause significant settlement for adjacent properties or create significant hazards for construction workers and the public.

The Project would require difficult excavation in areas with shallow bedrock and shallow groundwater, and could result in a potentially significant geological impact from settlement due to soil consolidation and lowering of water levels from construction dewatering. For excavations deeper than 25 to 30 feet below ground surface into Young Bay Mud, some heaving and base instability could occur at the extended train box and Transit Center ventilation structure sites.

Mitigation Measures SG 1 (monitor adjacent buildings for movement, and, if movement is detected, take immediate actions to control the movement), SG 2, SG 4 (underpin existing buildings to protect the structures from potential damage that could result from excessive ground movements during construction), and SG 5 (design and construct pile-supported foundations to minimize non-seismic settlement in areas susceptible to potential settlement), which were previously adopted and incorporated into the Transbay Program, would continue to apply, and would be implemented and monitored as part of the Project revisions, and in combination with New Mitigation Measure C-GE-4.1, which is hereby adopted and incorporated into the Project, would reduce this potentially significant impact to a less-than-significant level. All structural components would be designed and built in agreement with the prevailing building codes and standards (such as CBC or ASCE 7). Also, designers and builders would comply with the TJPA DTX Design Criteria, which includes specific chapters on geotechnical, seismic design, structural, and protection of existing buildings.

New MM-C-GE-4.1. Groundwater Control during Construction.

Groundwater control shall be implemented to reduce ground instability in the construction area, where excavations encroach into the prevailing groundwater table.

- *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. The groundwater level outside of the excavation footprint shall remain unchanged.*
- *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 located in the portal area.*
- *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.*

S. Impact HZ-1. The Project, with continued implementation of previously adopted mitigation, 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 use of backup emergency generators at the ventilation structures would involve the use of diesel fuel, stored in above-ground storage tanks. Similarly, the possible fueling of Greyhound, Amtrak, and other intercity buses at the IBF would involve underground storage tanks to store the fuels, and regular refilling of these tanks. The periodic delivery of diesel fuel to fill the storage tanks at these Project components may create accidental fuel releases on the road or on-site. Transportation of hazardous materials such as diesel fuel is regulated by the California Highway Patrol and the California Department of Transportation and would apply to the Project. Even though these safeguards are in place, accidental releases during the unloading of diesel fuel or due to other equipment or maintenance failure at the proposed sites could result in an inadvertent spill or release. Depending on the amount released, this accidental release could adversely affect the public and/or the environment, including schools within a 0.25-mile radius of Project components.

Mitigation Measures HWO 1 through HWO 7, which were previously adopted and incorporated into the Transbay Program to reduce potential operational impacts from the routine transport, use, disposal, or accidental release of hazardous materials or wastes, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level.

- T. Impact HZ-2. The Project, with continued implementation of previously adopted mitigation, would not create a significant long-term operational hazard to the public or the environment through exposure to existing hazardous materials contamination.**

Although there is known contamination in the soils and groundwater at and near certain Project components, compliance with the requirements and regulations to clean the site for construction worker and public safety prior to Project operations means that there would be no long-term operational exposure to environmentally contaminated sites post-construction that could pose a risk to the public or the environment. In addition, Mitigation Measures HMC 2, HMC 5, HMC 6, HMC 7, and HMC 8, which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level. These measures require developing a sampling plan, chemical testing of groundwater samples to evaluate requirements for pretreatment prior to discharge, developing a mitigation plan for handling contaminated soil and groundwater prior to construction, designing dewatering systems to minimize downward migration of contaminants, and developing a Worker Health and Safety Plan.

- U. Impact C-HZ-4. Ground-disturbing and excavation activities associated with construction of the Project could enable contaminated materials from nearby hazardous sites to migrate to the Project construction areas; however, with continued implementation of previously adopted mitigation, Project construction would not expose construction workers, the public, or the environment to hazardous materials.**

Nearby upgradient sites with contaminated groundwater could affect Project components where excavation is involved. Many of the Project components overlie shallow groundwater and would require dewatering, which could lead to discovery of contaminated materials. During Project construction, workers could be exposed to soil and/or groundwater containing hazardous substances. The public and environment could be exposed to contaminants that are transported off-site during construction.

Mitigation Measures HMC 1 through HMC 8, which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level. These measures require following Cal/OSHA and local standards, developing a sampling plan, chemical testing of groundwater samples to evaluate requirements for pretreatment prior to discharge, developing a mitigation plan for handling contaminated soil and groundwater prior to construction, designing dewatering systems to minimize downward migration of contaminants, and developing a Worker Health and Safety Plan.

- V. Impact C-HZ-5. Demolition or construction activities associated with the Project could release hazardous building materials; however, with continued implementation of previously adopted mitigation and compliance with existing regulations, Project construction would not expose construction workers, the public or the environment to these types of hazardous materials, including possible asbestos-containing materials and lead-based paints.**

The Project would involve both demolition of existing facilities and construction of new structures. Structures constructed prior to 1981 may contain asbestos, and structures painted prior to 1978 may have lead-based or lead-containing paint. These buildings may also contain electrical components that contain PCBs and mercury. Improper handling could expose construction workers, the public, and the environment to these hazardous materials.

Cal/OSHA and BAAQMD regulate handling and disposal of asbestos, and contractors are required to comply with these regulations. In addition, Mitigation Measures HMC 9 and HMC 10, which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing potential construction impacts related to ACM and lead-based paint to a less-than-significant level. These measures require performing asbestos and lead-based-paint surveys of buildings to be demolished, followed by abatement prior to demolition.

W. Impact C-HZ-6. The Project, in combination with past, present and reasonably foreseeable development, would not result in significant cumulative hazardous materials impacts, after continued implementation of previously adopted mitigation.

Construction and demolition activities would include use of a variety of diesel-powered equipment, including cranes and excavators. Hazardous materials such as diesel fuel, lubricants, paint, hydraulic fluids, cleaning solvents, and other construction-related materials would be transported and used on-site during construction. These materials could accidentally be released from construction trucks and equipment. Accidental releases or spills of hazardous material at the Project component sites and at staging areas could create a health risk for construction workers and the public, and could degrade the environment.

Mitigation Measures HMC 1 through HMC 8, which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing the potential cumulatively considerable contribution to cumulative construction impacts, related to the use of hazardous materials during construction, to a less-than-significant level.

X. Impact EF-1. The Project, after implementation of mitigation, would not result in EMF health risks or EMI impacts.

Construction of the additional trackwork south of the Caltrain railyard would require moving the overhead catenary system (“OCS”) further east, in closer proximity to existing medical facilities (i.e., the University of California San Francisco campus at Mission Bay adjacent to Interstate 280 and 16th Street). Moving the OCS could result in electromagnetic interference (“EMI”) that could interfere with sensitive medical and/or research electronic equipment, even though magnetic fields outside the Caltrain right-of-way would be minor in comparison with background concentrations and these fields decrease rapidly with distance. Although impacts related to electromagnetic field (“EMF”) generation and exposure would not be adverse and would be less than significant, impacts related to EMI could be potentially significant if there are nearby sensitive receptors where sensitive equipment may be located.

New Mitigation Measure EF-1.1, which is hereby adopted and incorporated into the Project, would reduce this impact to a less-than-significant level.

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:

- *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 avoid disruption of sensitive equipment prior to testing and commissioning of the proposed project.*
- *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.*

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:

- *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*
- *design modifications to place EMF from the OCS further away or higher up.*

Y. Impact NO-1. The Project would not generate operational noise impacts after implementation of mitigation to reduce noise from ventilation structures near residential uses.

Based on FTA screening criteria, the ventilation structures may substantially increase ambient noise levels at adjacent residential uses. Potential noise associated with ventilation systems would include pass-by noise from trains transmitted through ventilation shafts to the street, normal fan operation, and testing of the emergency ventilation fans, which would include emergency generators associated with them. The emergency generators would typically be located on the roof and only used for a short duration during testing. Air/intake shaft mechanical equipment would be limited to a damper that opens whenever the tunnel ventilation fans operate and closes upon fan shutdown.

Without acoustic treatment or design, ventilation shaft noise levels would range from approximately 60 to 70 dBA at a distance of approximately 30 feet from the shaft gratings. At properties adjacent to the ventilation structures, noise levels would exceed the APTA recommended noise levels of 60 dBA for high-density residential areas.

New Mitigation Measure NO-1.1, which is hereby adopted and incorporated into the Project, would ensure that ventilation shaft noise levels do not exceed the APTA recommended noise level of 60 dBA for ancillary facilities in high-density residential areas, thereby reducing this impact to a less-than-significant level.

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.

Z. Impact C-NO-4. The Project would not result in construction vibration impacts, because this potential effect would be avoided in accordance with the 2004 MOA with SHPO that includes previously approved preconstruction measures that will be implemented for the Transbay Program.

The historic building on the property located at 589 Howard Street is a five-story structure with a one-story basement, and the historic building at 171 Second Street is a six-story structure. Already approved measures in the 2004 MOA with the SHPO would require preconstruction and construction measures to protect these two buildings. As a result, the proposed project would not have an adverse effect/significant impact. The widened throat structure would pass under both buildings, and the construction process would include installing two large-diameter piles under the buildings and an underpinning beam spanning the piles. The piles and the beam would support the buildings while cut-and-cover construction occurs below. It is anticipated that construction activities have the potential to generate vibration levels that exceed the FTA impact criteria based on the proximity of the buildings to construction equipment and the type of heavy-duty equipment anticipated to be necessary to complete the underpinning. In addition, the Project would involve construction activities that would result in noise and vibration effects that would be managed and limited through Mitigation Measures VibC 1 through 6, which were previously adopted and incorporated into the Transbay Program, and would continue to apply and would be implemented as part of the Project revisions.

Mitigation Measures VibC 1 through 6 would reduce these project-related impacts; therefore, this impact would be less than significant.

AA. Impact CU-NO-5. The Project, in combination with past, present, and reasonably foreseeable development, would not result in significant cumulative noise or vibration impacts after implementation of mitigation.

The Transbay Program, TCDP, and Central SoMa Plan areas are experiencing ongoing construction activities that contribute to noise and vibration impacts in the vicinity of the Project. Therefore, it is likely that multiple projects would be under construction at the same time in the Project area, but construction would typically occur during daytime hours or with the addition of previously adopted noise-control measures to stay within required noise limits, and would be temporary. The Project would involve construction activities that would result in noise and vibration effects that would be managed and limited through Mitigation Measures NoiO 1 through 3, VibO 1, NoiC 1 through 6, and VibC 1 through 6, which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented as part of the Project revisions.

Mitigation Measures NoiO 1 through 3, VibO 1, NoiC 1 through 6, and VibC 1 through 6 would reduce these project-related impacts; therefore, the Project would not result in a cumulatively considerable contribution to this cumulative impact and the impact would be less than significant.

BB. Impact AQ-3. The Project would not expose sensitive receptors to substantial pollutant concentrations after implementation of mitigation to reduce operational emissions of diesel particulate matter and other toxic air contaminants near residential uses.

An emergency diesel generator would be installed at one end of the Temporary Terminal to operate critical terminal functions. Emergency generators are regulated by the Bay Area Air Quality Management District (“BAAQMD”) through its New Source Review permitting process. Although emergency generators are intended to be used only during periods of power outages, monthly testing of the generators would be required. The BAAQMD limits testing to no more than 50 hours per year. Additionally, as part of the permitting process, the BAAQMD limits the excess cancer risk from any facility to no more than 10 excess cancer cases per 1 million population, and requires any source that would result in an excess cancer risk greater than 10 per 1 million population to install Best Available Control Technology for Toxics. Because the permitting process has not been initiated and the site-specific risk has not been estimated, this analysis assumes that the emergency back-up generators have the potential to expose sensitive receptors to concentrations of diesel emissions.

The Project could also expose new and existing sensitive land uses to increased pollutant concentrations. The Project would potentially include the development of residential units above the IBF, and residential units could be combined with ventilation structures at two other locations at Second and Harrison Streets and at Third and Townsend Streets. These future development sites would be located in an urban environment that contains high roadway volumes with existing sources of PM_{2.5}, DPM, and carcinogenic compounds from Interstate 80, Interstate 280, and waterfront activities.

Implementation of New Mitigation Measure AQ-3.1 and New Mitigation Measure AQ-3.2, which are hereby adopted and incorporated into the Project, would reduce the potentially significant air quality impacts relating to exposure of receptors to substantial emissions from emergency generators, the IBF, and ventilation structures to a less-than-significant level.

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.

New-MM-AQ-3.2. Require and Implement Ventilation Plans for Proposed Residential Land Development.

For residential development on the intercity bus facility or ventilation structure sites, the project sponsor shall comply with the following measures:

- a. Air Filtration and Ventilation Requirements. 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.*
- b. Maintenance Plan. Prior to receipt of any building permit, the project sponsor shall present a plan that ensures ongoing maintenance for the ventilation and filtration systems.*
- c. Disclosure to Buyers and Renters. 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.*

CC. Impact C-AQ-5. Construction activity, after implementation of mitigation, would generate regional emissions of criteria pollutants and ozone precursors which would be less than the applicable standards for each pollutant.

Construction activities would generate air emissions from various sources, including heavy-duty equipment engines, truck engines, and worker commute vehicles. Unmitigated emissions could exceed the significance thresholds established by the BAAQMD for NOx. The majority of NOx emissions would be attributed to activities of heavy-duty construction equipment such as cranes and excavators. The high level of NOx emissions would be due to construction activities that could occur concurrently at the various proposed Project component sites.

New Mitigation Measure C-AQ-5.1, which is hereby adopted and incorporated into the Project, would require preparation and implementation of an emissions control plan.

Both EPA and the State of California set emissions standards for new off-road equipment engines, ranging from Tier 1 to Tier 4. To meet the Tier 4 emissions standards, engine manufacturers are required to produce new engines with advanced emissions-control technologies similar to those already expected for highway trucks and buses. Exhaust emissions from these engines will decrease by more than 90 percent. The use of engines that meet or exceed either EPA or CARB Tier 2 off-road emissions standards, and engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control

Strategy (“VDECS”), in combination with Tier 4 diesel construction equipment to meet the BAAQMD construction emissions standards, would reduce exposure construction emissions to a less-than-significant level. In addition, construction emissions could be lowered if newer, less-powerful, or smaller diesel equipment is used than assumed in this analysis. With implementation of New Mitigation Measure C-AQ-5.1 in addition to the use of Tier 4 equipment that further reduce PM10, hydrocarbons, and NOx emissions, impacts would be reduced to a less-than-significant level.

New-MM-C-AQ-5.1. Prepare and Implement an Emissions Plan.

The TJPA shall comply with the following measures to reduce construction emissions:

- A. Construction Emissions Minimization Plan. 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:*
 - 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:*
 - a. Where alternative sources of power are available, portable diesel engines shall be prohibited.*
 - b. All off-road equipment shall have the following:*
 - 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:*
 - 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.*

Off-Road Equipment Compliance Step-Down Schedule		
<u>Compliance Alternative</u>	<u>Engine Emissions Standard</u>	<u>Emissions Control</u>
<u>1</u>	<u>Tier 2</u>	<u>CARB Level 2 VDECS</u>
<u>2</u>	<u>Tier 2</u>	<u>CARB Level 1 VDECS</u>
<u>3</u>	<u>Tier 2</u>	<u>Alternative Fuel (Not a VDEC)</u>
<i>Notes:</i>		
<i>CARB = California Air Resources Board; VDECS = Verified Diesel Emissions Control Strategy</i>		
<i>Source: data compiled by AECOM in 2014</i>		

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.

2. 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.
 3. The TJPA shall require that construction operators properly maintain and tune equipment in accordance with manufacturer specifications.
 4. 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.
 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.
- B. Reporting. 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.

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.

- C. *Certification Statement and On-Site Requirements. 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.*

DD. Impact C-AQ-6. Construction activities, after implementation of mitigation, would not generate toxic air contaminants, including diesel particulate matter, which would expose sensitive receptors to increased pollutant concentrations.

Construction activity would generate exhaust emissions that could increase TAC concentrations at sensitive land uses. The majority of construction activities would be located in areas that have been identified by the City as air pollution hotspots. Within air pollution hotspots, construction activities may adversely affect populations that are already at a higher risk for adverse long-term health risks, such as residences, from existing sources of air pollution. The City has established a standard mitigation measure to reduce exposure to the greatest extent feasible.

Implementation of New Mitigation Measure C-AQ-5.1, set forth in the discussion of Impact C-AQ-5 and adopted and incorporated into the Project above, would result in the maximum feasible reduction of diesel particulate matter (“DPM”) emissions. Furthermore, the use of Tier 4 diesel construction equipment or Tier 2/Tier 3 equipment with Level 3 VDECS would reduce exposure to a level that would not exceed any of the significance thresholds identified by the BAAQMD. Also, construction emissions could be lower if newer equipment is employed or less-powerful or smaller diesel equipment is used than assumed in this analysis. With implementation of the mitigation, there would not be a significant long-term health impact or short-term acute or chronic health risk. This impact would be less than significant with mitigation.

EE. Impact CU-AQ-8. Construction of the Project, in combination with past, present, and reasonably foreseeable development, would not result in significant cumulative air quality impacts after implementation of mitigation.

On a local level, receptors in the TCDP, Transbay Redevelopment Plan, Central SoMa, and Mission Bay North areas already experience ongoing construction activities that contribute to air quality impacts in the vicinity of the Project. Cumulatively, construction of these projects emits ROG, NOx, particulate matter, and TACs (notably DPM). It is reasonable to expect that construction emissions from related development would overlap and generate cumulate emissions combined with those from the proposed project and the DTX.

Compliance with City regulations, particularly the San Francisco Construction Dust Control Ordinance and San Francisco Health Code Clean Construction Ordinance, would mitigate these emissions and allow the region to attain air quality standards. In addition, New Mitigation Measure C-AQ-5.1 (equip diesel generators with applicable tiered emissions standards), New Mitigation Measure AQ-3.1 (prepare and implement an emissions plan), and New Mitigation Measure AQ-3.2 (require and implement ventilation plans for proposed residential land development), set forth in the discussion of Impact AQ-3 and Impact C-AQ-5 and adopted and incorporated into the Project above, would apply to the Project as

well as other construction projects in the City that exceed the BAAQMD construction thresholds of significance.

Implementation of New-MM-AQ-3.1, New-MM-AQ-3.2, and New-MM-C-AQ-5.1 would reduce this project-related impact; therefore, the Project would not result in a cumulatively considerable contribution to this cumulative impact and the impact would be less than significant.

FF. Impact PS-1. The Project, with continued implementation of previously adopted mitigation, 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 order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, and emergency services.

The Project would involve changes to the Transit Center access locations because of the IBF, the bicycle/controlled vehicle ramp, and the underground pedestrian connector. These facilities would enhance intraregional and interregional transit connections that would attract additional passengers to the Transit Center. The incremental amount of passenger traffic due to the Project revisions would be expected to increase demand for police, fire, and emergency services in the proposed project area; however, compared to the overall anticipated traffic associated with the entire approved Transbay Program, the new demand associated with these proposed project components would be minor. Mitigation Measure Saf 3, which was previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level.

The potential land development that could be co-located with the IBF and with the ventilation structures at Third and Townsend Streets and at Second and Harrison Streets would result in an increased call for police, fire, or emergency services. Residential uses could be developed at all three locations, potentially resulting in up to 292 dwelling units with an associated demand for public services. This Project component would be served by the same services and from the same facilities that already exist in the area, meaning the potential increase in demand for police, fire and emergency medical services as a result of the Project revisions will not require new or physically altered police, fire or emergency medical facilities. Mitigation Measures Saf 1, Saf 2, and Saf 3, which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level. As required by Mitigation Measure Saf 1, the TJPA will provide project plans to the SFFD to ensure that adequate life safety measures and emergency access are incorporated into the design and construction of the Project.

GG. Impact C-PS-3. Construction of the Project, with continued implementation of previously adopted mitigation and DTX Design Criteria, would not result in temporary effects on emergency response and would not interfere with access to parks and community facilities.

Phase 1 of the Transbay Program, recently completed, involved traffic diversions and alterations to street access. Accordingly, much of the public is familiar with the existing conditions in the construction area, and local agencies providing police, fire, and emergency services are already in communication with the TJPA to coordinate necessary traffic and safety measures. Mitigation Measure PC 7, which was previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level. The DTX Design Criteria, which include preparation and implementation of a construction management plan consistent with the City's regulations, would also

apply. The DTX Design Criteria, developed by the TJPA for use in the design and construction of DTX-related facilities, includes a section specifically devoted to the maintenance and protection of traffic. The traffic plan would set forth guidelines and standards for road closures, pedestrian and bicyclist detours, access to businesses and residences and for emergency response vehicles, temporary traffic controls, and signage.

Access to other businesses and community facilities would be maintained throughout construction to the extent feasible. Mitigation Measures NoiC 1 (compliance with the City noise ordinance), NoiC 4, PC 5, PC 6 (implementation of an active community liaison program to inform residents of construction plans), NoiC 5 (requiring contractors to employ best management practices that include performing construction in a manner to maintain noise levels at noise sensitive land uses below specific limits), PC 2 (requiring contact with local businesses to understand how they carry out their work to minimize effects on business usage), PC 7, and AC 2 through AC 13 (requiring implementation of construction best management practices to reduce air emissions, and imposing restrictions on construction equipment that reduce air emissions and odors), which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing potential disruption to community facilities to a less-than-significant level.

HH. Impact CU-PS-5. Construction of the Project, in combination with reasonably foreseeable development, would not result in significant cumulative impacts related to public services, community services, and recreational facilities, after continued implementation of previously adopted mitigation.

Construction of the Project would occur over approximately 4-1/2 years and would be concurrent with other construction activities in the Project area. The cumulative effect of street closures, detours, truck movements, and air and noise emissions from construction equipment, without mitigation, would substantially alter emergency response in and through the area, and disrupt activities and programs offered by the varied community facilities. Although the Project, in conjunction with construction of other reasonably foreseeable projects, would disrupt traffic during construction, the SFPD, SFFD, and other emergency services are expected to be able to continue operating at their current capacity in the Project area without substantially altering response times or performance measures, with implementation of Mitigation Measure PC 7, which was previously adopted and incorporated into the Transbay Program. Mitigation Measure PC-7 would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing the potential cumulatively considerable contribution to this cumulative impact to a less-than-significant level.

The construction activity locations and processes, and the type of construction equipment used for the Project, would not change significantly from the assumptions used in the 2004 FEIS/EIR. Although these construction effects may occur near public facilities such as parks, schools, or other community and recreation facilities, these effects would be minor and temporary. Mitigation Measures NoiC 1, NoiC 4, NoiC 5, PC 2, PC 5, PC 6, PC 7, and AC2 through AC 13, which were previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing the potential cumulatively considerable contribution to this cumulative impact to a less-than-significant level.

II. Impact C-UT-7. The Project, with continued implementation of previously adopted mitigation, would not adversely impact underground utilities during construction that could result in possible disruption of service to customers.

Project components that involve underground construction activities could affect existing underground utilities. These Project components include the widened throat structure, the extended train box, the ventilation structures, the BART/Muni underground pedestrian connector, the realigned Fourth and Townsend Street Station, and possibly the tunnel stub box. By contrast, the trackwork south of the Caltrain railyard, IBF, the taxi staging area around the Transit Center, and the AC Transit bus storage parking area would involve principally at-grade construction or pavement modifications. Construction of these Project components would not have the potential to interfere with below-grade utilities. Project components that involve below-ground construction could require utility relocations, both temporary and permanent, that could result in a potentially significant impact if service for customers were interrupted. Mitigation Measure Util 1 (requiring coordination with utility providers to minimize disruption to customers and avoid adverse construction-related utility effects), which was previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby reducing this impact to a less-than-significant level.

VIII. LESS-THAN-SIGNIFICANT IMPACTS FOR WHICH MITIGATION OR IMPROVEMENT MEASURES, ALTHOUGH NOT REQUIRED, WILL BE INCORPORATED AS PART OF THE PROJECT

The SEIS/EIR identifies less-than-significant impacts of the Project, including those described below. Mitigation to further reduce less-than-significant impacts is not required by CEQA; however, the SEIS/EIR also identifies “improvement measures” to further reduce the following less-than-significant impacts.

A. Impact GE-3. The Project would be located on expansive soils; however, compliance with design standards and performance specifications would reduce risks to life or property.

Soils that shrink and swell with changes in moisture content have the potential to damage structures and pavements that are constructed on them. Such soils might exist beneath parts of the ventilation structure at Second and Harrison Streets and the AC Transit bus storage facility parking and have the potential for causing differential settlement and pavement cracking.

The TJPA has completed a number of geotechnical studies in response to the complexity and variability of the terrain conditions that would be traversed by the DTX and in the vicinity of the Project components. These analyses contain recommendations for geotechnical parameters for the design of permanent structures, including lateral earth and water pressure criteria, resistance to uplift pressures, foundation support, and estimates of potential settlements. Compliance with building codes (the CBC specifically addresses expansive soils and other soils that pose constructability issues) and the DTX Design Criteria would mitigate potential impacts from expansive soils to acceptable engineering standards, and impacts would be considered less than significant.

Although the potential impact related to expansive soils would be less than significant, New Improvement Measure GE-3.1, which is hereby adopted and incorporated into the Project, would further reduce this less-than-significant impact and augment the DTX Design Criteria.

New-I-GE-3.1. Address Expansive Soils at the Ventilation Structure at Second and Harrison Streets and the AC Transit Bus Storage Facility Parking Sites.

The TJPA shall require the consideration of the following additional measures to address expansive soils. The inclusion of these techniques shall be evaluated by the TJPA on a case-by-case basis, considering soil and ground conditions, schedule effects, cost efficiencies, and other factors that the TJPA may deem important.

- *Replace expansive soils with non-expansive soils: Expansive soils can be excavated and replaced with non-expansive materials.*
- *Treat expansive soils: Expansive soils may be treated in place by mixing them with lime or cement. Lime treatment alters the chemical composition of the expansive clay minerals such that the soil becomes non-expansive. Cement treatment also alters the chemical composition of the expansive clay minerals such that the soil becomes non-expansive by forming a lean cement mixture beneath the pavement base.*

B. Impact NO-2. The Project would not generate operational vibration impacts.

The greatest potential for increased vibration from the Project would be associated with the widened throat structure and extended train box, both designed to accommodate high-speed trains. The widened throat structure would extend rail tracks underneath the historic structures at 589 Howard Street and 171 Second Street. It is anticipated that operating speeds of trains would be 22 miles per hour at a depth of 60 to 65 feet. Using the FTA guidelines, anticipated vibration levels were compared to the impact criteria in the SEIS/EIR for interference with business activities (i.e., annoyance). Operational ground-borne vibration and noise levels would be approximately 70 VdB and 35 dBA, respectively, at the basement of 589 Howard Street and building foundations for 171 Second Street. These levels would be less than the damage and annoyance impact criteria established by the FTA for historic structures and office/commercial uses. Rubber-tired vehicles rarely generate perceptible vibration. The IBF would have a number of buses using the facility, but they would not be a substantial vibration source. The other Project components would also not be substantial sources of vibration (e.g., ventilation structures and taxi staging area).

Although not required to reduce this less-than-significant impact, Mitigation Measure VibO 1, which was previously adopted and incorporated into the Transbay Program, would continue to apply and would be implemented and monitored as part of the Project revisions, thereby further reducing the level of this impact.

IX. IMPACTS IDENTIFIED IN THE SEIS/EIR FOR WHICH A DETERMINATION OF SIGNIFICANCE, AND MITIGATION, ARE NOT REQUIRED UNDER CEQA, BUT NONETHELESS WERE DETERMINED TO BE LESS THAN SIGNIFICANT AFTER IMPLEMENTATION OF MITIGATION.

The SEIS/EIR analyzed Socioeconomic and Population and Housing Impacts in Section 3.4. As discussed on page 3.4-14 of the Draft SEIS/EIR, a “significant effect on the environment” as defined in CEQA is a substantial or potentially substantial adverse change in the physical conditions within the area affected by the project. An economic or social change, by itself, “shall not be considered a “significant effect on the environment;” however, a social or economic change related to a physical change may be considered in determining whether a physical change is significant. CEQA Guidelines § 15182; *see also* CEQA Guidelines § 15064(e). Section XIII of CEQA Guidelines Appendix G identifies three potential impacts related to population and housing: (a) inducing substantial growth, which is discussed in Section

X of these Findings, below; (b) displacing substantial numbers of existing housing, necessitating construction of replacement housing elsewhere; and (c) displacing substantial numbers of people, necessitating construction of replacement housing elsewhere. Accordingly, the first two thresholds of significance listed on page 3.4-14 of the Draft SEIS/EIR (CEQA Guidelines Appendix G, Section XIII.b) and .c)) are the CEQA thresholds used in Section 3.4 of the Draft SEIS/EIR.

Impact SE-1, discussed in Section VII.E of these Findings, above, analyzes the impacts of the Project pursuant to the thresholds listed in Appendix G, Section XIII (b) and (c).⁷ Impacts SE-2, SE-3 and CU-SE-7 concern socioeconomic impacts that were determined to have no effect (i.e., to be less than significant) under NEPA, and that do not involve physical effects on the environment; therefore, they are not discussed further in these Findings. Impact C-SE-6 is discussed in Section VII.F of these Findings, above, to the extent it would result in social or economic change related to a physical change. Although Impact SE-4 is not a CEQA impact, it is discussed below because the continued implementation of previously adopted mitigation measures would reduce its effect to a less-than-significant level. Impact SE-5 (The proposed project would not disproportionately affect children), which is an analysis that is required under federal Executive Order No. 13045, is not a physical effect on the environment as defined by CEQA.

A. Impact SE-4. The Project, with continued implementation of previously adopted mitigation, would not result in adverse impacts on transit-dependent populations, including people with disabilities, children, the elderly, and households without a vehicle, or on low English language proficiency populations.

The Project includes components to make transit more accessible to the transit users in the study area. Project components such as the bicycle parking facility, the underground pedestrian connector, taxi staging area, and IBF would increase the accessibility to mass transit for those populations that are transit dependent. All Project components would be required to comply with the American with Disabilities Act, which would ensure accessibility to people with disabilities. Elderly people and youth who have limited mobility would benefit from the Project by having a continuous connection between the Caltrain terminus and downtown San Francisco by way of the DTX and through improved connections to other bus and rail transit services. More convenient travel to other destinations in the State would also become possible with future HSR service that would be made possible by the proposed project. The taxi staging area and bicycle parking facility would benefit households without vehicles by increasing transit options and making it easier to travel within the City without a personal vehicle.

The low English language proficiency (LEP) population would not be affected by the Project to a greater degree than populations that are more proficient in the English language. The Project would not change any existing conditions for the LEP population and therefore would have no long-term impacts. There may be temporary construction impacts to this population due to temporary detours or street closures; however, Mitigation Measure PC 6, which was previously adopted and incorporated into the Transbay Program, would require an information phone line that would be available in languages other than English and would continue to apply and would be implemented as part of the Project. As a result, the LEP population would not be affected to a greater degree than any other population. While there would be impacts to the LEP population during construction, it would be temporary in nature and therefore not an adverse impact.

⁷ Impact SE-1 also discusses impacts to businesses; however, this is not a physical effect on the environment under CEQA.

B. Impact VQ-2. The Project, with continued implementation of previously adopted mitigation, would not substantially degrade the existing visual character or quality of the site and its surroundings.

The Project would introduce new elements into the urban environment, which could involve changes to urban form and the scale of development. The impacts of the Project components would be less than significant, because the new Project components would be compatible with the visual quality, character, and scale of existing development. The potential future development associated with the vent structure sites and the Intercity Bus Facility site would be infill located within a transit priority area, as defined in Public Resources Code section 21099 (SB 743); therefore, no significance conclusion concerning aesthetics or visual quality is required for those Project components. In addition, implementation of Mitigation Measure VA 2, which was previously adopted and incorporated into the Transbay Program to minimize the aesthetic and visual effects of construction, would continue to apply and would be implemented and monitored as part of the Project revisions, and would minimize the aesthetic and visual effects of construction.

C. Impact VQ-3. The Project, with continued implementation of previously adopted mitigation, would not create a new source of substantial light or glare.

The Project would introduce new elements into the urban environment, which could involve changes to ambient light and glare. The impacts of the Project components would be less than significant, because the new Project components would be required to comply with Planning Commission Resolution No. 9212 governing prohibiting the use of mirrored or reflective glass and other applicable standards, and would not introduce external lighting that is out of the ordinary for urban environments. The potential future development associated with the vent structure sites and the Intercity Bus Facility site would be infill located within a transit priority area, as defined in Public Resources Code section 21099 (SB 743); therefore, no significance conclusion related to aesthetics or visual quality is required for those Project components. In addition, implementation of Mitigation Measure VA 1, which was previously adopted and incorporated into the Transbay Program to reduce impacts from spillover light and glare during construction, would continue to apply and would be implemented and monitored as part of the Project revisions, and would reduce spillover light and glare during construction.

X. GROWTH INDUCING IMPACTS

CEQA requires that an EIR, including an SEIR, evaluate the growth-inducing impacts of a proposed project. (Pub. Resources Code § 21100[b][5].) Growth-inducing impacts are the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. (CEQA Guidelines § 15126.2(d).) Growth-inducement itself is not an environmental effect, but it may lead to environmental effects.

The approved Transbay Program, with the proposed Project changes, is planned to serve transit needs, enable HSR service to the Transit Center, enhance connectivity between transit systems, and facilitate planned growth on underutilized properties in downtown San Francisco. Although the approved Transbay Program and proposed project would serve regional and corridor-wide growth and travel demands, it also is reasonable to expect that new development, in addition to that already planned or proposed, could be fostered by improved transit services and accessibility to the Caltrain and HSR systems.

Implementation of the Project components are not expected to induce growth beyond the growth that was analyzed in the 2004 EIS/EIR and the 2012 TCDP EIR, and is analyzed in the Central SoMa EIR, which was certified in May 2018. The Project would include construction and operation of new

Project components that are refinements to the approved Transbay Program, other transportation improvements that enhance local and regional connectivity, and land development co-located with several of the transportation facilities. As explained in Section 3.1 of the Final SEIS/EIR, the land development associated with the ventilation structure sites and IBF meets the definition of a mixed-use residential, residential, or employment center infill project in a transit priority area under SB 743. Therefore, aesthetic impacts of these uses are not considered impacts on the environment.

The potential adjacent land development would be considered transit oriented, and the sites' proximity to the Transit Center and the Fourth and Townsend Street Station would provide incentives for occupants to walk or bicycle. The Project components would facilitate and enable Caltrain and HSR to reach the San Francisco downtown retail, office, and financial district core, and could have a growth-inducing effect by accelerating planned development in the area. These new transportation facilities and additional development potential would continue to promote the creation of a new neighborhood that is emerging in the South of Market area, with a focused concentration within the Central SoMa and TCDP areas and around the new Transit Center.

This change in the land use pattern and population/employment density is consistent with and encouraged by the City's adopted plan for the area around the Transit Center, to help shape and define the character and intensity of the area. The TCDP explicitly encourages and plans for growth that would benefit from the Transbay Program. Accordingly, the Project would not induce growth that would be inconsistent with or exceed the development plans or population/employment forecasts for the Project area. The secondary effects of the Transit Center District Plan were evaluated as part of the TCDP EIR. The Central SoMa Plan also encourages transit-oriented growth with goals and policies that address land use, building size and heights, transportation, public realm, preservation of historic buildings, and environmental sustainability. Rezoning of the land use in the Central SoMa Plan area is intended to increase the amount of allowable development and to specifically allow more job growth.

XI. ALTERNATIVES

For the reasons stated below and as set forth in full in Chapter 2 of the Final EIS/EIR, the SEIS/EIR analyzes two alternatives: the Project (proposed refinements to Phase 2 of the Transbay Program), and the No Action Alternative (construction of Phase 2 of the Transbay Program as previously approved). The SEIS/EIR examined the environmental impacts and feasibility of the alternatives, as well as the ability of the alternatives to meet project objectives. The project objectives and the description of the alternatives, including the project description, are described in detail in Chapters 1 and 2 of the December 2015 Draft SEIS/EIR, as revised by the Final SEIS/EIR. The potentially significant environmental effects of implementing the Project are analyzed in Chapter 3, including a discussion of significant environmental effects resulting from the Project and mitigation measures identified to substantially lessen or avoid these effects.

The Transbay Program was approved in 2004 following certification of the 2004 EIS/EIR. Two alternatives to each of the three major Transbay Program components were analyzed in the 2004 EIS/EIR. These included the Transbay Terminal West Ramp alternative and Transbay Terminal Loop Ramp alternative, to the program's Transbay Terminal Component; the Second-to-Main Caltrain Extension alternative and Second-to-Mission Caltrain Extension alternative, to the program's DTX component; and the Full Build alternative and Reduced Scope alternative to the program's Redevelopment Plan component. The 2004 EIS/EIR also included a No Project Alternative. Other potential alternatives were considered but rejected as infeasible during the scoping process.

The No Action Alternative in the SEIS/EIR consists of the previously approved Transbay Program, as revised by refinements approved through 2011. Because Phase 1 of the Transbay Program is

completed and no changes are proposed, the description of the No Action Alternative focuses on the elements of the approved Transbay Program that are in Phase 2. These Phase 2 elements are what would be constructed by the TJPA if the Project were not approved. The other alternative is the Project, which involves refinements to the approved DTX component of the Transbay Program, other transportation improvements associated with the Transbay Program, and future surplus land development. Thus the SEIS/EIR analyzes two alternatives: the No Action Alternative (approved Transbay Program Phase 2), and the Project (proposed refinements to the approved Transbay Program Phase 2).

A brief summary of the No Action Alternative and the Environmentally Superior Alternative are provided below. As explained in Section XIV, below, the findings in this Section are based on the Final SEIS/EIR, and the discussion and analysis are hereby incorporated in full by this reference. The TJPA further finds that each of the reasons given for rejecting an alternative discussed below is a separate and independent basis for rejecting that alternative.

A. The No Action Alternative

An EIR is required to evaluate a “no project” alternative, and identify an environmentally superior alternative. The No Action Alternative consists of the improvements that will be constructed in the absence of the Project. In other words, if the current Project were not approved, the previously approved Transbay Program Phase 2 still would be constructed. Thus, the No Action Alternative is the approved Transbay Program, as subsequently modified between 2005 and 2011 by the TJPA, FTA, and FRA. In addition, the future land use, urban design, open space, and local transportation network surrounding the Transit Center would be as defined in the TCDP and Redevelopment Plan.

The No Action Alternative is hereby rejected because it would only partially achieve, or fail to achieve, aspects of the following project objectives:

- The No Action Alternative would not achieve the objective of modifying the train box and advancing construction of other rail-related infrastructure, because it would not include the widened throat structure and the extended train box that are needed to enable HSR to access and serve the Transit Center.
- The No Action Alternative would not fully achieve the objective of enhancing pedestrian, bicycle, and transit connections to further reinforce the Transbay Program’s emphasis on transit and alternative means of local and regional travel, because it would not add an intercity bus facility, bicycle ramp and storage for bicycles in the Transit Center, or a more direct pedestrian connection to BART/Muni transit services.
- The No Action Alternative would not fully achieve the objective of offering additional opportunities for parking within convenient walking distance of the area’s existing and proposed restaurants and entertainment, performance, and sports venues, because it would not allow public parking in the AC Transit bus storage facility when it is not needed by AC Transit buses.
- The No Action Alternative would not fully achieve the objective of determining site configurations for and constructing ventilation and emergency egress structures in compliance with safety standards for underground facilities and to meet emergency response needs of system operators, because it would not comply with National Fire Protection Association Standard 130, which establishes life safety standards and minimum distances between emergency exits to the surface.

- The No Action Alternative would not fully achieve the objective of enhancing transit connections because it would not include turnback track that allow for the efficient movement of trains between the Caltrain railyard and the new Transit Center.

For the foregoing reasons, the No Action Alternative is considered infeasible and is hereby rejected.

B. Environmentally Superior Alternative

CEQA requires an EIR to identify an environmentally superior alternative. If the “No Project” Alternative is the environmentally superior alternative, an environmentally superior alternative must be identified from among the other alternatives. (CEQA Guidelines § 15126.6.) The Project is the environmentally superior alternative because a portion of the building at 165-173 Second Street (also referred to as 171 Second Street) would not be demolished, thereby eliminating a significant and unavoidable adverse effect on an historical resource; because it enhances resiliency and seeks to minimize hazards from flooding and sea-level rise; because it incorporates additional measures to reduce construction air and greenhouse gas emissions and to avoid and protect migratory birds and paleontological resources; and because it enables HSR service to travel to the Transit Center and realize the regional and statewide air quality, greenhouse gas, and energy benefits identified for the HSR program.

C. Other Alternatives Considered

FTA and the TIPA previously considered numerous alternatives since planning for the Transbay Program began in 1975, including multiple DTX alignments and station locations that were considered and withdrawn in favor of the Transbay Program that was adopted in 2004, as documented in Appendix B to the Draft SEIS/EIR and in the 2004 EIS/EIR. Project component alternatives that were considered but withdrawn from further consideration (see Section 2.4 of the Draft SEIS/EIR, beginning on page 2-51, and Section 2.5 of the Final SEIS/EIR including Table 2-7.) include a smaller horizontal curve radius in the widened throat structure, modified construction methods at 589 Howard Street, alternative vent structure sites in the vicinity of Second and Harrison Streets and at Third and Townsend Streets, alternative loading spaces for taxi pick-up and staging, additional concepts for location of the intercity bus facility, and other construction methods that could potentially reduce surface-level disruption, traffic, and socioeconomic impacts associated with the cut-and-cover construction technique proposed for segments of the Project alignment.

- The smaller horizontal curve radius was eliminated from further consideration because it would slow operational speed, increase maintenance requirements and costs, create greater wheel squeal/noise impacts, and potentially limit the length of trains at the Transit Center.
- Removing a portion of the building at 589 Howard Street was eliminated from further consideration because loss of this building would have an adverse effect on an historical resource.
- The alternative vent sites were eliminated from further consideration because they would not comply with National Fire Protection Association 130 governing life safety requirements for passenger rail systems including spacing between emergency exits, would require greater evacuation time, and fully developed sites would be more costly to acquire and would involve displacement of occupants.

- The alternative taxi loading spaces were rejected from further consideration because they conflicted with City plans for bicycle lanes and other improvements on Beale Street and because of uncertainty about the availability of other locations.

XII. STATEMENT OF OVERRIDING CONSIDERATIONS

The Project will result in two additional significant adverse environmental impacts related to sea-level rise and nighttime construction noise that were not previously identified in the 2004 EIS/EIR and that cannot be avoided following adoption and incorporation into the Project of mitigation measures identified in the Final SEIS/EIR. In addition, there are no feasible project alternatives that would mitigate or avoid all of the Project's significant environmental effects. Pursuant to CEQA Guideline section 15093, the TJPA has balanced the economic, legal, social, technological or other benefits of the Project, including region-wide or statewide environmental benefits, against its significant and unavoidable environmental impacts. The TJPA finds that the Project's benefits outweigh its unavoidable adverse environmental effects, and that the adverse environmental effects are therefore acceptable. The reasons set forth below are based on the Final SEIS/EIR and other information in the record.

The following statement identifies the reasons why, in the TJPA's judgment, specific benefits of the Project outweigh the significant and unavoidable effects. The substantial evidence supporting the benefits of the Project can be found in the preceding sections of these Findings, in the Project itself, and in the record of proceedings as defined in Section XII, above. The TJPA further finds that each of the Project benefits discussed below is a separate and independent basis for these findings. The reasons set forth below are based on the Final SEIS/EIR and other information in the administrative record.

A. Upgrade Intermodal Connection and Services

The Transbay Program was, in part, developed because the previous Transbay Terminal, which was built in 1939, did not meet current seismic safety or space utilization standards. The new Transit Center provides an opportunity to revitalize the surrounding area and to extend Caltrain service from its current terminus outside the downtown area, at Fourth and King Streets, into the San Francisco employment core surrounding the Transit Center.

The DTX would enable Caltrain service to better interconnect with local and regional transit services at the new multimodal Transit Center, and provide a transit alternative for commuters who currently do not have a direct Caltrain link to the core employment and financial area of San Francisco. The extension of Caltrain to downtown San Francisco is estimated to attract approximately 13,000 new riders and take thousands of vehicles off Highways 101 and 280. Additionally, extending Caltrain into downtown would save commuters up to 1 hour per day in travel time. These travel efficiencies translate into travel time savings (the value of alternative activities that a traveler could conduct instead of spending time in transit) upwards of \$380 million, more than \$120 million in avoided vehicle operation and maintenance costs, and more than \$20 million in benefit from improved safety.

The 2004 EIS/EIR included qualitative and quantitative estimates of changes in transit ridership as a result of the Caltrain extension to the Transit Center. Overall, it was estimated that ridership would increase for BART to the East Bay, AC Transit, and Golden Gate Transit as a result of the increased connectivity between the providers. Similarly, the addition of HSR service to downtown San Francisco would bring more riders (in addition to any new riders resulting from Caltrain service) to the transit providers that operate nearby. FRA's 2010 Final Program EIS Reevaluation, updating the 2004 EIS/EIR, increased high-speed train ridership estimates over those from the 2004 EIS/EIR and identified the means of access to the Transit Center. In the 2010 Final Program EIS Reevaluation, forecasts of the number of passengers per day arriving by different transit operators to serve the high-speed train alone in 2035

include San Francisco Muni, 12,000; BART to/from East Bay, 2,000; AC Transit, 2,000; and Golden Gate Transit, 1,000.

In light of increased Caltrain ridership, service improvements, and demands related to HSR service, a need to support and enhance future intermodal transportation connections continues at and around the Transit Center. The Project contains design refinements necessary for Caltrain and HSR services to function and to provide better interconnections with other transportation services in the Project area.

B. Support High-Speed Rail Service

In June 2000, the CHSRA issued its Final Business Plan for Building a High-Speed Train System for California. This document recommended that the State Legislature and Governor initiate a state program EIR and federal EIS for the HSR network. The document presented the Caltrain corridor as the desired route, and stated that terminating HSR trains at the Transbay Terminal in San Francisco should be included in environmental studies. The CHSRA issued its most recent Business Plan in May 2018.

Phase 1 of the Transbay Program consists of construction of the Transit Center, including the below-grade train box that would eventually accommodate the DTX tracks, station, and ancillary facilities. The lower level of the train box would serve Caltrain and HSR trains, and consist of six tracks and three platforms—two dedicated for Caltrain and the remaining four for HSR trains. The first level of the Transit Center below-grade, referred to as the Lower Concourse, would serve as a rail passenger ticketing and waiting area. Under Phase 2, construction of the DTX and the “throat structure” would occur. The throat structure would provide the connection between the tunnel that would be constructed along Second Street for rail service and the train box below the Transit Center, which is where the platforms and operating and communication systems for Caltrain and HSR trains would be housed.

1. High-Speed Rail Design Specifications

The CHSRA identifies a minimum 900-foot horizontal curve radius for low-speed tracks where speeds are less than 60 miles per hour. Strict compliance with these minimum standards would require significant property acquisitions at the western end of the train box where Caltrain and HSR tracks approach the train box from the west. The CHSRA agreed, with conditions, that a smaller 650-foot horizontal curve radius would be acceptable. The Project revises the design of the track alignment to increase the track curvature, widens the throat structure, and extends the train box one block, from Beale Street to Main Street, all to accommodate HSR service.

The Project also includes other refinements to the approved Transbay Program to improve planned operations and safety. Planned refinements include installation of rock dowels to support construction of the mined tunnel segment of the DTX to increase the stability of the tunnel, and construction of new trackwork south of the Caltrain railyard to facilitate movement of Caltrain trains between the railyard and the Transit Center. In addition, the Project realigns the below-grade Fourth and Townsend Station to support street-level development opportunities under consideration by the City and County of San Francisco, and provides for a partial tunnel box—or “tunnel stub”—that will end at the current Caltrain yard limits to enable Caltrain and HSR trains to connect underground to points south of the station. The tracks will travel at-grade along Seventh Street, and as they curve eastward into the railyard will descend to an underground alignment via a retained cut, or U-wall, that was previously approved but is not yet constructed. DTX improvements will be constructed under the U-wall to conform to the future profile of the tracks.

2. Future High-Speed Rail Alignment

The existing Caltrain railyard at Fourth and King Streets is proposed to be modified to accommodate the DTX, including new underground tracks leading into the DTX and a below-grade Fourth and Townsend Station. The tracks would travel at-grade along Seventh Street, and as they curve eastward into the railyard, would descend to an underground alignment via a retained cut, or U-wall. In the future, Caltrain and HSR trains may travel along Seventh Street below-grade. To enable this future configuration and the DTX improvements, a partial tunnel box that would end—or “tunnel stub”—at the current Caltrain yard limits would be constructed under the U-wall to conform to the future profile of the tracks. Because construction equipment and crews would already be constructing the DTX facilities, including the U-wall and the underground Fourth and Townsend Street Station, it would be cost effective and less disruptive to construct the tunnel stub box concurrently. Doing so also would avoid re-disturbing this area, which would occur if DTX improvements were constructed and then, subsequently, a Caltrain and HSR tunnel connection alignment were to be implemented. Installation of a partial tunnel box during the DTX construction would reduce environmental impacts associated with subsequent construction needed to enable a HSR tunnel at a later date. Design of the tunnel box stub would not preclude service to existing Caltrain stations. Thus, the Project would avoid the excess cost, disruption and environmental impact of constructing the tunnel stub box subsequently to, and separately from, the previously approved DTX facilities.

C. Serve Growing Transportation Needs in the Project Area

The Project contains design refinements necessary for the approved Transbay Program to help serve the expanding transportation needs in the region and immediate project area. In light of increased Caltrain ridership, service improvements, and demands related to HSR service, a need to support and enhance future intermodal transportation connections continues at and around the Transit Center. The DTX will enable Caltrain service to better interconnect with local and regional transit services at the new multimodal Transit Center, and provide a transit alternative for commuters who currently do not have a direct Caltrain link to the core employment and financial area of San Francisco. The Project contains design refinements necessary for Caltrain and HSR services to function and to provide better interconnections with other transportation services in the Project area. The intercity bus facility, which will accommodate bus operations and shuttle services, and the taxi staging area will enhance the multimodal function and connectivity of the Transit Center by providing for bus, shuttle, and taxi operations directly adjacent to the Transit Center.

1. Growth in the Project Area

The Transit Center, and in particular the DTX, will expand access to affordable transit opportunities to Bay Area residents, and particularly those who live in the southern neighborhoods of San Francisco and along the Peninsula corridor. An analysis of market trends and planning efforts predict that an additional 15,000 households and 30,000 residents would be in the downtown area between 2005 and 2030—almost 50 percent more households and a 60 percent increase in population from 2005. An additional 61,000 jobs, a 26 percent increase, is projected for this area between 2005 and 2030. Within the downtown area, development in the TCDP area, which encompasses the area around the Transit Center and includes much of the Redevelopment Plan component of the Transbay Program, is expected to comprise 42 percent of the increase in downtown households, 32 percent of the increase in household population, and 21 percent of the increase in employment between 2005 and 2030. As part of the Central SoMa Plan, existing land use restrictions around the southern portion of the Central Subway transit line would be revised to allow a greater mix of uses while also emphasizing office uses; height limits on certain sites would be increased; and the system of streets and circulation would be modified to facilitate growth in the Central SoMa area. These changes would potentially add approximately 8,000 residential

units, 5,563,700 commercial square feet, and 30,000 jobs. The Project would thus relieve significant anticipated burden on the transportation network and serve new development envisioned in the Redevelopment Plan and Central SoMa Plan.

2. Demand for Greater Parking Options in the Transit Center District Plan Area

Economic and population growth in the TCDP area is expected to generate a demand for approximately 8,320 parking spaces during the evening peak period during special events, which will not be met by the current supply. Using the AC Transit bus storage facility for off-hours, nighttime and event parking (e.g., sporting and other special events), when not in use by AC Transit for regular operations, will create up to 202 additional parking spaces in the TCDP Area.

3. Bicycle and Pedestrian Circulation and Growth

In terms of bicycle travel demand and circulation, the San Francisco Bicycle Plan identified the need to provide barrier-free bicycle access and state-of-the-art bicycle parking facilities. Actions 3.8 through 3.10 contained within the San Francisco Bicycle Plan state the need for the following:

- work with the CHSRA to ensure bicycles are accommodated on its long-distance trains,
- work with transit operators and the MTC to develop intermodal bicycle access, and
- promote bicycle parking stations at major transit hubs.

According to the San Francisco Bicycle Plan, approximately 2.5 percent of San Francisco residents bicycle to work, which is five times the national average of 0.5 percent and three times the state average of 0.8 percent.

In December 2010, the City adopted a Better Streets Plan, which provided a blueprint for the future of San Francisco's pedestrian environment. The focus of the Better Streets Plan is on improving the pedestrian experience to provide a memorable, diverse, and vibrant place for commerce, human comfort, and healthy lifestyles. The Better Streets Plan outlines the need to "Emphasize improvements to streets that link to major transit nodes and transfer points." The TCDP echoes the Better Streets Plan to support the need to "prioritize pedestrian amenity and safety," and to "implement and require transportation demand management strategies to minimize grow thin auto trips and reduce volumes as necessary." San Francisco is a pedestrian-oriented city as a result of its high density of development, low level of resident automobile ownership, availability of transit options, and provision of extensive pedestrian amenities. The increased development density and projected growth would result in a greater number of residents and employees, and an increase in bicycle and pedestrian travel. The Project would provide needed improvements to the pedestrian and bicycle systems to support the goals of the San Francisco Planning Department and the Transbay Program.

The Project locates the BART/Muni underground pedestrian connector along Beale Street rather than the Fremont Street alignment identified in the 2004 EIS/EIR. The BART/Muni underground pedestrian connector will provide direct access between the Transit Center and the Embarcadero BART/Muni Metro Station at Market Street. The Project also will revise the Transit Center to add a bicycle ramp and below-grade bicycle storage facilities for 500 bicycles with room for expansion to 1,000 bicycles to accommodate projected future demand from HSR users. The bicycle ramp will be separate from the Transit Center controlled vehicle ramp, which will further enhance pedestrian and bicycle access by reducing conflicts with service vehicles.

D. Advance Regional Needs to Improve Transportation and Environmental Quality

Between 2010 and 2040, the San Francisco Bay Area is projected to add 1.1 million jobs, 2.1 million people, and 660,000 homes. The San Francisco Bay Area is currently ranked as the third most congested region in hours of delay caused by congestion, and is anticipated to experience increased traffic congestion related to employment growth. In the past, adding roadway capacity was the response to congestion. However, with today's mature system of roadways and increased demands on financial resources, the region needs to find ways to operate existing highway and transit networks more efficiently and to target expansion projects that would provide long-term and sustainable congestion relief.

One of the investment strategies identified in Plan Bay Area is to make a greater financial commitment to the public transit system, which would help reduce the number of vehicles on the roads, fight congestion, and curb greenhouse gas emissions. Downtown San Francisco already experiences congestion that results in average bus transit and automobile speeds below 10 miles per hour. The City has plans for further growth in the downtown area in the future; however, unless measures are taken to improve congestion, downtown streets would be unable to accommodate expected levels of housing and job growth.

To plan transportation investments that do not exceed the revenues that are reasonably expected to be available, the MTC worked with partner agencies and used financial models to forecast how much revenue would be available for transportation purposes over a framework identifying regional transit priority projects for federal New Start and Small Starts, was adopted in 2001. Resolution 3434 identified the "Caltrain Downtown Extension" as one of the region's priority transit and road projects. Building on Resolution 3434 and results of the performance assessments and a transit-specific project evaluation, Plan Bay Area identified the DTX as one of the significant future transit investments for the next generation of federal New Starts and Small Starts funding. The Project contains design refinements necessary for this future transit investment to help attain the desired environmental goals.

The choice to use transit instead of cars has the additional benefit of reducing emissions of air pollutants, including greenhouse gases; an estimated reduction of 42,000 tons of carbon dioxide will result from construction of the DTX, and 3.8 million gallons of gasoline per year. Local residents will experience health benefits from improved air quality, worth \$8 million in cost savings from reduced emissions. The DTX will reduce carbon dioxide emissions by tens of thousands of tons each year, while completion of the full HSR system is projected to reduce these emissions by more than 3 million tons each year system-side by 2030. Development of the new Transit Center will yield additional health benefits for area residents.

E. Respond to Further System Safety Planning

The Project updates the design and identifies specific locations for all ventilation/ emergency access structures necessary to Transbay Program system operations. The design and location of these emergency structures complies with National Fire Protection Association ("NFPA") Standard 130, which specifies a maximum spacing of 2,500 feet between ventilation/emergency access structures.

F. Conclusion

Based on the entire record, including the SEIS/EIR, the specific economic, social, and environmental benefits of the Project, as stated above, outweigh and override any significant unavoidable environmental effects that would result from future Project implementation. The TJPA Board has determined that any significant environmental effects caused by the Project have been mitigated to the extent feasible through the mitigation measures identified herein and adopted and incorporated into the

Project, and, where mitigation is not feasible, has been outweighed and counterbalanced by the economic, legal, social, technological and other benefits of the Project, including region-wide or statewide environmental benefits.

XIII. INCORPORATION BY REFERENCE

These findings incorporate the text of the Final SEIS/EIR for the Project, the 2004 EIS/EIR and all addenda to the 2004 EIS/EIR, the Mitigation Monitoring and Reporting Program for the Transbay Program and the Project; TJPA staff reports relating to the Project; and other documents relating to public hearings on the Project, by reference, in their entirety. Without limitation, this incorporation is intended to elaborate on the scope and nature of mitigation measures, Project and cumulative impacts, the basis for determining the significance of impacts, the comparison of the alternatives to the Project, the determination of the environmentally superior alternative, and the reasons for approving the Project.

XIV. RECORD OF PROCEEDINGS

Various documents and other materials constitute the record of proceedings upon which the TJPA bases its findings contained herein. The record of proceedings is located in the offices of the custodian for these documents and materials, which is the Transbay Joint Powers Authority, 201 Mission Street, Suite 2100, San Francisco, California 94105.

XV. NO RECIRCULATION REQUIRED

CEQA Guidelines section 15088.5 requires a lead agency to recirculate an EIR for further review and comment when “significant new information” is added to the EIR after public notice is given of the availability of the Draft EIR but before certification. No significant new information was added to the Draft SEIS/EIR as a result of the public comment process. The November 2017 Tunnel Options Study and subsequent addenda were undertaken to identify other construction methods that could reduce surface disruptions and socioeconomic impacts due to cut-and-cover construction, by increasing the extent of the mined portions of the DTX tunnel. Several of these other construction methods could lessen potential adverse effects and have been evaluated in the Final SEIS/EIR and will continue to be investigated as the design for the Project advances. A second study was issued in April 2018 by the San Francisco County Transportation Authority. This study, which was conducted by a peer review panel, reviewed DTX rail operations, including consideration of whether a two-track configuration, instead of a three-track configuration for the proposed action, would be feasible. The peer review panel agreed that the third track, as proposed, is necessary for operational flexibility during normal operations and allows for efficient recovery from delays. The two-track configuration was rejected from further consideration, because it would make Caltrain and future HSR service susceptible to unacceptable delays not only locally but throughout the system.

The Final SEIS/EIR responds to comments, and clarifies, amplifies, and makes insignificant modifications to the Draft SEIS/EIR. It does not identify any new significant effects on the environment or a substantial increase in the severity of an environmental impact requiring major revisions to the Draft SEIS/EIR. Therefore, recirculation of the SEIS/EIR is not required.

XVI. SUMMARY

- A.** Based on the foregoing Findings and the information contained in the record, the TJPA has made one or more of the following Findings with respect to each of the significant environmental effects of the Project:

1. Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effects identified in the Final SEIS/EIR.
2. Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
3. Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the alternatives identified in the environmental impact report.

B. Based on the foregoing Findings and the information contained in the record, it is determined that:

1. All significant effects on the environment due to the approval of the Project have been eliminated or substantially lessened where feasible.
2. Any remaining significant effects on the environment found to be unavoidable are acceptable due to the factors described in the Statement of Overriding Considerations in Section XII, above.

EXHIBIT B

TRANSBAY TERMINAL/CALTRAIN DOWNTOWN EXTENSION/ REDEVELOPMENT PROJECT MITIGATION MONITORING AND REPORTING PROGRAM

INTRODUCTION

Assembly Bill (AB) 3180 was enacted by the State Legislature to provide a mechanism to ensure that mitigation measures adopted through the California Environmental Quality Act (“CEQA”) process are implemented in a timely manner and in accordance with the terms of project approval. Under AB 3180, local agencies are required to adopt a monitoring or reporting program designed to ensure compliance during project implementation.

The Transbay Terminal/Caltrain Downtown Extension/Redevelopment Project Mitigation Monitoring and Reporting Program (“Mitigation Monitoring Program”), pursuant to AB 3180, CEQA Section 21081.6 and CEQA Guidelines Section 15091, provides the basic framework through which adopted mitigation measures will be monitored to ensure implementation.

Changes to the Mitigation Monitoring Program adopted by the TJPA Board in 2004 to incorporate updates from the Final Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) are indicated by underlining for new text and ~~strikethroughs~~ for deleted text.

ORGANIZATION

The Mitigation Monitoring Program is organized in a table format, keyed to each adopted Final EIS/EIR mitigation measure. For each measure, the table: (1) lists the mitigation measure; (2) specifies the party responsible for implementing the measure; (3) establishes a schedule for mitigation implementation; (4) assigns mitigation monitoring responsibility; and (5) establishes monitoring actions and a schedule for mitigation monitoring.

IMPLEMENTATION

While the Mitigation Monitoring Program generally outlines the actions, responsibilities and schedule for mitigation monitoring, it does not attempt to specify the detailed procedures to be used to verify implementation (e.g., interactions between the Project Sponsor – the Transbay Joint Powers Authority, the San Francisco Redevelopment Agency and City departments, use of private consultants, signed-off on plans, site inspections, etc.). Specific monitoring procedures are either contained in approval documents or will be developed at a later date, closer to the time the mitigation measures will actually be implemented.

The majority of the measures will be monitored primarily by the Transbay Joint Powers Authority (TJPA), in consultation with other City and non-City agencies, as part of the site permit, building permit processes or other report.

**TRANSBAY TERMINAL/CALTRAIN DOWNTOWN EXTENSION/REDEVELOPMENT PROJECT
 FEIS/FEIR AND SEIS/EIR MITIGATION MONITORING AND REPORTING PROGRAM**

MITIGATION MEASURE	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Wind				
<p>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.</p>	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				
<p>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.</p>	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				
<p>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.</p>	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.
<p>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.</p>	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.
<p>Saf 3 – Prepare a risk analysis to accurately determine the number of personnel necessary to maintain an acceptable level of service at Project facilities.</p>	TJPA	Prior to project facility permitting	TJPA	TJPA to develop risk analysis during facility design phase.

**TRANSBAY TERMINAL/CALTRAIN DOWNTOWN EXTENSION/REDEVELOPMENT PROJECT
 FEIS/FEIR AND SEIS/EIR MITIGATION MONITORING AND REPORTING PROGRAM**

MITIGATION MEASURE	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
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.
<p>NoiO 2 – Landscape the noise walls. Develop the actual design of the walls in cooperation with area residents.</p>	TJPA	During preliminary and final design	TJPA	TJPA to work with area residents during design of noise walls.
<p>NoiO 3 – Construct noise walls prior to the development of the permanent bus facilities.</p>	TJPA	During schedule development, construction document preparation and construction	TJPA	TJPA to develop program schedule and contract documents to implement this construction sequencing requirement.

**TRANSBAY TERMINAL/CALTRAIN DOWNTOWN EXTENSION/REDEVELOPMENT PROJECT
 FEIS/FEIR AND SEIS/EIR MITIGATION MONITORING AND REPORTING PROGRAM**

MITIGATION MEASURE	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p><u>New-MM-NO-1.1 – Design Ventilation Shaft to Avoid Noise Effects on Nearby Uses.</u> <u>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.</u></p>	TJPA	<p><u>During final design</u></p>	TJPA	<p><u>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.</u></p>
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>	TJPA	<p>During preparation of construction contract documents and construction</p>	TJPA	<p>TJPA to work with CCSF Department of Public Works (DPW) regarding construction noise mitigation program.</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. • 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>				

**TRANSBAY TERMINAL/CALTRAIN DOWNTOWN EXTENSION/REDEVELOPMENT PROJECT
 FEIS/FEIR AND SEIS/EIR MITIGATION MONITORING AND REPORTING PROGRAM**

MITIGATION MEASURE	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
NoiC 2 – Conduct noise monitoring. The purpose of monitoring is to ensure that contractors take all reasonable steps to minimize noise.	TJPA	During construction	TJPA	Monitoring data to be provided to CCSF DPW.
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.	TJPA	During construction	TJPA	Perform monitoring during construction.
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.	TJPA	During construction	TJPA	TJPA to develop and initiate community liaison program during final design prior to construction. Program will continue during construction.
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.	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.

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<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. 				
<p>Vibration – Operations</p> <p>Vib01 – 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 an 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).</p>	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.

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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.
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.

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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.
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.

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<p>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.</p>	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.
<p>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.</p>	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.
<p>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 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>	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 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.

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.

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<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	<p>During preliminary engineering, final design and construction</p>	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><u>New-MM-C-GE-4.1 – Groundwater Control during Construction.</u> <u>Groundwater control shall be implemented to reduce ground instability in the construction area, where excavations encroach into the prevailing groundwater table.</u></p> <ul style="list-style-type: none"> • <u>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. The groundwater level outside of the excavation footprint shall remain unchanged.</u> • <u>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 located in the portal area.</u> • <u>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.</u> 	TJPA	<p><u>During construction</u></p>	TJPA	<p><u>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.</u></p>
<p>Utilities</p>				
<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	<p>During preliminary engineering, final design and construction</p>	TJPA	<p>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.</p>

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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 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>	TJPA	During preliminary engineering, final design and construction	TJPA	Prior to initiation of design and construction activities, TJPA will require submission of and review qualifications of professionals performing the MOA activities to assure that Secretary of Interior standards are met.
<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>				
<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.

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<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 produce, install, and maintain the exhibit.</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.
<p>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.</p>	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.
<p>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.</p>	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.
<p>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.</p>	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.

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<p>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 to TJPA, Department, and the Oakland Museum. A separate agreement will outline the negotiated financial contributions.</p> <p>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.</p>	TJPA	During preliminary engineering and final design	TJPA	TJPA will work with Oakland Museum and assist in the preparation of an exhibit and an interpretive video if consultation results in an agreement between TJPA and Oakland Museum prior to demolition of the existing Transbay Terminal.
<p>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.</p> <p>Seek, with the assistance of the Department, to obtain the original drawings of the TTT by architect T. Pflueger.</p> <p>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:</p> <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. 	TJPA	During preliminary engineering and final design	TJPA	<p>TJPA will consult with the SHPO regarding adequacy of prior recordation efforts.</p> <p>TJPA will work with Department to seek original drawings of the Transbay Transit Terminal.</p> <p>If SHPO determines that existing documentation is adequate, compile such documentation into a comprehensive record.</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</p>
<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>				

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<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>	TJPA	<p>Within 180 days after FTA determines that the Project has been completed</p>	TJPA	<p>level and type of additional documentation is necessary.</p> <p>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>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 determines 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>	TJPA	<p>Within 180 days after FTA determines that the Project has been completed</p>	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>

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<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>	TJPA	During preliminary engineering, final design, and construction	TJPA	TJPA will contact owners of record of historic properties that will be affected (but that will not be acquired and demolished) by the Project.
<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>				TJPA will provide and review this mitigation monitoring program with the owners via correspondence and/or public and face-to-face meetings.
<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 nearby; <u>need easement</u>. • 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. • <u>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.</u> • 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. • 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. 				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.
				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.

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<ul style="list-style-type: none"> 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. 				
<ul style="list-style-type: none"> 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. 				
<ul style="list-style-type: none"> 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. 				
<ul style="list-style-type: none"> 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. 				
<ul style="list-style-type: none"> 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. 				
<ul style="list-style-type: none"> 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. 				

Notes: National Register Status Codes are as follows:

- 1 – Listed on the NRPH
- 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
- 1D – Listed on the National Register as a contributor to a district or multi-resource property

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<p>CH 12 –TJPA will take the effect of the Project on the three 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), <u>and</u> • 580-586 Howard Street, (APN: 3721-092 through 3721-106), <u>and</u> • 165-173 2nd Street, (APN: 3721-025). <p>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 copies⁸ 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.</p> <p>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.</p>	TJPA	During preliminary engineering and final design	TJPA	<p>TJPA will consult SHPO and SHPO will determine the type of recordation necessary for the properties.</p> <p>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.</p> <p>If no response from SHPO within 45 days of receipt of each submittal of documentation, then TJPA may proceed with the project.</p>

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<p>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.</p> <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>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</p>	<p>Prior to, during, and following construction</p>	<p>TJPA</p>	<p>TJPA will repair any damage to contributing elements.</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>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>

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<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	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>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 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>	TJPA	During preliminary engineering phase	TJPA	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 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.
<p>Consultation will at minimum be informed by, and take into account, the following documents:</p> <ol style="list-style-type: none"> 1) 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;” 2) “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); 3) “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). 	TJPA	During preliminary engineering	TJPA	The consultation will take into account the designated documents.
<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</p>	TJPA	During preliminary engineering	TJPA	TJPA will assure completion of comprehensive treatment plan consistent with the content required in the MOA, if the

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<p>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>				<p>consulting parties agree that a treatment plan for archaeological properties is to be prepared.</p> <p>TJPA shall transmit this plan to the signatories of the MOA.</p> <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>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>The historic context will, at a minimum:</p> <ol style="list-style-type: none"> 1) identify significant research themes and topics that relate to the historic period(s) addressed by the historic context(s) 2) 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 3) identify the specific components and constituents (features, artifacts, etc., if any, of 	<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.</p> <p>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> <p>TJPA will ensure that the consulting parties have 15 days</p>

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<p>historic archaeological property types that can factually and directly, contribute data important to our understanding of significant historic research themes and topics</p> <p>4) 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>				<p>following receipt of notification of the modifications to comment in writing about the proposed modifications.</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>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>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>	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>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>				<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 – 1) 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</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</p>

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<p>following receipt of the draft technical report to submit any written comments to FTA and 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.</p>				<p>this draft technical report to the other MOA signatories for review.</p>
<p>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).</p>				<p>FTA to authorize TJPA to revise draft as deemed appropriate by FTA and TJPA.</p>
				<p>FTA will provide the reviewing parties with a written documentation indicating modifications in accordance with any reviewing party comments.</p> <p>Unless any reviewing party objects, FTA and TJA to issue technical report in final form and distribute in accordance with paragraph CH15 2).</p>
<p>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).</p>				<p>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.</p>
<p>3) 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</p>				<p>TJPA will prepare a written draft document that communicates in lay terms the results of Treatment Plan implementation to members of</p>

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<p>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 Native American Tribe, through consultation as appropriate, subject to the terms of Stipulation IV.E (CH 19).</p>				<p>interested public.</p>
<p>4) 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.</p>	<p>TJPA</p>	<p>During preliminary engineering, final design, and construction</p>	<p>TJPA</p>	<p>TJPA will prepare an annual report describing its efforts to comply with the terms of stipulations II-IV.</p>
<p>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).</p>	<p>TJPA</p>	<p>During construction phase</p>	<p>TJPA</p>	<p>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).</p>
<p>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.</p>	<p>TJPA</p>	<p>During preliminary engineering phase</p>	<p>TJPA</p>	<p>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.</p>

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<p>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, 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>	TJPA	Prior to, during, and following construction	TJPA	<p>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 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><u>New-MM-C-CR-4.1 – Minimize Potential Impacts to Paleontological Resources.</u> 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"> • <u>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.</u> • <u>The construction crew shall immediately cease ground-disturbing work in the vicinity of the find and notify the TJPA.</u> 	TJPA	<u>Before and during construction</u>	TJPA	<p><u>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.</u></p>

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<ul style="list-style-type: none"> <u>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 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.</u> 				
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.

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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.
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	TJPA	During construction	TJPA	Review design and contract documents to ensure compliance with all applicable regulations. Obtain all applicable permits. Inspect

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<p>as a result of contact with contaminated soil or groundwater during 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>construction to ensure compliance with contract documents and regulations.</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>Where applicable, coordinate with 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.</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>If required, treatment may include:</p> <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 				<p>Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DPH and DPW.</p>

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<p>concentrations that may be associated with suspended sediments; and/or</p> <ul style="list-style-type: none"> • 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. 	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.
<p>HMC 6 – Develop a detailed mitigation plan for the handling of potentially contaminated soil and groundwater prior to starting project construction.</p>	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.
<p>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.</p>	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.
<p>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.</p> <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; 	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 compliance.

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<ul style="list-style-type: none"> • 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>	TJPA	During preliminary engineering, final design and construction phases	TJPA	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>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>	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.
<p>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.</p>	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.

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MITIGATION MEASURE	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Pedestrians				
<p>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:</p> <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.
<p>Ped 2 – Eliminate or reduce sidewalk street furniture such as newspaper boxes and magazine racks in the immediate Transbay Terminal area on corners.</p>	Agency and CCSF	Prior to opening of new Transbay Terminal	Agency and CCSF	TJPA will forward guidance to Agency, CCSF Planning Department and DPW.
<p>Ped 3 – Retime traffic light signalization. This could improve pedestrian levels of service at each of the intersections studies that fall into LOS F.</p>	CCSF	Prior to opening of new Transbay Terminal	CCSF	TJPA will forward guidance to CCSF DPT.
<p>Ped 4 – Provide crosswalk signalization at intersections where they do not exist already, such as Folsom and Beale streets.</p>	CCSF	Prior to opening of new Transbay Terminal	CCSF	TJPA will forward guidance to CCSF DPT.
<p>Ped 5 – Provide cross-walk count-down signals at intersections and cross-walks immediately surrounding the new Transbay Terminal.</p>	CCSF	Prior to opening of new Transbay Terminal	CCSF	TJPA will forward guidance to CCSF DPT.
<p>Ped 6 – Ensure that Transbay Terminal design increases corner and sidewalk widths at the four intersections immediately surrounding the Transbay Terminal.</p>	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.
<p>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.</p>	TJPA	Prior to opening of new Transbay Terminal	TJPA	TJPA to work with CCSF DPT to install cross-walk warnings.

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Pre-Construction Activities				
<p>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.</p>	TJPA	<p>Prior to preliminary engineering, final design and construction</p>	TJPA	<p>TJPA to perform building surveys during preliminary engineering. TJPA to include measures to protect existing buildings in final design and construction documents.</p>
<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	<p>During preliminary engineering, final design and construction</p>	TJPA	<p>TJPA to review design submittals, contract documents and construction activities to ensure implementation.</p> <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>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	<p>During preliminary engineering and final design</p>	TJPA	<p>TJPA to review design submittals, contract documents and construction activities to ensure implementation.</p> <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>

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<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	TJPA to establish program during final design prior to construction.
<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, • 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. 	TJPA and JPB	During construction	TJPA	TJPA to establish program during final design and continue during construction.
<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</p>	TJPA	During preliminary engineering,	TJPA	TJPA to forward traffic management plans to CCSF DPT for review and approval.

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<p>construction period. Provisions would be contained in construction contracts to require the maintenance of driveway access to businesses to the extent feasible.</p>		<p>final design and construction</p>		<p>Include all requirements in construction documents and inspect implementation during construction.</p>
<p><u>New-MM-C-BR-1.1 – Require Pre-Construction Bird Surveys. 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.</u></p>	<p>TJPA</p>	<p><u>Before construction</u></p>	<p>TJPA</p>	<p><u>Include provisions in contract documents to perform surveys and to comply with requirements for consultation and measures to protect nesting birds.</u></p>
<p><u>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.</u></p>				
General Construction Measures				
<p>GC 1 – Disseminate information to community in a timely manner regarding anticipated construction activities.</p>	<p>TJPA</p>	<p>During construction</p>	<p>TJPA</p>	<p>TJPA to initiate program during final design and continue during construction.</p>
<p>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.</p>	<p>TJPA</p>	<p>Prior to and during construction</p>	<p>TJPA</p>	<p>TJPA to initiate signage program during final design and monitor contractors’ installation during construction.</p>
<p>GC 3 – Install level deck. Install decking at the cut-and-cover sections to be flush with the existing street or sidewalk levels.</p>	<p>TJPA</p>	<p>During construction</p>	<p>TJPA</p>	<p>TJPA to design flush decking during preliminary and final design, include in construction</p>

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<p>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.</p>	TJPA	During preliminary engineering and construction	TJPA	documents and ensure installation during construction. TJPA to work with CCSF DPW on design of sidewalk plans during preliminary and final design and ensure installation during construction.
<p>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).</p>	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				
<p>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.</p>	TJPA	During development of contract documents	TJPA	Include requirement in contract documents.
<p>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.</p>	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
<p>AC 3 – Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.</p>	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
<p>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.</p>	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
<p>AC 5 – Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.</p>	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.

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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.
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.

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<p>AC 14 – Suspend grading operations during first and second stage smog alerts, and during high winds, i.e., greater than 25 miles per hour.</p>	TJPA	During and following construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
<p>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).</p>	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.

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<p><u>New-MM-C-AQ-5.1 – Prepare and Implement an Emissions Plan.</u> The TJPA shall comply with the following measures to reduce construction emissions:</p> <p><u>A. Construction Emissions Minimization Plan.</u> 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"> <u>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:</u> <ol style="list-style-type: none"> <u>a. Where alternative sources of power are available, portable diesel engines shall be prohibited.</u> <u>b. All off-road equipment shall have the following:</u> <ol style="list-style-type: none"> <u>i. engines that meet or exceed either EPA or CARB Tier 2 off-road emissions standards, and</u> <u>ii. engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy (VDECS).</u> <u>c. Exceptions:</u> <ol style="list-style-type: none"> <u>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.</u> <u>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.</u> <u>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).</u> 	TJPA	Before and during construction	TJPA	<p><u>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.</u></p>

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Off-Road Equipment Compliance Step-Down Schedule		
<u>Compliance Alternative</u>	<u>Engine Emissions Standard</u>	<u>Emissions Control</u>
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 Strategy Source: data compiled by AECOM in 2014</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.

2. 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.
3. The TJPA shall require that construction operators properly maintain and tune equipment in accordance with manufacturer specifications.
4. 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.

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<p><u>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.</u></p> <p><u>B. Reporting. 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.</u></p> <p><u>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.</u></p> <p><u>C. Certification Statement and On-Site Requirements. 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.</u></p>				
<u>Air Emissions – Operations</u>				
<p><u>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.</u></p>	<p>TJPA</p>	<p><u>During development of contract documents and during construction</u></p>	<p>TJPA</p>	<p><u>Prior to construction, include provisions in contract documents regarding diesel generator air emissions specifications.</u></p>

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<p><u>New-MM-AQ-3.2 – Require and Implement Ventilation Plans for Proposed Residential Land Development.</u> For residential development on the intercity bus facility or ventilation structure sites, the project sponsor shall comply with the following measures:</p> <p>a. <u><i>Air Filtration and Ventilation Requirements.</i></u> 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 PM_{2.5} 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. <u><i>Maintenance Plan.</i></u> 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. <u><i>Disclosure to Buyers and Renters.</i></u> 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				
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.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
VA 2 – Assure that contractors make all efforts possible to minimize specific aesthetic and visual effects of construction identified by neighborhood businesses and residents.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
Transportation				
<p><u>New-MM-TR-1.1 – Modify Signal Operations at the 16th Street Intersection with Seventh Street/Mississippi Street, the Caltrain tracks, and Owens Street.</u> If Caltrain’s service and operations plan requires the use of the 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 tracks to evaluate traffic operations along 16th Street at Seventh/Mississippi Street, the Caltrain turnback track, and Owens Street. Changes to the PCEP OCS and specialty trackwork, such as control points, switches, and train signals, will be undertaken by the TJPA to allow Caltrain to</p>	TJPA and Caltrain	Proposal by Caltrain to change its service and operation plan to use the turnback track during the	TJPA	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

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<p><u>continue its operations at the level of service defined in the PCEP EIR. 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 Seventh/Mississippi Street or at Owens Street (already operating at LOS E and F) such that the overall intersection v/c ratio would worsen by more than 10 percent (i.e., a v/c ratio increase of more than 0.10), then improvements shall be implemented so the resulting v/c ratio is no greater than 10 percent above the v/c ratio without use of the turnback track during the AM/PM peak hours. Actions or improvements that could achieve the performance standard, either individually or in combination, include but are not limited to:</u></p> <ul style="list-style-type: none"> • <u>Signal timing adjustments;</u> • <u>Signal phasing modifications;</u> • <u>Lane reconfiguration/re-striping in conjunction with phasing modification;</u> • <u>Left-turn pocket lengthening;</u> • <u>Pre-empt, pre-signal or queue cutters provision or modification as necessary to manage queues; and/or</u> • <u>Other improvements identified in the future due to technology advancement.</u> <p><u>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 these crossings to attain the v/c performance standard. These changes to the crossing will also satisfy the performance standard for safe pedestrian and bicycle circulation identified in New-MM-TR-3.1.</u></p>		<p><u>AM/PM peak hours</u></p>		<p><u>standard.</u></p>

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<p><u>New-MM-TR-3.1 – <i>Modify 16th Street Intersection with the Caltrain and turnback track to provide a safe crossing for pedestrians and bicyclists. At the time of the construction and operation of the proposed turnback track, the Caltrain electrification project (including mitigation measures adopted by Caltrain for this intersection), SFTMA’s 22 Fillmore Transit Priority Project, and the Warriors Arena project may have been implemented. The combination of these projects will modify the intersection configuration and operation at the time of the proposed project. As a result, the TJPA is using a safety-based performance standard, explained below, to guide future improvements for pedestrian and bicyclist safety.</i></u></p> <p><u>At the time of final design, the TJPA shall determine the then-current overall time required by pedestrians and bicyclists traveling along 16th Street to cross the Seventh Street/Mississippi Street intersection, the Caltrain mainline tracks, and the turnback track, and the TJPA shall coordinate and consult with Caltrain, the California Public Utilities Commission, and the City to identify the changes to the intersection and grade crossing warning devices, including signal timing, that are needed to provide adequate time, as determined by the Institute of Transportation Engineers, Caltrans, and the City, for pedestrians and bicyclists to safely cross the widened intersection that results from the construction of the turnback track.</u></p> <p><u>The TJPA shall commit to implementing changes necessary to protect pedestrians and bicyclists from potential safety issues, prior to operation of the new turnback track. Specific changes are expected to be determined during final design, which will be after the location of the crossing gates for the turnback track along 16th Street has been determined and based on the then-current signal timing at that time and which is expected to account for other major development and transit projects in the vicinity. The changes to the intersection due to the turnback track will be included in the design specifications for the project. Possible improvements that may attain the above performance standard include:</u></p> <ul style="list-style-type: none"> • <u>Adjust signal timing for the warning devices and adjacent traffic signals. The warning phase before the gates start to come down shall be extended to take into account the additional time needed for pedestrians and bicyclists to clear the track zone based on industry standards (such as the Caltrans California Manual on Uniform Traffic Control Devices or the Institute of Transportation Engineers’ Design and Safety of Pedestrian Facilities) or City guidelines that define the walking speed of a pedestrian.</u> • <u>Provide sufficient refuge areas for pedestrians and bicyclists to wait while the crossing gates are down. The refuge, or waiting, area shall be sufficient to accommodate the projected pedestrians and bicyclists and be ADA compliant.</u> <p><u>Install a smooth surface in the areas next to and between the rails to reduce tripping hazards and unintended forces on bicycle tires.</u></p>	TJPA	<u>During final design</u>	TJPA	<p><u>TJPA to work with CCSF, Caltrain, and CPUC on signal operations and intersection design during final design and ensure installation during construction.</u></p>

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MITIGATION MEASURE	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<u>Water Resources and Water Quality</u>				
<p><u>New-MM-WQ-4.1 – Modify DTX Design Criteria to Avoid Flood Hazards. 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.</u></p>	<u>TJPA</u>	<u>During final design</u>	<u>TJPA</u>	<u>Modify DTX design criteria and ensure measures to avoid flood hazards are incorporated into construction documents.</u>
<p><u>New-MM-CU-WQ-9.1 – Prepare a Sea-Level Rise Adaptation Plan. 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. 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.</u></p>	<u>TJPA</u>	<u>During final design</u>	<u>TJPA</u>	<u>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.</u>

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<p><u>The TJPA shall complete the first Sea-Level Rise Adaptation Plan as part of DTX final design. The Plan shall include the following:</u></p> <ul style="list-style-type: none"> <u>a. 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.</u> <u>b. Improvements will meet the flood design criteria as feasible and unconstrained by surrounding development not owned by the TJPA.</u> <u>c. 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.</u> <u>d. 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.</u> <u>e. 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.</u> <p><u>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.</u></p>				

Electromagnetic Fields

<p><u>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:</u></p> <ul style="list-style-type: none"> <u>• 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</u> 	<p><u>TJPA</u></p>	<p><u>During final design, during the testing and commissioning period, after commissioning through first year of operation</u></p>	<p><u>TJPA</u></p>	<p><u>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</u></p>
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<ul style="list-style-type: none"> controls necessary to avoid disruption of sensitive equipment prior to testing and commissioning of the proposed project. 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 align="right"><u>electromagnetic effects.</u></p>
<p><u>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:</u></p>				
<ul style="list-style-type: none"> <u>passive engineering controls (e.g., shielding with metallic materials at the medical facility where excessive EMI levels are projected);</u> <u>partial cancellation of magnetic field with a wire loop, in which an induced current creates a magnetic field of opposite direction;</u> <u>active shielding, that requires a power supply and feedback loop to control the induced current and magnetic field direction and magnitude; and</u> <u>design modifications to place EMF from the OCS further away or higher up.</u> 				

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<u>Improvement Measures for the Project</u>				
<p><u>New-I-TR-1.1 Traffic Improvement and Adaptive Management Plan.</u> A traffic improvement plan and adaptive management plan will be developed for the two at-grade intersections along the turn-back track length (7th Street/Mission Bay Drive and 16th Street/Mississippi Street/7th Street) which will outline all aspects of avoiding, minimizing, and compensating for all temporary and permanent impacts associated with the project. The traffic improvement plan will be reviewed and approved by the City and County of San Francisco prior to implementation. 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 will 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 will 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.</p> <p>After each monitoring event, a report will be submitted to the City and County of San Francisco which will 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 City and County of San Francisco-approved mitigation plan.</p>	TJPA	After construction	TJPA	The monitoring events and their timing are specified in the improvement measure.
<p><u>New-I-GE-2.1 Augment DTX Design Criteria at the Extended Train Box, Transit Center Vent Structures, and any Above-Ground Structure or Facility.</u> The TJPA shall require the consideration of the following additional measures to reduce the risk of ground failure. The inclusion of these techniques shall be evaluated by the TJPA on a case-by-case basis, considering soil and ground conditions, overhead clearances, subsurface impediments, schedule effects, cost efficiencies, and other factors that the TJPA may deem important.</p> <ul style="list-style-type: none"> • <u>Vibro-replacement stone columns:</u> A vibrator could be used to penetrate to the required depth by means of its weight, and vibrations and horizontal vibrations are generated at treatment depth with the use of eccentric weights that are rotated by electric motors; this is effective in reducing the liquefaction potential of sands and low-plasticity silt. • <u>Deep soil mixing:</u> Soil is blended with cementitious and/or other reagent materials through the tips of the auger during auger penetration and removal to form continuous soil-cement columns. • <u>Grouting techniques</u> (compaction, permeation, deep mixing, chemical, and jet grouting). 	TJPA	During final design	TJPA	Incorporate additional requirements to address risk of ground failure in construction documents, if determined to be necessary, and inspect installation during construction.

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<p><u>New-I-GE-3.1 Addressing Expansive Soils at the Vent Structure at Second and Harrison Streets and the AC Transit Bus Storage Facility Parking Sites. The TJPA shall require the consideration of the following additional measures to address expansive soils. The inclusion of these techniques shall be evaluated by the TJPA on a case-by-case basis, considering soil and ground conditions, schedule effects, cost efficiencies, and other factors that the TJPA may deem important.</u></p> <ul style="list-style-type: none"> • <u>Replace expansive soils with non-expansive soils: Expansive soils can be excavated and replaced with non-expansive materials.</u> • <u>Treat expansive soils: Expansive soils may be treated in place by mixing them with lime or cement. Lime treatment alters the chemical composition of the expansive clay minerals such that the soil becomes non-expansive. Cement treatment also alters the chemical composition of the expansive clay minerals such that the soil becomes non-expansive by forming a lean cement mixture beneath the pavement base.</u> 	TJPA	<u>During final design</u>	TJPA	<u>Incorporate additional requirements to address expansive soils in construction documents, if determined to be necessary, and inspect installation during construction.</u>

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NANCY PELOSI
12TH DISTRICT, CALIFORNIA
DEMOCRATIC LEADER

Congress of the United States
House of Representatives
Washington, DC 20515-0508

233 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0508
(202) 225-4965

DISTRICT OFFICE:
SAN FRANCISCO FEDERAL BUILDING
90-7TH STREET, SUITE 2-800
SAN FRANCISCO, CA 94103
(415) 556-4862
www.pelosi.house.gov

May 7, 2018

Mark Zabaneh
Executive Director
Transbay Joint Powers Authority
201 Mission Street, Suite 2100
San Francisco, California 94105

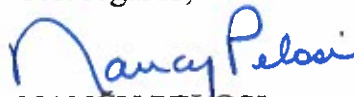
Dear Director Zabaneh:

Thank you for your leadership at this transformative project; I look forward to joining you for the celebration of the newly-built Salesforce Transit Center later this year. I appreciate the time and resources that were dedicated to the recent Peer Review study and support approval of the pending supplemental environmental impact study, while continuing to encourage Transbay to do everything in its power to minimize community impacts as it engineers the Downtown Extension.

As we look to the next crucial phase for Transbay, I continue to encourage you and your Board of Directors to prioritize design and engineering methods that will minimize impact to traffic, pedestrian safety, and nearby businesses. Minimizing negative impacts for San Franciscans will be crucial to maintaining public support for Transbay as we work to secure the necessary funding to complete the Downtown Extension.

Thank you, again, for your leadership of this transformative transportation project for San Francisco.

best regards,


NANCY PELOSI
Member of Congress