

**INFORMATION REQUIRED FOR PROBABLE
CATEGORICAL EXCLUSION
(Per 23 C.F.R. Part 771.118)**

For the
Transbay Corridor Core Capacity Program
BAY AREA RAPID TRANSIT (BART)



Revision Record	
Issue No.	Date
Draft 1	January 2017
Draft 2	May 2017
Draft 3	June 2017
Draft 4	August 2017
Final	October 2017



U.S. Department
of Transportation
**Federal Transit
Administration**

REGION IX
Arizona, California,
Hawaii, Nevada, Guam,
American Samoa,
Northern Mariana Islands

90 7th Street
Suite 15-300
San Francisco, CA 94103-6701
(415) 734-9490
(415) 734-9489 (fax)

SEP 14 2017

Ms. Grace Crunican, General Manager
San Francisco Bay Area Rapid Transit District
300 Lakeside Drive, P.O. Box 12688
Oakland, CA 94604-2688

Re: Categorical Exclusion Request for BART
Transbay Core Capacity Project

GRACE
Dear Ms. Crunican,

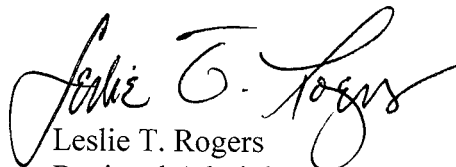
The Federal Transit Administration (FTA) has completed its review of your letter received on September 5, 2017 for an environmental determination for the proposed San Francisco Bay Area Rapid Transit District (BART) Transbay Core Capacity project (Project). The project proposes a package of strategic investments that will increase BART capacity between San Francisco and Oakland. The project consists of four elements including the expansion of the rail car fleet by 306 cars, the expansion of the existing Hayward Maintenance Complex (HMC), the implementation of a communications-based train control system (CBTC), and the addition of five new traction power substations (TPSS).

Based on the information presented in your request letter and the supporting documentation you submitted, we concur in your determination that the Project described above meets the criteria for a NEPA categorical exclusion (CE) in accordance with 23 CFR Part 771.118 (subsections (c)(1) (power substations and other discrete utilities within or adjacent to existing right of way), (c)(5) (installation and improvement of safety and communication equipment within or adjacent to existing right of way), (c)(7)(acquisition of rail cars that can be accommodated by existing facilities or by new facilities that qualify for categorical exclusion) and (c)(12) (projects within existing operational right of way including transit power substations and transit venting structures).

This review, which is based on past experience with similar projects, finds that the Project: does not induce significant environmental impacts to planned growth or land use for the area; does not require the relocation of significant numbers of people; does not have a significant impact on natural, cultural, recreational, historical or other resource; does not involve significant air, noise, or water quality impacts; does not have significant impacts on travel patterns; and does not otherwise, either individually or cumulatively, have any significant environmental impact.

If you have any questions about this review, please contact Dominique Paukowits, FTA Region IX Community Planner, at (415) 734-9469 or dominique.paukowits@dot.gov.

Sincerely,



Leslie T. Rogers
Regional Administrator

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Acronyms

AC	Alternating Current
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BMP	Best Management Practices
CBTC	Communication-based Train Control
CE	Categorical Exclusion
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
DC	Direct Current
EJ	Environmental Justice
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	Greenhouse Gases
HHS	Department of Health and Human Services
HMC	Hayward Maintenance Complex
LEP	Limited English Proficiency
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Agency
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
ROQ	Right-of-way
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Boards
SFMTA	San Francisco Municipal Transportation Agency
SHPO	State Historic Preservation Officer
SWRCB	State Water Resources Control Board
TIP	Transportation Improvement Program
TPSS	Traction Power Substations

INTRODUCTION

This Documented Categorical Exclusion (DCE) is intended to satisfy NEPA requirements for the Transbay Corridor Core Capacity Program. The DCE is divided into 21 sections or “Topic Areas” designated A through U, as shown in the Table of Contents on **page 2**. Topic Area A describes the Transbay Corridor Core Capacity Program, Topic Area B describes the location of each program element, and Topic Areas C through U discuss the program’s anticipated impacts on the physical and human environment.

A. DETAILED PROJECT DESCRIPTION

The Bay Area Rapid Transit (BART) system currently consists of 112 route miles of heavy rail transit serving 46 stations in San Francisco, in the East Bay, and on the Peninsula (see **Figure 1**). An additional 10 route miles and 2 stations are currently under construction south of Warm Springs, and an additional 10 miles and 2 stations are being built in eastern Contra Costa County. The system operates as five lines designated by different colors - Yellow, Green, Red, Orange and Blue. Four of these lines - all but the Orange Line - merge into a single double-track alignment connecting San Francisco and Oakland, which operates through the Transbay Tube¹.

Figure 1: Existing BART System plus Extensions under Construction



On the main trunk of the BART system, from the Oakland wye through the Transbay Tube to Daly City, BART currently operates a maximum of 23 trains per hour in the peak direction. Train lengths vary, but currently average 8.9 cars per train in the peak. Between Oakland and San Francisco, peak hour trains are crowded and ridership is continuing to grow. As the system expands and the core of the system continues to attract development, further increases in ridership are expected.

¹ Bay Area Rapid Transit (BART), Available online: <https://www.bart.gov>

BART is proposing a package of strategic investments that will increase capacity between San Francisco and Oakland by more than 30 percent. During peak hour (weekdays from 8 to 9 am and 5:30 to 6:30 pm), the number of trains operating through the tube will be increased from 23 per hour to 30 in each direction, and train lengths will be increased from an average of 8.9 to 10 cars per train. The Transbay Corridor Core Capacity Program will allow BART to operate up to 30 ten-car trains per hour through the Transbay Tube, maximizing passenger throughput in the most heavily used part of the system. The program includes four elements:

1. Expansion of the rail car fleet by 306 new cars;
2. Phase 2 of the Hayward Maintenance Complex (HMC) to add additional storage for the expanded rail car fleet;
3. Communication-based train control (CBTC) system;
4. Five additional traction power substations (TPSS).

Each of these elements is further described starting on **page 8**.

CEQA Process and Prior NEPA Documentation

The California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) processes for Phases 1 and 2 of the HMC were already well advanced when the CEQA and NEPA processes were undertaken for the rest of the Transbay Corridor Core Capacity Program:

- May 26, 2011: the BART Board adopted the Final Negative Declaration for HMC under CEQA.
- September 21, 2011: the Federal Transit Administration (FTA) approved a Categorical Exclusion (CE) for HMC under NEPA. The CE indicated no adverse impacts.
- May 9, 2013: the BART Board adopted an Addendum to the CEQA Negative Declaration to cover demolishing Building 3 and replacing it with a new building for the component repair shop. This change is in HMC Phase 1 and does not affect Phase 2.

The FTA's 2011 Categorical Exclusion for HMC covered both Phase I (maintenance facility) and Phase 2 (storage facility). At the time, BART was experiencing a short term need for added maintenance capacity but was unsure of the need for additional storage at HMC. The future need for additional storage capacity was viewed in the context of planning for other major expansion projects. BART elected to proceed with HMC Phase 1 as a separate project with independent utility from HMC Phase 2. Once planning for the Transbay Corridor Core Capacity Program was initiated, the need for additional cars and storage became more apparent, and prior work on HMC Phase 2 was revived.

The BART Board adopted a second addendum to the HMC Negative Declaration in August 2016. That addendum summarizes the changes made to the HMC project since 2011. Only one of the changes – a sound wall discussed in Section H *Noise* (**page 37**) – is within the footprint of HMC Phase 2. Otherwise, neither Phase 2 of HMC nor the environment affected by Phase 2 has changed since 2011, and no additional impacts are anticipated. The Negative Declaration and the CE for HMC plus the two addenda are incorporated into this document by reference and are provided as appendices.

On November 17, 2016, the BART Board adopted the Transbay Corridor Core Capacity Program with a finding that the 306 added vehicles, communications based train control, and five additional traction power substations are statutorily exempt from the CEQA in accordance with the Public Resources Code, Section 21080(b)(10). This BART Board action completes the CEQA process for these three elements. The CEQA process for HMC was completed by the Negative Declaration and the addenda to the Negative Declaration cited above.

Expansion of the rail car fleet by 306 new cars

BART's existing fleet of 669 rail cars is at the end of its useful life and is being replaced. BART is starting to receive deliveries on an order of 775 vehicles, including 669 replacement vehicles and 106 vehicles for extensions and capacity expansion².

In a second phase of vehicle procurement, the subject of this categorical exclusion, BART intends to acquire an additional 306 new rail cars, bringing the total fleet to 1,081 vehicles.

Of the 306 additional cars to be acquired in the second phase, 252 are needed for BART to expand capacity in the Transbay Corridor and to operate 30 ten-car trains per hour on the four lines that operate through the Transbay Tube (Red, Blue, Green and Yellow). The remaining 54 are to increase capacity on the Orange line (which does not operate through the Transbay tube) and to provide additional cars for the ready reserve fleet.

Phase 2 of the Hayward Maintenance Complex

The current storage capacity across all of BART's yards and tail tracks is 893 vehicles. BART currently has 669 cars in the fleet, and BART has 775 new cars on order to replace the existing fleet. Once the new fleet of 775 cars is delivered, BART will still have capacity for 893 cars, meaning that space for approximately 118 additional cars will exist on the system, though all unused spaces cannot always be used effectively, due to the need to have spare spaces to marshal trains in the yards. To accommodate the additional 306 new vehicles that BART will acquire as part of the Transbay Corridor Core Capacity Program, and to maintain functional yards with room to properly marshal trains, BART will construct HMC Phase 2 to provide storage for 25 ten-car trains, or 250 additional rail vehicles. This will give BART a future total fleet of 1081 cars and a system storage capacity of 1143 cars across all the yards. BART will have marshalling capacity of approximately 62 spaces, divided between 4 yards, or about 15 spaces per yard. This space is needed to keep the yards functional.

The yard will be constructed with access to the existing yard and electrified such that it may serve as a fully operational vehicle storage facility. The HMC offers the only practical site to expand storage on the BART system to accommodate the additional cars that are part of the Transbay Core Capacity Program. HMC Phase 2 provides for additional storage capacity only. Added maintenance capacity will be provided by the HMC Phase 1 project, which is separately funded and outside the scope of the Transbay Corridor Core Capacity Program.

Communication-based Train Control (CBTC) System

To achieve the shorter headways needed to operate 30 regularly scheduled trains per hour through the Transbay Tube, BART will replace its existing train control system with a new CBTC system.

The new CBTC system will be based on a moving-block signaling approach throughout the existing system plus the extension now under construction between Warm Springs and Berryessa. The new CBTC system will consist largely of lineside equipment installed within BART's existing right-of-way throughout the entire system. Existing signaling equipment will be overlaid with the most current electronics, software, computer systems, and cabling. New zone controllers, radio antennas, interlocking controllers and wayside radio transponder tags will be installed throughout the trackside alignment, train control rooms and central control facilities. Cars and maintenance vehicles will be outfitted with processor based controllers, transponders, communication equipment and location sensors.

² Bay Area Rapid Transit (BART) *New Train Car Project* <http://www.bart.gov/about/projects/cars/why-new-cars>
[Accessed on August 17th 2016]

Installation activities will include trenching for new cabling, concrete pads for electronic equipment and radio antennas along the trackway as well as new racks, servers, computers, communication equipment and cable trays within the wayside train control rooms and central control facilities. These activities will take place within existing BART right-of-way.

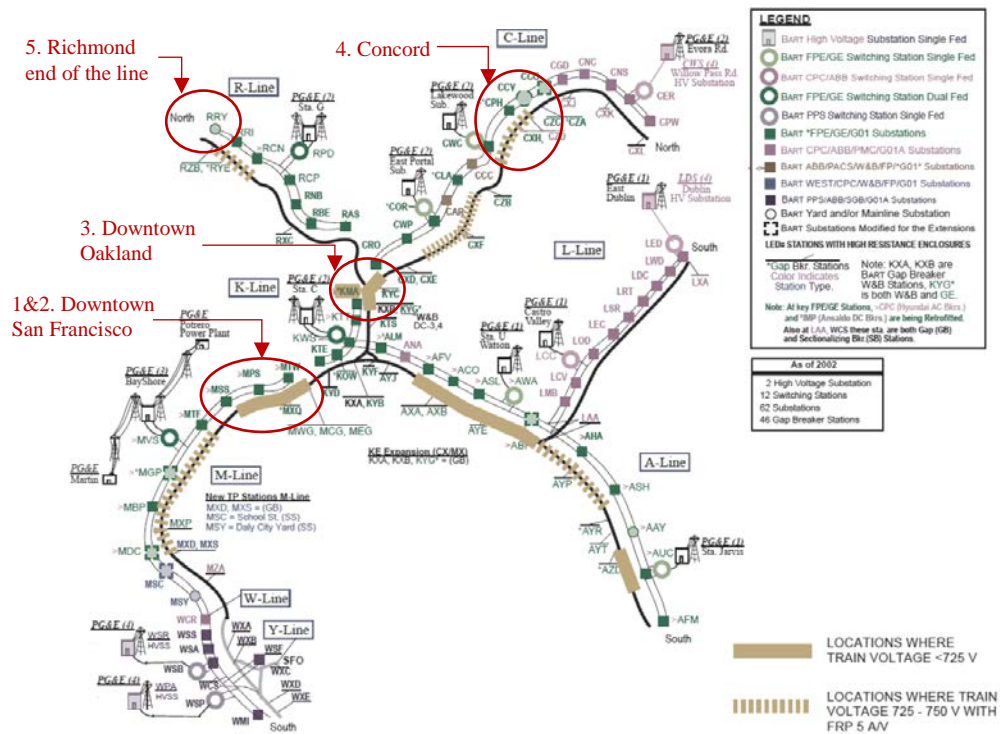
New Traction Power Substations (TPSS)

The increased train lengths and more frequent peak period trains will require additional traction power during operation. BART has conducted simulations to assess the power requirements associated with operating 30 regularly scheduled ten-car trains through the Transbay Tube per hour. The simulations assumed 30 trains per hour, and included various delay scenarios that would lead to bunched trains, providing a safety factor or contingency in the analysis. It also assumed the electrical profile of BART’s new vehicles as well as the CBTC system necessary to operate trains this frequently. The simulations revealed specific areas along BART’s mainline where the traction power requirements for the increased service exceed the capacity available from BART’s existing traction power system³.

Five sites have been identified for new substations and are shown in the **Figure 2**

1. Civic Center Station in San Francisco
2. Montgomery Station in San Francisco
3. Oakland near I-980 and 34th Street
4. Concord - David Avenue and Minert Road
5. Richmond - RYE Gap Breaker Conversion (Richmond Yard)

Figure 2: The BART Traction Power Subtransmission Network and Low Voltage Areas



³ PGH Wong Engineering Inc., *BART Transbay Corridor Core Capacity Traction Power Simulation*, October 2016 [Appendix E]

Placement of a new TPSS in proximity to each area of low voltage will allow BART to operate the 30 train per hour service optimally. Locating a new TPSS close to an existing TPSS site would only introduce redundant traction power capacity in that area and not enhance the existing system overall. Accessibility for operations and maintenance is another consideration when siting a new TPSS.

Further details on the siting of the five new TPSS are provided in Topic B, *Location*, starting on page 11.

Description of a TPSS

The typical TPSS site must accommodate several equipment areas, each one with certain required spatial clearances. Spacing considerations must include an Alternating Current (AC) house, Direct Current (DC) house, and space for two rectifier-transformers. These items of equipment can be configured in different ways so that the TPSS footprint can be accommodated within each site.

Figure 3: Typical TPSS Layout 1

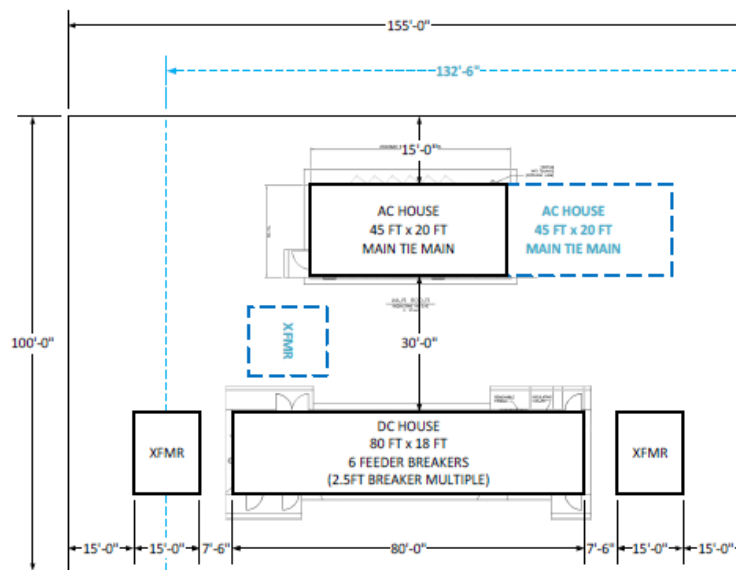
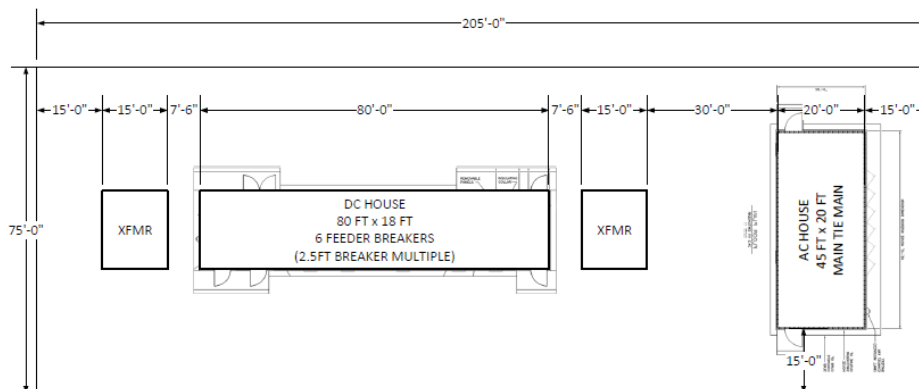


Figure 4: Typical TPSS Layout 2



Ventilation

The TPSS sites in San Francisco will be located under Market Street, within the existing BART stations at Montgomery and Civic Center. Underground TPSS facilities require a ventilation system. This system will be vented to the street level through a ventilation plenum, which can terminate at an at-grade vent grate in the sidewalk right-of-way. BART has identified several options for ventilating the two new TPSS under Market Street, and is coordinating with the City of San Francisco on the locations and design of these vents, which will be finalized during the design phase. The vents will be constructed pursuant to the California Building Code Chapter 4, Section 433, *Fixed Guideway Transit System* requirements and the National Fire Protection Association (NFPA) 130 Standard for Fixed Guideway Transit and Passenger Rail Systems, Edition 2014 requirements.

Constructability

BART has performed a constructability analysis⁴ for the new TPSS to be located in downtown San Francisco. Consideration was given to spatial constraints and weight of the equipment as well as the impact on stakeholders during construction and installation. Installation activities for each new substation site in Downtown San Francisco will include:

- Providing temporary barrier
- Providing protection for other equipment.
- Providing civil and structural improvements.
- Installation of raceways and conduits through SFMTA and BART levels of the stations.
- Modification of entry points (passenger or skylight) for TPSS equipment delivery.
- Delivery and installation of TPSS equipment.
- Building permanent fire rated barrier.
- Restoration of facilities to their former state.

The constructability analysis confirmed that the TPSS could be installed within the Montgomery and Civic Center stations. At Montgomery, one station entrance would be temporarily closed, an escalator and stairway would be removed to provide a space for dropping the equipment down to the concourse level, and then the escalator and stairway would be replaced. At Civic Center, the current western access points located in front of Burger King (north-west corner of the intersection of Market and 8th Street) and in front of Chase Bank (south-west corner of the same intersection) would be permanently closed, to enable construction activities; and also to serve as the locations for placement of the emergency ventilation system and ventilation grates. Stairs and escalators at these two entrances will be removed, the TPSS equipment would be dropped to the concourse level through the opening, and then the opening would be decked over to create additional sidewalk space for pedestrians. Street lane closures may be required at both locations as the equipment is delivered to the site by truck, but will be limited in duration and occur during night time hours to minimize traffic impacts. The eastern entrances at the intersection of Market and 8th Street, the entrance at United Nation Plaza and the entrances at the intersection of Market and 7th Street would remain available for passenger use.

B. LOCATION

The new fleet will operate and the CBTC system will be installed within existing BART-owned right-of-way throughout BART's 112-mile system in five counties: San Francisco, Alameda, Contra Costa, San Mateo and Santa Clara. The physical features to be constructed as part of the Transbay Corridor Core Capacity Program – the features with a potential for environmental impacts – are HMC Phase 2 and the five traction power substations. The location of these features is further described below.

⁴ PGH Wong, *Core Capacity Traction Power Equipment Constructability Review Downtown San Francisco, Revision B, November 7th, 2016* [Appendix F]

HMC Phase 2 Location Description

The Hayward Maintenance Complex (HMC) is located in the City of Hayward in Alameda County, California. It is being constructed within an industrial area on BART-owned property adjacent to the existing Hayward Yard, BART’s existing operating tracks, and existing railroad tracks owned by the Union Pacific Railroad (UPRR). HMC Phase 2, the portion of HMC covered by this Categorical Exclusion, is bounded by Parkway West to the north, Whipple Road to the south, BART’s existing operating tracks to the west, and the UPRR tracks and Carroll Avenue to the east. Residential development exists on the opposite side of the UPRR tracks and Carroll Road. Figure 1 in the Second Addendum to the Final Initial Study/Mitigated Negative Declaration [**Appendix C**] illustrates the location.

TPSS Location Description

The five new TPSS to be installed as part of the program would be in three counties – San Francisco, Alameda and Contra Costa. They are identified in **Table 1** and further described below.

Figure 5, **p.13**, shows the general location of the substations throughout the BART network. Site maps are provided in **Figures 6 to 15, pages 14 to 22**.

Table 1: Location of the Five New TPSS

Substation	City	Address	Description
Downtown San Francisco - Civic Center Station	San Francisco	1231 Market Street, San Francisco, CA 94103	The site is located underground on the concourse level at the western end of the station. It would involve closing the two western entrances permanently to Civic Center Station.
Downtown San Francisco- Montgomery Station	San Francisco	544 Market Street, San Francisco, CA, 94104	The location of the substation is planned to be in BART’s paid area on the concourse level.
Oakland – south of 34 th Street in I-980 right-of-way	Oakland	Next to 626, 33 rd Street, Oakland, CA, 94609	Under highway ramp from EB I-580 to SB I-980 on Caltrans freeway right-of-way.
Concord - David Avenue and Minert Road	Concord	In front of 2050 Minert Road, Concord, CA, 94518	The site is on BART right-of-way next to the BART track, across Minert Road from a school and near a residential area.
Richmond - RYE Gap Breaker Conversion	Richmond	646 Portola Avenue, Richmond, CA, 94801	The site is on BART right-of-way next to a BART railyard, adjacent to an active UPRR and Amtrak right-of-way, and across Portola Avenue from a residential area. The TPSS would replace an existing gap breaker station.

Figure 5: General Location of the Five New TPSS



Downtown San Francisco - Civic Center Station

The proposed site for the *Civic Center Station* TPSS is underground on the concourse level of the station under Market Street, located near the intersection of Grove Street, Hyde Street and 8th Street. The proposed site would occupy the south-western end of the existing Civic Center Station.

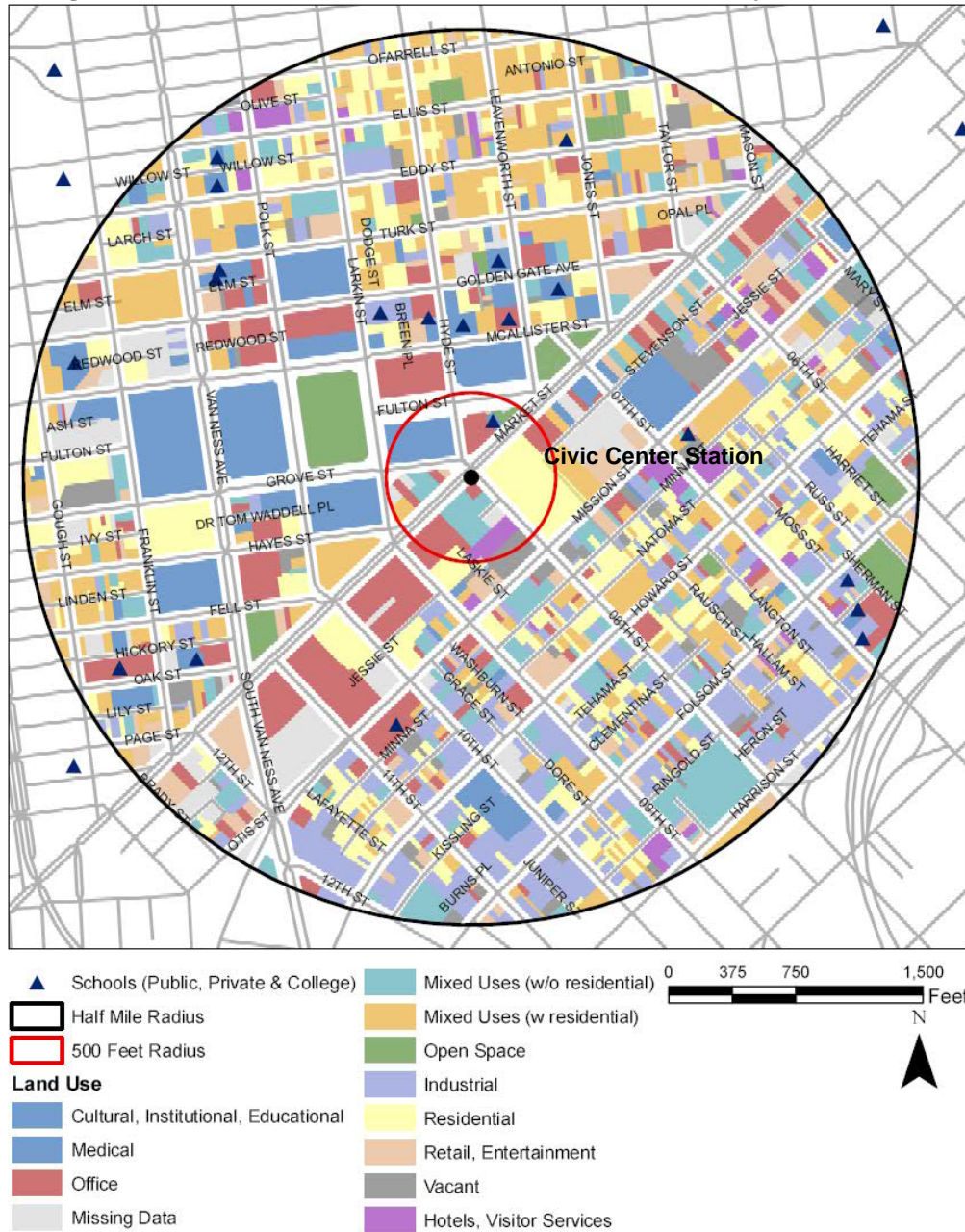
The TPSS at Civic Center Station will be placed in the passageway connecting the concourse to the two station entrances located south and west of the station along Market Street as shown in **Figure 6, p.14**. This will necessitate the permanent closure of these entrances. John Rahaim, City and County of San Francisco Planning Department, sent BART a March 20, 2017, letter expressing support for BART's Core Capacity Program and acknowledging BART's intent to close the two westernmost entrances to the Civic Center Station and install a new TPSS in the corridor connecting the main part of the station to these entrances [**Appendix G**]. Six access portals would still be available for the riders at the eastern corner of the intersection of Market and 8th Street (2 access portals), the entrance at United Nation Plaza (2 access portals) and the entrances at the intersection of Market and 7th Street (2 access portals). The closure of these two portals has been analyzed for impact on emergency evacuation times and was found to have no impact [**Appendix H**].

Figure 6: Location of TPSS in Civic Center Station and Entrances to be Closed



The *Civic Center Station* site is located underground within the existing Civic Center Station near several public buildings including the San Francisco Public Library, the San Francisco City Hall and the Asian Art Museum. Parks in the vicinity of the proposed TPSS are the Civic Center Plaza and the United Nation Plaza. These elements are located north of Market Street. New residential buildings are under construction at the corner of 8th Street and Market Street. The TPSS will be located completely within existing transportation right-of-way underground within the Civic Center Station and will be consistent with the existing transportation land use. Consistency with land use and zoning is discussed in Topic D, *Land Use and Zoning*, starting on **page 24**.

Figure 7: Downtown San Francisco - Civic Center Substation Adjacent Land Use



Downtown San Francisco - Montgomery Station

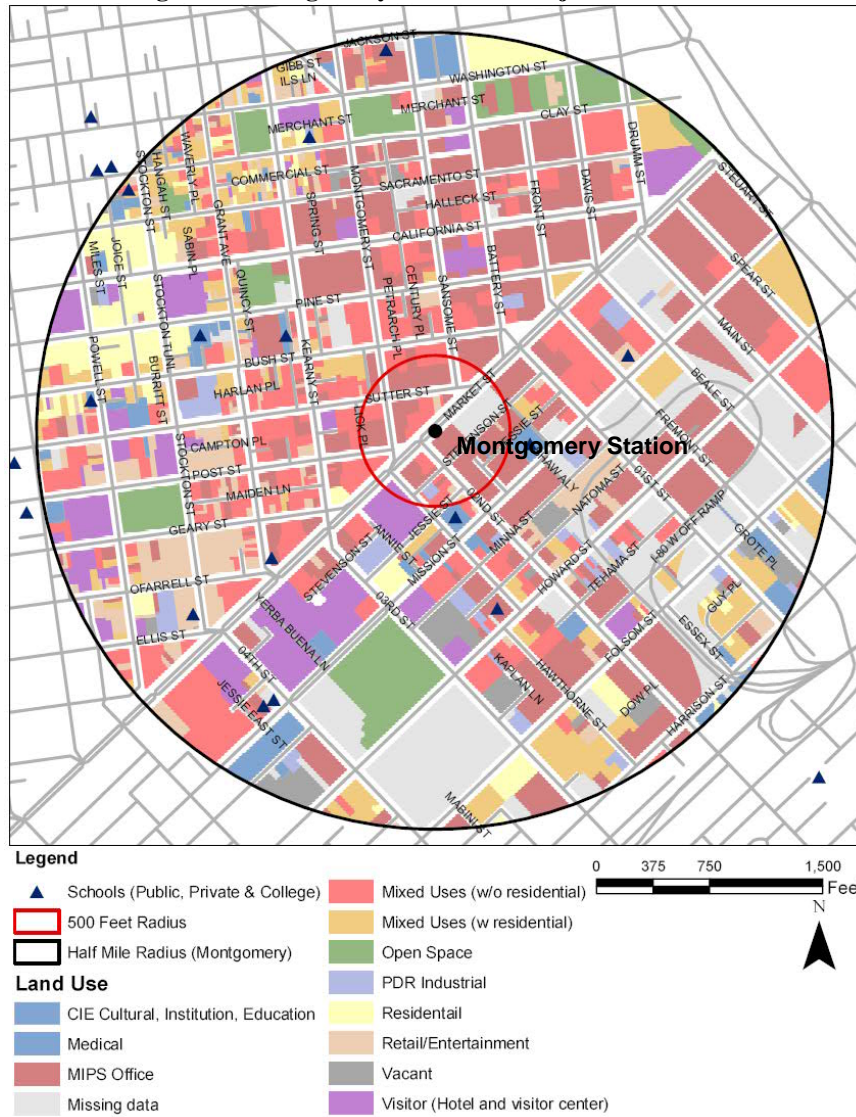
The location of the substation is planned to be underground on the concourse level in BART’s paid area in Montgomery BART station in Downtown San Francisco. An alternative site is in the free area next to a MUNI stairway. Neither the underground concourse nor the area next to Muni stairway will involve permanent closure of any entrances to the Montgomery station.

The proposed site is located in the Financial District and the adjacent land uses are mainly offices. The TPSS will be located entirely underground, within existing transportation right-of-way within the Montgomery Station and will be consistent with the existing transportation land use. Consistency with land use and zoning is discussed in Topic D, *Land Use and Zoning*, starting on page 24.

Figure 8: Location of TPSS in Montgomery Station



Figure 9: Montgomery Substation Adjacent Land Use



Oakland – 34th Street and I-980

The proposed substation would be located south of 34th Street in Caltrans-owned I-980 right-of-way, under the freeway off-ramp from eastbound I-580 to southbound I-980, as shown in Figure 10. The southbound I-980 lanes are immediately east of the site, and the BART trackway is in the center of the I-980 right-of-way. The proposed TPSS site is currently fenced in and accessible only by Caltrans maintenance crews, with no public access. The surrounding area is dominated by the freeway and ramp structures. The TPSS site is set among numerous large concrete freeway support columns for the freeway ramp structure overhead. Access to the TPSS site would be provided by the existing access road on the Caltrans right-of-way. Caltrans is supportive of this action based on initial conversations between BART and Caltrans, and a review of the proposal at a site meeting with Caltrans on August 15, 2016.

Several residential properties are located to the west of the proposed TPSS site. The residential properties are separated from the site by fences, trees, and the freeway support columns, which create an existing buffer between the TPSS site and the residential uses. A park is located on Caltrans property on the north side of 34th Street underneath the overhead freeway ramp structure north of 34th Street. The TPSS will be located completely within existing transportation right-of-way and will be consistent with the existing transportation land use for the parcel. Consistency with land use and zoning is further discussed in Topic D, *Land Use and Zoning*, starting on page 24.

Figure 10: Footprint of the Oakland TPSS

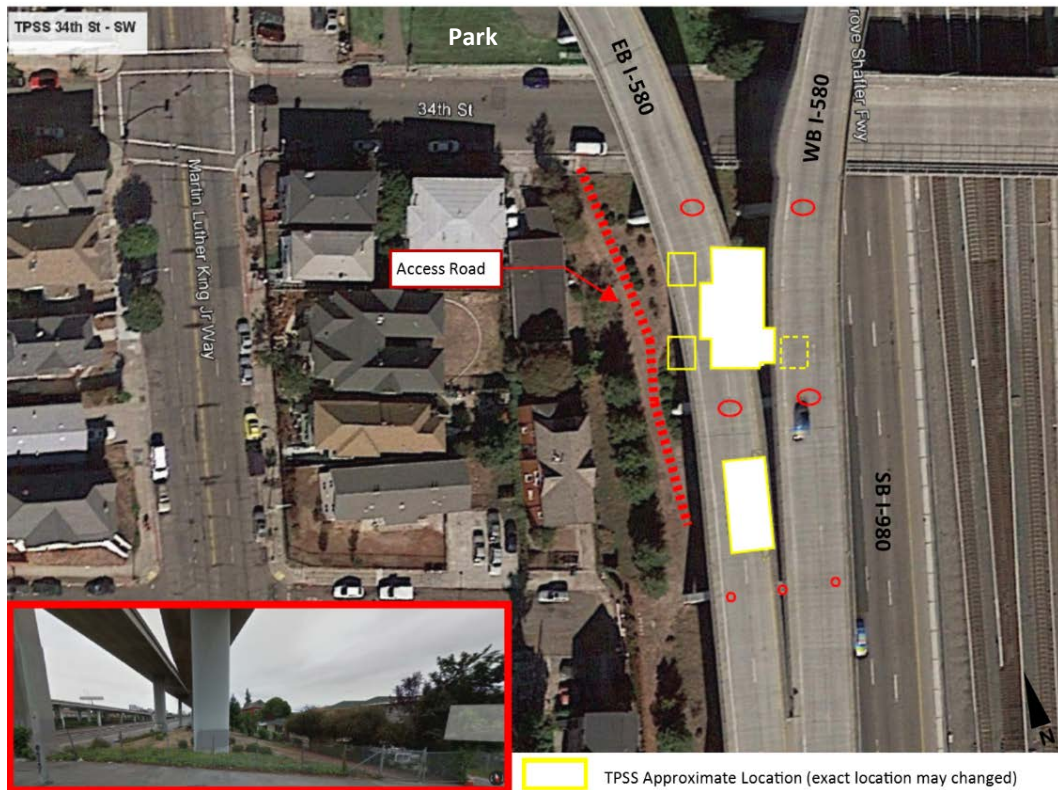
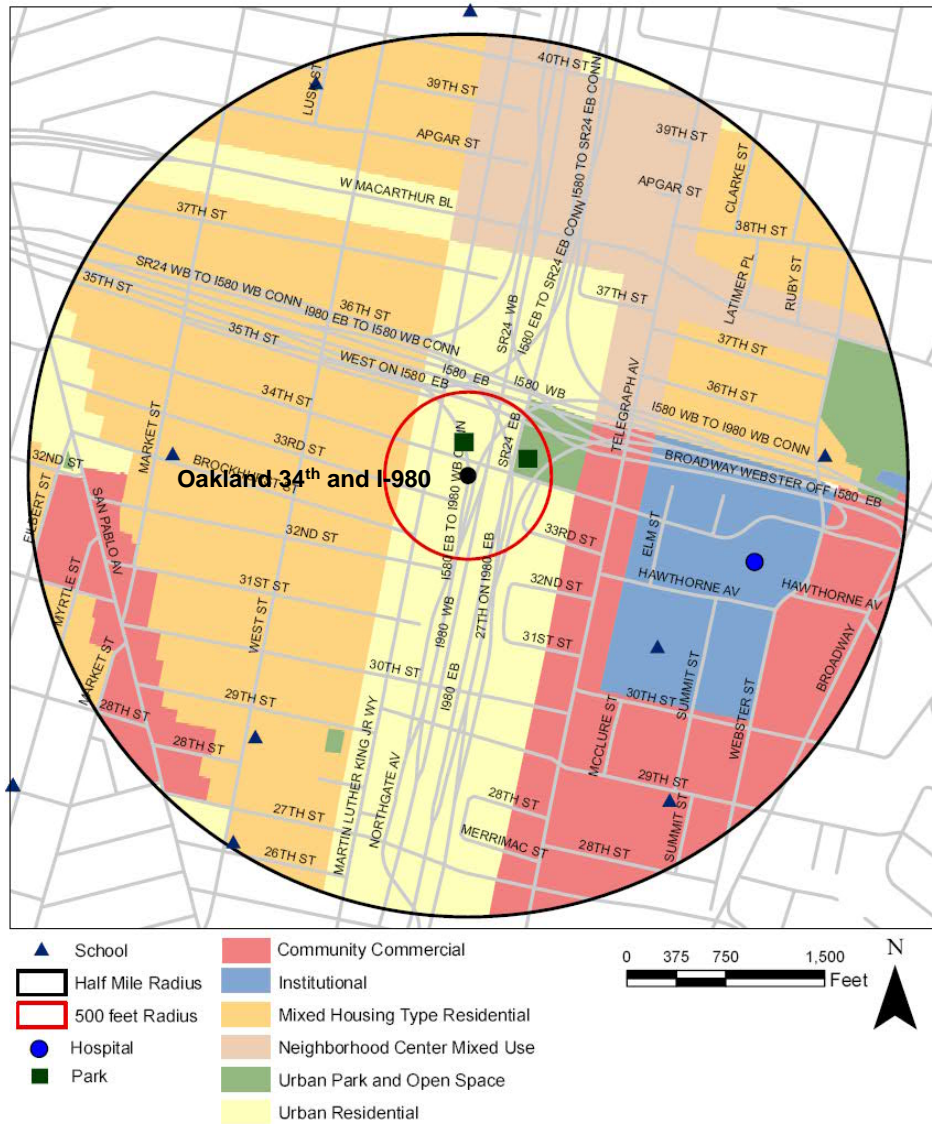


Figure 11: Oakland 34th Street and I-80 Substation Adjacent Land Use



Concord - David Avenue and Minert Road

The site is located on BART's right-of-way south of BART's existing tracks and adjacent to Minert Road. The BART tracks are separated from all adjacent land uses by the two parallel arterial roadways on either side of the trackway, fencing, and vegetation. Minert Road is adjacent and parallel to the tracks on the south side, and David Avenue is adjacent and parallel to the trackway on the north side. The BART right-of-way is lined with vegetation at this point. Along the Minert Road side of the alignment, trees and other vegetation screen the right-of-way, and on the David Road side of the alignment, a hedge of oleander bushes screens the alignment. A middle school is located across Minert Road from the TPSS site. There are residential land uses adjacent to the school and on the north side of the BART tracks and across David Avenue. The closest residential use is north of the BART tracks and across David Avenue approximately 130 feet from the TPSS. The TPSS would be across Minert Road and approximately 150 feet from the closest building of the middle school. **Figure 12, p.19**, shows the orientation and location of the TPSS facility relative to the middle school. In general, the TPSS is parallel to the BART trackway and to the roadways on either side of the trackway. The TPSS will be located completely within existing transportation right-of-way and will be consistent with the existing transportation land use. Consistency with land use and zoning is further discussed in in Topic D, *Land Use and Zoning*, starting on **page 24**.

Figure 12: Location of Concord David Avenue and Minert Street TPSS



Figure 13: Concord - David Avenue and Minert Street Substation Adjacent Land Use



Note: According to the City of Concord general plan. The Public Quasi Public designation is applied to property owned by governmental entities and to semi-public facilities and it includes: Airport, hospitals, schools, government offices, corporation yards, and public facilities such as recycling centers, sewage treatment facilities and fire stations.

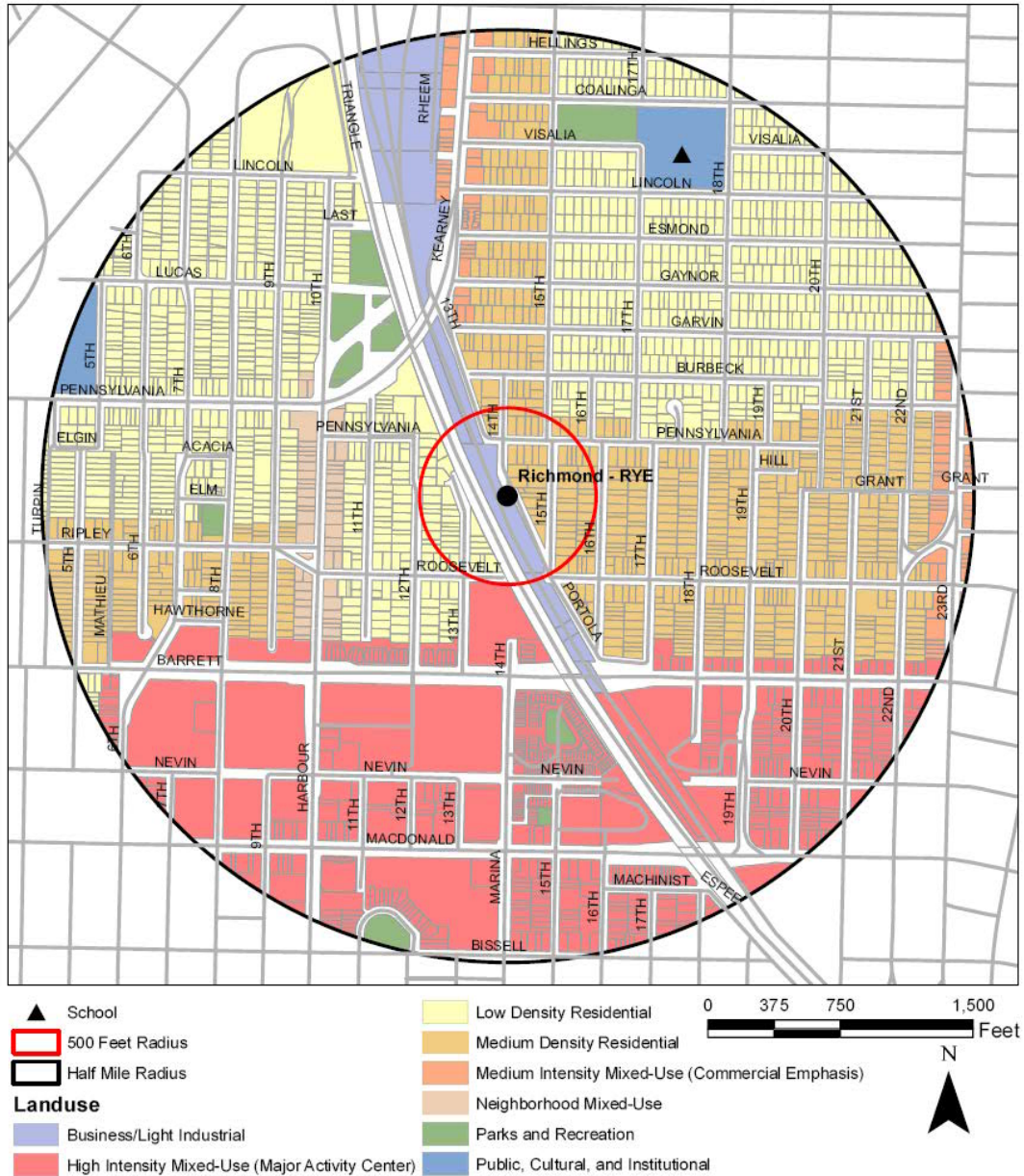
Richmond - RYE Gap Breaker Conversion

The TPSS site is on BART right-of-way between BART's existing railyard and Portola Avenue, and adjacent to an active Union Pacific and Amtrak railroad right-of-way. This site involves converting an existing gap breaker station to a TPSS. The TPSS would be consistent with the existing land use that currently includes the BART railyard and the UPRR/Amtrak railway tracks as illustrated in **Figure 14, p.21**. Several residential units are located on the opposite side of Portola Avenue from the site. The TPSS will be located completely within existing transportation right-of-way and will be consistent with the existing transportation land use. Consistency with land use and zoning is further discussed in Topic D, *Land Use and Zoning*, starting on **page 24**.

Figure 14: Richmond RYE Gap Breaker Conversion Location



Figure 15: Richmond Substation Adjacent Land Use



C. METROPOLITAN PLANNING AND AIR QUALITY CONFORMITY

The MPO for the San Francisco Bay Area is the Metropolitan Transportation Commission (MTC). The Regional Transportation Plan (RTP), called Plan Bay Area, was adopted in 2013 and amended in 2015. FTA and FHWA determined that the amended plan conforms to the State Implementation Plan for air quality on October 29, 2015.

On July 26, 2017, MTC adopted Plan Bay Area 2040. The Plan Bay Area 2040 Transit Project List (Appendix A to the Transportation-Air Quality Conformity Analysis for Plan Bay Area 2040 and Amended 2017 Transportation Improvement Program) includes BART’s Transbay Corridor Core Capacity Project (all four major scope elements) as a fully-funded capital project. The RTP ID Number for the capital elements is 17-10-0006. The Transit Project List also states that the Core Capacity Project will be implemented in coordination with the BART Metro Program + Bay Fair

Connector, which includes the future service plan for 12-minute headways on all BART lines in the peak period (instead of current 15-minute headway) following implementation of the capital projects in the Transbay Corridor Core Capacity Project. The RTP ID Number for the BART Metro Program is 17-10-0005.

MTC performed the necessary studies to demonstrate air quality transportation conformity prior to adoption of Plan Bay Area 2040. MTC’s plan-level conformity analysis included the fleet expansion element of the Transbay Corridor Core Capacity Project and the resulting BART Metro Program service plan with the more frequent 12 minute headways for the BART system. The remaining components of the Core Capacity Program – HMC Phase 2, CBTC and Traction Power Substations – are exempt from conformity analysis under 40 CFR 93.126 (As a fleet expansion, the acquisition of 306 vehicles is not exempt from conformity analysis.). Thus, BART’s complete Transbay Corridor Core Capacity Program is included in an adopted, fiscally constrained regional transportation plan that is in conformance with the State Implementation Plan.

Non-exempt projects also require project-level air quality conformity, once they are included in a conforming regional plan with plan-level conformity. The railcar element of the Transbay Corridor Core Capacity Project is the one non-exempt element requiring project-level conformity. The vehicles are electrically powered, and more frequent service and increased capacity would tend to reduce VMT. On June 23, 2016, BART presented the Transbay Corridor Core Capacity Program to MTC’s Air Quality Conformity Task Force (AQCTF) for information. Following adoption of Plan Bay Area 2040, which gives BART’s Transbay Corridor Core Capacity Project BART plan-level conformity, BART returned to the AQCTF on August 24, 2017 and presented the project assessment finding that the Transbay Corridor Core Capacity Program is not a project of air quality concern under 40 CFR 93.123 (b)(1) for PM₁₀ and/or PM_{2.5}, and a hotspot analysis is not required. The Task Force agreed and confirmed that the project is not a project of air quality concern.

The 2015 Transportation Implementation Plan (TIP) was adopted by the MTC on September 24, 2014 and was amended in 2015. FTA and FHWA last approved the conformity determination for the TIP on October 29, 2015. Appendix B to MTC’s adopted Plan Bay Area 2040 includes an updated 2017 TIP with the elements of BART’s Transbay Corridor Core Capacity Project as shown in **Table 2, page 23**.

Table 2: TIP ID in relation to the Core Capacity Project

Project Number	Name of the project	Air Quality Exempt Code	Explanation
TIP ID BRT030005	Traction Power System Renovation : <i>Replace obsolete elements and subsystems of the traction power system to maintain and improve reliability and safety</i>	2.08 - EXEMPT (40 CFR 93.126)	Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures)
TIP ID BRT030004	Train Control Renovation: <i>Replace obsolete elements and subsystems of the train control system</i>	2.08 - EXEMPT (40 CFR 93.126)	Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures)

D. LAND USE AND ZONING

The current zoning designation for HMC Phase 2 and surrounding areas is presented in the Final Negative Declaration [**Appendix A**]. HMC Phase 2 is consistent with the land use and zoning of the vicinity. No impacts are anticipated.

The current zoning designations around each of the five new TPSS are illustrated in **Figures 16** through **20**, on **pages 25 to 29**. Adjacent use maps are in Topic B, *Location*, starting on **page 11**. Each of the maps show a half mile radius and a 500 feet radius area. Schools within the vicinity of the proposed substation are identified on the land use map. Proposed TPSS sites are located in 4 different jurisdictions: San Francisco, Oakland, Richmond and Concord.

Zoning

Under state law (Cal. Gov. Code sections 53090 and 53091), local zoning and use permits under local zoning ordinances are not applicable to BART. Nevertheless, as shown below, the TPSS are compatible with existing zoning and land use. **Table 3**, on **pages 30** and **31**, shows the jurisdiction and existing zoning for the locations of each of the proposed TPSS. Four of the five proposed TPSS are located in existing BART right-of-way, and the fifth is within Caltrans right-of-way.

According to the San Francisco Municipal Code, zoning around Downtown San Francisco Civic Center substation is Downtown General (C3-G), and around Montgomery substation is Downtown Office (C3-O). Power substations are included in the use “Utility facility” of the Public Works Code.

Figure 16: Adjacent Zoning to Downtown San Francisco Civic Center Substation

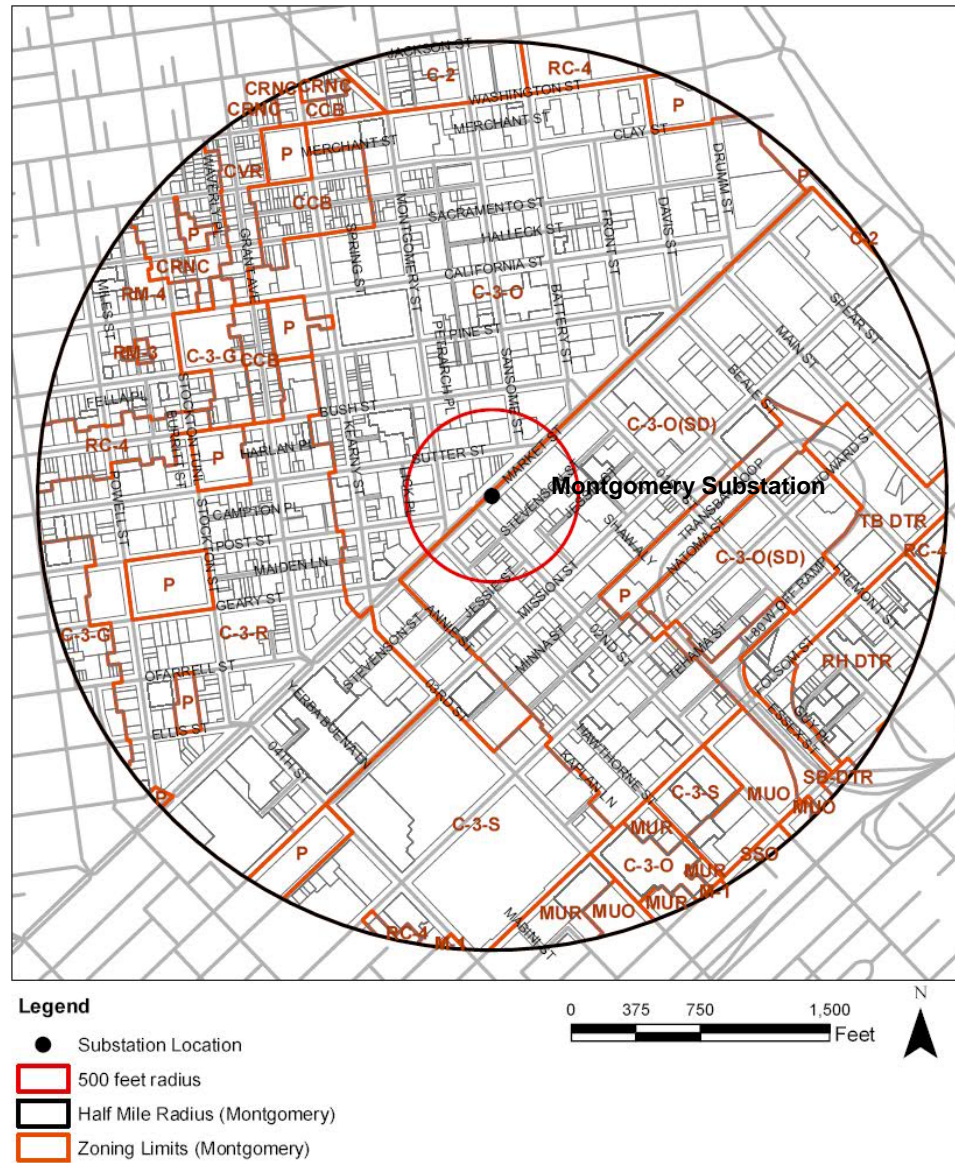


Legend

- Substation Location
- ◻ 500 feet radius
- ◻ Half Mile Radius (Civic Center)
- ◻ Zoning Limits (Civic Center)



Figure 17: Adjacent Zoning to Downtown San Francisco Montgomery Substation

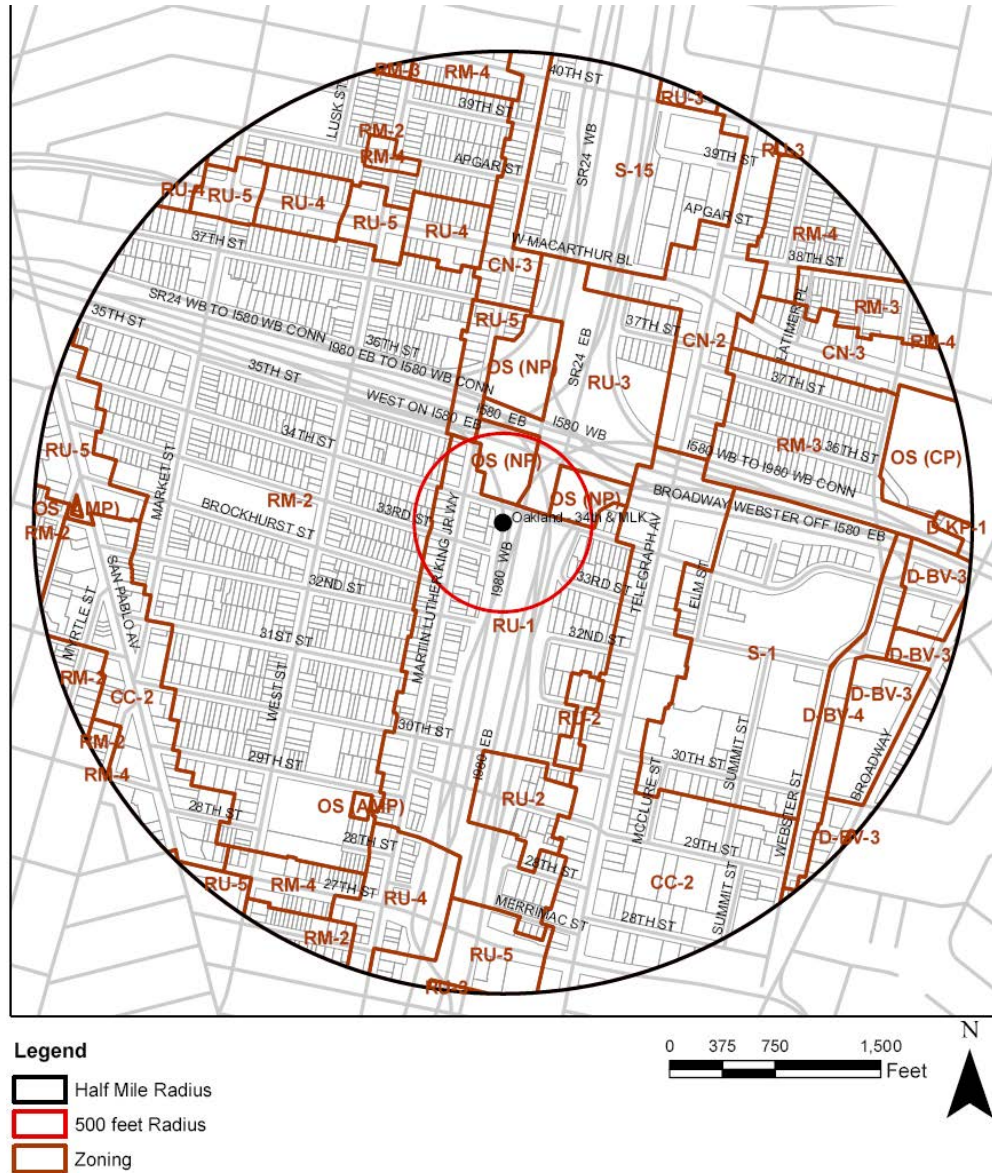


Zoning Categories according to the City and County of San Francisco Planning Code

Chinatown Mixed Use Districts <i>CCB: Community Business</i> <i>CRNC: Residential/Neighborhood</i>	Neighborhood Commercial Transit Districts <i>NCT: Individual (Named, Controls vary)</i> <i>NCT-3: Moderate Scale</i>	Industrial Light <i>M-1: Light Industrial</i>
Commercial <i>CVR: Visitor Retail</i>	Commercial Districts <i>RCD: Regional Commercial</i>	Neighborhood Commercial Districts <i>NC-3: Moderate-Scale (3+ Commercial Stories)</i>
Commercial District <i>C-2: Community Business</i> <i>C-3-G: Downtown General</i> <i>C-3-O: Downtown Office</i> <i>C-3-R: Downtown Retail</i> <i>C-3-S: Downtown Support</i>	South of Market Mixed Use Districts <i>RED: Residential Enclave</i> <i>RED-MX: Residential Enclave Mixed Use</i> <i>SALI: Service/Arts/Light Industrial</i> <i>SSO: Service/Secondary Office</i>	Public <i>P: Public</i>
Eastern Neighborhoods Mixed Use Districts <i>MUG: Mixed Use, General</i> <i>MUO: Mixed Use, Office</i> <i>MUR: Mixed Use, General</i> <i>WMUG: Western SoMa, Mixed Use, General</i> <i>WMUO: Western SoMa, Mixed Use, Office</i>	Residential, Mixed (Houses & Apartments) Districts <i>RM-4: High Density (1 Unit per 200 sf)</i>	Residential, Mixed (Houses & Apartments) Districts <i>RM-3: Medium Density (1 Unit per 400 sf)</i> <i>RM-4: High Density (1 Unit per 200 sf)</i>
	Residential Transit Oriented Districts <i>RTO: Residential Transit Oriented Development</i>	Downtown Residential District <i>RH DTR: Rincon Hill</i> <i>SB-DTR: South Beach</i> <i>TB DTR: Transbay</i>
		Residential-Commercial Combined Districts <i>RC-4: High Density (1 Unit per 200 sf)</i>

The land surrounding the *Oakland - 34th Street and I-980* substation, which is within Caltrans I-980 freeway right-of-way just south of 34th Street, is zoned Urban Residential (RU-1) according to Oakland Planning Code. Power substations are included in the use “Utility and vehicular Civic Activities”.

Figure 18: Adjacent Zoning of Oakland 34th Street and I-980 Substation

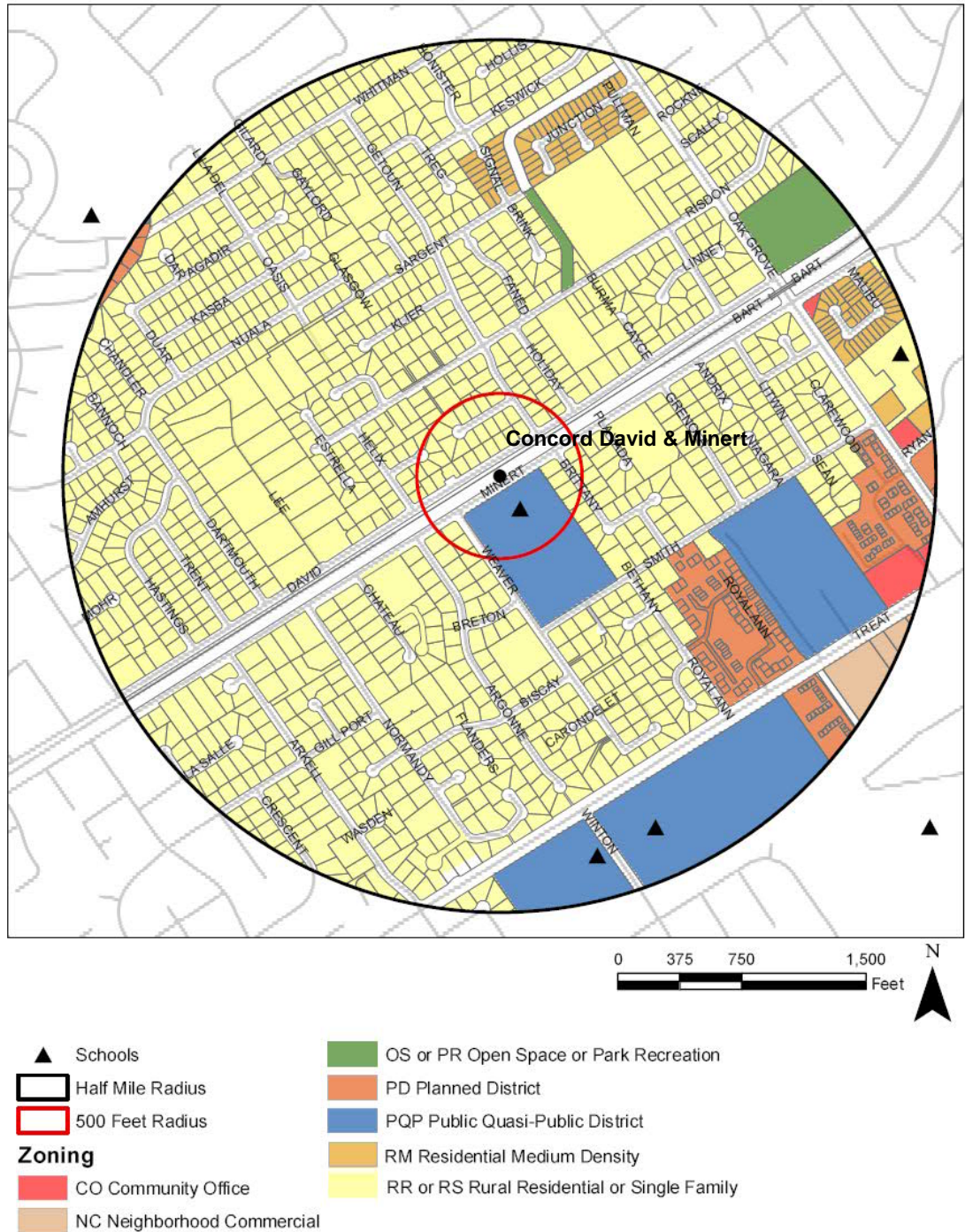


Zoning Categories according to the City of Oakland Planning Code

- | | | |
|--|---------------------------------|-------------------------------|
| <i>CC: Community</i> | <i>OS-AMP: Active Mini-Park</i> | <i>RU: Residential Urban</i> |
| <i>CN: Neighborhood Center</i> | <i>OS-CP: Community Park</i> | <i>S-1: Medical Center</i> |
| <i>D-BV: Broadway Valdez District</i> | <i>OS-NP: Neighborhood Park</i> | <i>S-15: Transit Oriented</i> |
| <i>D-KP: Kaiser Permanente Oakland</i> | <i>RM: Mixed Housing</i> | |

The Concord David Avenue and Minert Road site is on BART right-of-way. No zoning is designated to this land in Concord Municipal Code. Power substations are included in the use “Utility facility transmission tower”. Substations are allowed in areas with Residential zoning, which is the zoning for the properties across David Avenue from the proposed substation and adjacent to the Middle School across Minert Avenue from the proposed substation.

Figure 19: Adjacent Zoning of Concord David Avenue and Minert Road Substation



According to the City of Richmond Zoning Ordinance, land adjacent to the proposed *Richmond RYE Gap Breaker Conversion* Substation is zoned light industrial District (M2). Power substations are included in the use “Public utilities, major”.

Figure 20: Adjacent Zoning of Richmond RYE Gap Breaker Conversion Substation



Zoning Categories according to the City of Richmond Planning Code

C-1: Neighborhood Commercial District
C-2: General Commercial District
CRR: Community and Regional Recreational District
M-2: Light Industrial District

MFR-1: Multifamily Residential District
MFR-3: Multifamily High Density Residential District
PC: Public and Civic Uses
SFR-3: Single-Family Low Density Residential District

Adjacent Uses

Existing land uses adjacent to the Downtown San Francisco TPSS locations include commercial (e.g.: retail, banks, restaurant, etc.), institutional, along with some multi-family residential along Market Street. Around the Downtown San Francisco Civic Center substation, public and institutional uses are dominant; these include library, park, schools, museum, governmental (city, state or federal) buildings. Downtown San Francisco Montgomery substation is located in the heart of the Financial District and offices are the main adjacent use. The proposed substations in downtown San Francisco are both entirely underground. The proposed vent grates for the TPSS are anticipated to be embedded in the sidewalk and will not have any visual impacts to the surroundings. No effects on adjacent uses are anticipated.

Existing land uses around the Oakland site in the I-980 right of way south of 34th Street include Interstate Highway (I-980), the BART tracks in the center of I-980, single and multi-families housing, and open spaces. The potential substation site is located under the existing freeway interchange ramp from EB I-580 to SB I-980, surrounded by multiple freeway columns. It will add a visual element among existing freeway support columns and other freeway and transportation facilities, between the existing residential uses to the west of the site and the I-980 freeway mainline to the east. Residential uses are shielded by the interspersed freeway columns, fencing and a row of trees. The TPSS would be placed in a context of transportation uses characterized by the presence of the freeway ramps overhead, and the freeway mainline and BART trackway to the east.

The immediate land uses adjacent to the Concord (David Avenue and Minert Road) Substation are two arterial roadways; that flank the BART trackway. The proposed substation is to be located within BART right-of-way across Minert Road from Oak Grove Middle School and will introduce a visual element between the school and the BART tracks. The existing land use north of David Avenue is single family housing (low-density residential), as is the land use on either side of the Oak Grove Middle School.

The proposed Richmond RYE Gap Breaker Conversion substation will convert BART’s existing gap breaker station at the Richmond Yard to a TPSS. The site is contained entirely within BART’s existing right-of-way near the intersection of Portola Avenue and 15th Street. Existing adjacent land uses include Class 1 railroad operations (Union Pacific and Amtrak), light industrial uses (BART railyard) and single family housing on the opposite side of Portola Avenue.

Table 3: Adjacent Zoning

Substations	Jurisdiction	Adjacent Zoning	City Zoning Classification
Civic Center Station	City and County of San Francisco	C3-G: Downtown General	"Utility facility" shall mean pipes, wires, tracks, conduits, tunnels, poles or other overhead supporting structures, with any appurtenances, or any other structures of any nature, upon, in, over or under the streets or places of the City and County of San Francisco which are used for the purpose of supplying or conveying any services or substances within the limits of the City and County of San Francisco
Montgomery Station	City and County of San Francisco	C3-O: Downtown Office	
Oakland I-980 & 34th street	City of Oakland	RU-1: Urban Residential	Zoning Code art. 17.19.030 Utility and vehicular civic activities. [...] include the maintenance and operation of the following installations: B. Electrical Substations

Substations	Jurisdiction	Adjacent Zoning	City Zoning Classification
Concord – David Avenue and Minert Road	City of Concord	BART right of way - No Zoning in Concord Plan	“Utility facility, transmission towers” means a facility that provides a fixed base structure or facility serving as a junction point for transferring electric utility services from one transmission voltage to another or to local distribution and service voltages, and similar facilities for water supply and natural gas distribution. These uses include any of the following facilities that are not exempted from land use permit requirements by Government Code Section 53091: Electrical substations and switching stations, etc.
Richmond RYE Gap Breaker Conversion	City of Richmond	M2: Light Industrial District	Public utilities, major means generating plants, electrical substations , switching buildings, refuse collection processing, recycling or disposal facilities, water or waste treatment plants, and similar facilities of public agencies or public utilities.

The TPSS facilities and CBTC would be placed in areas already used predominantly for transportation purposes. They would be in BART or Caltrans right-of-way located next to BART’s existing tracks and thus, such uses are consistent with existing zoning and land use. Typical TPSS facilities contain electrical equipment housed in pre-fabricated metal enclosures of rectangular shape approximately 12 feet in height, 40 feet wide, and 60 feet long. The project would not have any impacts on land use and zoning.

E. TRAFFIC AND PARKING IMPACTS

The program would not have any impacts on on-street or off-street parking because the improvements would be in either BART’s or Caltrans’ existing transportation right-of-way in areas not accessible to the public for automobile use. It would not change existing parking at BART stations, feeder bus service serving BART stations, or roadway lanes and signals. There would be no permanent loss of on-street or off-street public parking.

The program would expand Transbay Corridor rail capacity to meet existing demand and relieve overcrowding on trains. It will also position BART to better accommodate ridership growth, consistent with growth trends in the Bay Area. Plan Bay Area projects population to increase by 30% by 2040, much of which will be located close to BART stations.

F. CO HOT SPOTS

The Counties of Alameda, Contra Costa, San Francisco, San Mateo and Santa Clara are in a Federal attainment/maintenance area for CO and, also in attainment on the State level.

Since the project is in a Federal maintenance area, the project cannot have CO impacts substantial enough to cause violations of standards. A proposed project is likely to have an acceptable level of emissions compared to a No-Build condition if it is determined that it meets the following criteria:

- The project does not substantially increase (greater than two percent) the number of vehicles operating in cold start mode (starting a vehicle with a cold engine).

- The project does not substantially increase traffic volumes (i.e., increases greater than five percent).
- The project improves traffic flow (i.e., higher average speeds (up to 50 miles per hour) should be regarded as an improvement for uninterrupted roadways.
- A project that causes an insignificant increase in emissions may only be deemed satisfactory if the project does not move traffic closer to a receptor.

The expansion of the BART fleet by adding an additional 306 cars and other elements of the Transbay Corridor Core Capacity Program would meet all the criteria listed above. The railcars being procured for the program are electrically-powered and do not create emissions. The project is anticipated to relieve current overcrowding onboard trains and provide additional capacity for new transit riders, which could lead to reduced VMTs. Thus, the program would not cause any new localized CO exceedances of federal standards, generate emissions that would worsen existing violations or delay timely attainment of standards. On August 24, 2017, MTC's Air Quality Conformity Task Force agreed that the program is not a project of air quality concern.

G. HISTORIC RESOURCES

Historic resources will not be affected by the project. Installation of a new CBTC train control system will be contained wholly within BART's existing right-of-way and station structures, and will not affect historic resources.

HMC Phase 2 –was assessed in the Final Negative Declaration [**Appendix A**] and addenda for HMC [**Appendix B** and **Appendix C**], which concluded that Phase 2 of the facility would have no impacts on historic resources. The Negative Declaration notes that research, reviews of historic maps and aerials, and a pedestrian survey did not indicate the presence of known historical resources within the project site or within a ½-mile radius of the site and the track work area south of Whipple Road.

The new TPSS facilities are all within existing BART or Caltrans right-of-way. No historic resources will be affected. The three new East Bay TPSS sites are not located within or near a historic district or property. These three substations will not result in any substantive changes to the landscape or view shed proximate to these rights-of-way. The following sections provide more detail on the two new traction power substations in San Francisco, and support the conclusion of no impact.

Area of Potential Effects (APE)

The National Historic Preservation Act (NHPA) of 1966, as amended (16 USC § 470, et seq.) requires the FTA to take the effects of its undertakings on historic properties into account. As part of the Section 106 process, a geographic buffer is developed to assess impacts on cultural resources and referred to as an Area of Potential Effects (APE).

An Area of Potential Effects (APE) was developed to review the existing historic resources in relation to the new project elements. Since the two downtown San Francisco TPSS facilities are entirely within current underground station structures, the APE for the San Francisco structures is the sidewalk area that will include access points and ventilation grates on the surface, all embedded in the current operational footprint. Therefore, no ground level visual buffer was assumed as part of the development of the APE.

Historic Structures and Districts

The two TPSS facilities in San Francisco would be located within current underground station structures. The *Downtown San Francisco Civic Center* substation would be located in the *San Francisco Civic Center Historic District* according to Article 10 of the Planning Code of the City and County of San Francisco and the National Register of Historic Places (NRHP). There are also

existing historical landmarks within a 1000 feet radius from the *Civic Center* and *Montgomery* substations. The Historic District and Landmarks are identified in **Table 4 (p. 33)**, **Table 5 (p. 34)**, **Figure 21, (p.35)**, and **Figure 22 (p.35)**. Since substations will be located entirely underground; the substations will not have any effect on historical landmarks or districts.

Each of the two new substations in downtown San Francisco will require new vent grates for ventilation purposes. The anticipated vent grates are to be embedded in the sidewalk pavement at-grade similar to existing vent grates, and are not expected to introduce any visual elements along the Market Street corridor. The initial design of the vent structures was closely reviewed for any potential impacts to the Market Street historic district and/or to adjacent historic structures. BART is collaborating with the City and County of San Francisco regarding the number, location, size, and exterior appearance of these facilities and is committed to have the design be context sensitive in its use of materials. The final decisions will be made during final design.

At Civic Center, two existing passenger entrance portals will be removed to facilitate the placement of the TPSS underground. One of these entrances, near the corner of Market Street and Grove Street, is within the Civic Center Historic District. The removal of this portal structure would not have any adverse visual effect. An overall improvement to the visual quality is anticipated. Based upon a conversation that took place between FTA and the California State Historic Preservation Office (SHPO) on November 17, 2016, BART will not need to consult with the SHPO regarding the closure of the station entrance at Market and Grove Streets in San Francisco’s Civic Center Historic District. No contributing structures are being removed, no new structures are being constructed, and there will be no expansion of the station or increased depth of disturbance associated with the installation of the TPSS. Additionally, the station entrance itself does not contribute to the significance of the historic district. Therefore, the closing of the entrances will have no adverse impact on the historic district.

As mentioned earlier, for Montgomery and Civic Center Substations, the TPSS ventilation would be through grates embedded in the sidewalk, at-grade. Design of the grates would be context sensitive. The surface level grates embedded in the sidewalk will not create any adverse visual impact to historic resources in the surrounding area.

Sources used for this analysis include the GIS database from the City and County of San Francisco⁵ Planning Department and the GIS database from the NRHP⁶, which includes both nationally and locally designated historic resources.

Table 4: List of Historic Districts in the Vicinity of the Proposed Civic Center TPSS

	Name	Listed under...	Boundaries	Station Included
A	San Francisco Civic Center Historic District	NRHP (78000757) and Article 11	Roughly bounded by Golden Gate Ave., 7 th Street, Franklin, Hayes and Market Street	Civic Center

⁵ City of San Francisco, *Map of the Landmarks and Landmark Districts as defined and listed in Article 10 of the San Francisco Planning Code*, available online: <https://data.sfgov.org/Housing-and-Buildings/Landmarks/8ynb-89vj>

⁶ National Register of Historic Places, *Public, non-restricted data depicting National Register spatial data processed by the Cultural Resources GIS facility*, Available online: <https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466>

Table 5: List of Historic Buildings and Designated Landmarks in the Vicinity of the Proposed Civic Center TPSS⁷

	Name	Listed under...	Address	Close to which substation	Distance (feet) ⁸
1	Orpheum Theater Building	Article 10 (#94)	1192 Market Street	Civic Center	215

Table 6: List of Historic Buildings and Designated Landmarks in the Vicinity of the Proposed Montgomery TPSS⁹

	Name	Listed under...	Address	Close to which substation	Distance (feet) ¹⁰
1	Hobart Building	Article 10 (#162)	582 Market Street	Montgomery	255
2	Flatiron building	Article 10 (#155)	1 Sutter Street	Montgomery	175
3	Hoffman’s Grill	Article 10 (#144)	619 Market Street	Montgomery	340
4	Crown Zellerbach Building	Article 10 (#183)	1 Bush Plaza	Montgomery	315
5	The Mechanics Institute	Article 10 (#134)	57 Post Street	Montgomery	655
6	Sharon Building	Article 10 (#163)	36-63 New Montgomery Street	Montgomery	390
7	Palace Hotel and Garden Court Room	Article 10 (#18)	2 New Montgomery Street	Montgomery	640
8	Hallidie Building	Article 10 (#37) and NRHP (71000185)	130 Sutter Street	Montgomery	630
9	SF Mining Exchange	Article 10 (#113)	350 Bush Street	Montgomery	895
10	Lotta Fountain	Article 10 (#73) and NRHP (75000475)	Kearny Street	Montgomery	760
11	Mills Building & Tower	Article 10 (#76) and NRHP (77000334)	220 Montgomery Street	Montgomery	625
12	Hunter-Dulin Building	NRHP (97000348)	111, Sutter Street	Montgomery	390

⁷ Source: NRHP GIS data and City and County of San Francisco GIS Data.

⁸ Distances were calculated approximatively with Google Earth Tools.

⁹ Source: NRHP GIS data and City and County of San Francisco GIS Data.

¹⁰ Distances were calculated approximatively with Google Earth Tools.

Figure 21: Historic Buildings and District in Vicinity of Civic Center TPSS

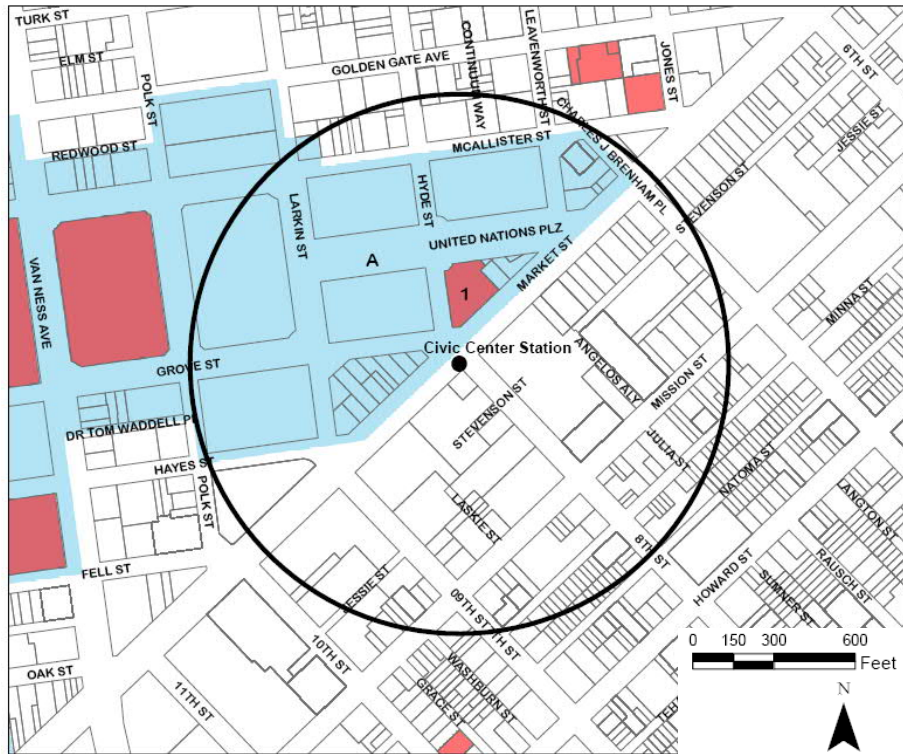
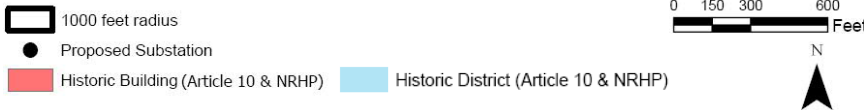
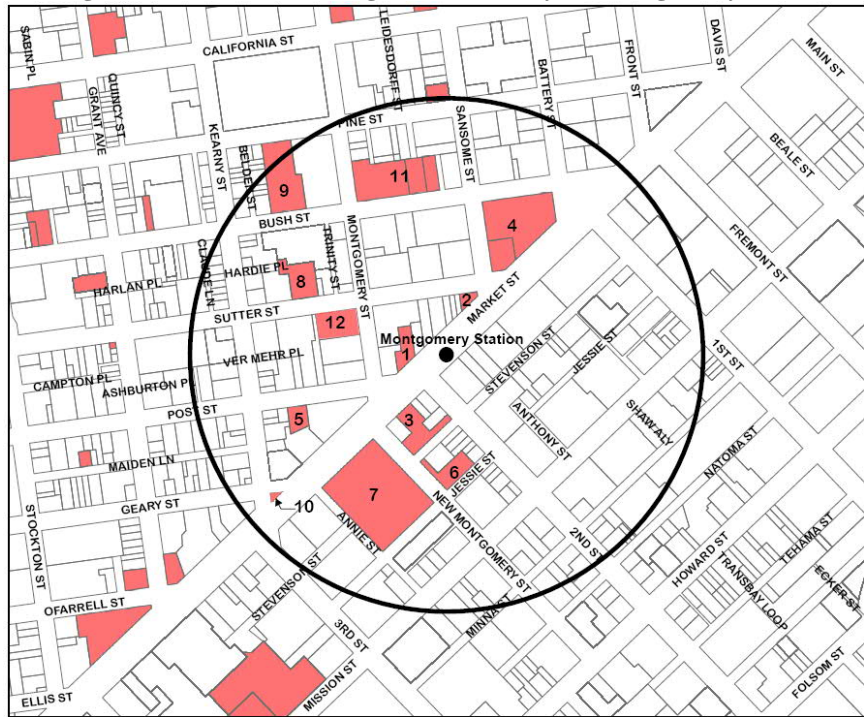


Figure 22: Historic Buildings in the Vicinity of Montgomery TPSS



* Historical buildings and districts are listed and numbered in the tables above

Archaeological and Native American Cultural Resources

Installation of the new CBTC train control system and the procurement of railcars are wholly within BART's existing rail and station right-of-way and operating envelope, and will have no impact on archaeological and Native American cultural resources.

For HMC Phase 2, the Negative Declaration [**Appendix A**] and the addenda for HMC [**Appendix B** and **Appendix C**] assessed the potential impacts on archeological and Native American cultural resources. The project, as defined, would not have any adverse effects on archeological and Native American cultural resources.

For the TPSS facilities, the proposed locations of the substations are all wholly within existing station structures or are in a previously excavated (disturbed) context for railroad or highway construction. Therefore, no effects to archeological and Native American resources are anticipated.

The two San Francisco TPSS facilities are wholly within the existing station structures for Civic Center and Montgomery stations. No excavations are anticipated, and the only surface disruption would be to rebuild small sections of the sidewalk on Market Street for the ventilation grates. The Market Street right-of-way has already been highly disturbed to a depth of approximately 80-100 feet for cut-and-cover construction of the underground BART system and stations in the 1960s and 1970s, and for modifications to the Market Street roadway and sidewalk.

The three East Bay TPSS facilities will be constructed within existing transportation rights-of-way that have already been disturbed for railroad, roadway, freeway and overpass construction. The Concord site was first disturbed when a railroad right-of-way was constructed on this alignment, and it was further disturbed in the 1960s when the right-of-way was rebuilt as BART. The Richmond site was first constructed as a railroad right-of-way, and was rebuilt for BART in the 1960s. The Oakland site was significantly disturbed beginning in the 1960s during construction of SR-24, I-580 and I-980. The site features multiple columns and footings for the freeway overpass structures that are overhead, and the site was graded and resloped to allow the adjacent freeway to be built in a below-grade trench configuration.

However, in an event that previously undisturbed soils are encountered, the following may be required:

- *Avoidance of Discovered Cultural Resources and Measures to Reduce Harm:* If evidence of an archaeological site or other suspected historic resource is encountered during construction, including darkened soil representing past human activity ("midden") that could conceal material remains (e.g., worked stone, faunal bone, hearths, or storage pit), all ground-disturbing activity within 100 feet of the find shall be halted and BART notified. BART will hire an archaeologist meeting the Secretary of the Interior's Standards for Professional Archaeologist to assess the find. Impacts to any significant resources may be mitigated through avoidance, data recovery, or other methods determined adequate by the qualified archaeologist and that are consistent with the Secretary of the Interior's Standards for Archeological Documentation. Any mitigation plan developed by the qualified archaeologist shall be approved by BART prior to implementation. Project-related ground-disturbing activities shall not be continued in the vicinity.
- *Avoidance of Discovered Human Remains and Measures to Reduce Harm:* If human remains, including disarticulated or cremated remains, are discovered during any phase of construction, all ground-disturbing activities in the vicinity and any nearby area reasonably suspected to overlie adjacent human remains shall be immediately halted. BART and the relevant County Coroner shall be notified immediately, in accordance with the Section 5097.98 of the State Public Resources Code and Section 7050.05 of California's Health and Safety Code. If the remains are determined by the county coroner to be Native American, it is the responsibility of the county coroner to inform the Native American Heritage Commission (NAHC) within 24 hours. The guidelines of the NAHC should be adhered to in the treatment and disposition

of the remains. BART shall retain a qualified archaeologist who meets the Secretary of the Interior’s Standards for Professional Archaeologist and with Native American burial experience to conduct a field investigation of the specific site and consult with the person identified as the Most Likely Descendent, if any, identified by the NAHC. BART shall approve any mitigation recommended by the qualified archaeologist prior to implementation, taking account of the provisions of State law as set forth in the CEQA Guidelines Section 15064.5(e) and Public Resources Code Section 5097.98. Approved mitigation must be implemented before resumption of ground-disturbing activities in the vicinity.

In such cases, coordination with the SHPO and consultation with Native American tribes will be required. However, there are no potential archeological discoveries anticipated due to the already developed nature of the locations of the project elements.

H. NOISE

In October 2016, a Noise and Vibration Technical Report was completed to assess the potential for ongoing airborne noise impact to noise-sensitive land use located in the proximity to new and refurbished TPSS and the new communication-based train control system [**Appendix I**]. Screening distances were used from the candidate sites for new and upgraded TPSS to assist with the initial evaluation of potential noise impacts and site visits were conducted on March 17 and June 8, 2016 for the East Bay and March 30 and June 23, 2016 for San Francisco.

Table 7: List of noise sensitive receptors and the closest distance to the TPSS site

TPSS Location	Sensitive Use	Distance to Nearest Receptor (feet)
Downtown San Francisco - Civic Center	Residential with no open windows, Orpheum Theater, Public Library, and City College	15*
Downtown San Francisco - Montgomery	Urban with few sensitive land uses	15*
Oakland 34 th Street and I-980	Residential and Grove Shafter Park	85
Concord - David Avenue and Minert Road	Residential and Oak Grove Middle School	110
Richmond - RYE Gap Breaker Conversion	Residential	100

**Distance from ventilation system intake or discharge grill in sidewalk with receptor at approximately > 15 feet from grill.*

Noise-sensitive uses were identified for each potential TPSS site and measurements of existing ambient noise measurements were conducted at the East Bay locations between June 20 and 24, 2016. Six long-term (24 hours or longer) measurements were conducted and nine short-term (typically 15 minutes) measurements were performed. Measured long-term existing average day-night sound levels (L_{dn}) varied between 64 and 76 decibels. The calculated L_{dn} levels for the short-term measurement locations varied from 57 to 83 decibels.

Existing baseline community noise information developed by the City and County of San Francisco in 2008 was used for the San Francisco TPSS locations. Modeled L_{dn} levels based on the City and County of San Francisco database indicated that levels vary between 74 and 76 decibels.

Because the specific equipment and layout of each final TPSS location has not yet been determined, it is not possible to accurately predict the TPSS noise emission levels and calculate noise impacts at the time of the preparation of this report. BART’s practices in TPSS design is to develop the TPSS component specifications, equipment layout and ancillary features such as a perimeter screen wall that would avoid impacts to the vicinity of the final TPSS locations. This approach is consistent with

the process used for the Warm Springs Extension. The Noise and Vibration Technical Memorandum provides noise impact avoidance criteria at the approximate boundary of each TPSS site as referenced in Section 3.4.2 and Table 3-4 with TPSS acoustic noise emission performance consistent with the limit criteria levels, the project will avoid noise impacts at any identified noise-sensitive land uses in the vicinity of the TPSS facilities.

Design and installation best practices will help TPSS sites perform within or under the noise thresholds. BART (or its contractor) will monitor the noise levels post deployment. Noise levels will be compared with the thresholds, and a sound wall or other noise reduction mechanisms will be installed if the threshold is exceeded. Operations and performance standards of recently installed TPSS (e.g., Warm Springs) will additionally inform this entire process of design, installation and operations.

No perceptible noise is expected from operation of the communication-based train control system.

HMC was the subject of a separate noise report done by Wilson Ihrig in 2011 [**Appendix K**], and updated by Wilson Ihrig in 2014 [**Appendix L**] and 2017 [**Appendix M**]. The latest review found that the noise levels in areas adjacent to HMC Phase 2 would not exceed the FTA threshold for Moderate Impacts and thus, no impacts are anticipated. In the original Negative Declaration, Phase 2 was to include a soundwall (SW-3) to be built at the property line to shield residences north of the site. In Addendum 2, based on Wilson Ihrig's 2014 analysis, the sound wall was moved from the property line and replaced with a short wall atop an existing ramp structure in approximately the same relationship to the adjacent residences. In its 2017 analysis, Wilson Ihrig determined that the ramp structure itself was sufficient to avoid a moderate impact, without the short wall on top. The original Negative Declaration also determined that another soundwall (SW-4) would be needed for Phase 2. SW-4 has already been built as part of Phase 1. Therefore, since all required sound walls were already built during Phase 1, no additional sound wall would be built under HMC Phase 2.

I. VIBRATION

The Negative Declaration [**Appendix A**] and addenda for HMC [**Appendix B** and **Appendix C**] assessed the potential impacts on vibration. The project as defined includes several design and best practices measures that will be implemented to ensure that there are no vibration impacts. Measures to reduce the effect of vibration include vibration reducing technology and construction vibration best management practices.

The program does not involve new or relocated trackway outside of HMC Phase 2. Operation of neither the TPSS nor the communication-based train control system will generate any ground-borne vibration impacts. Temporarily elevated vibration levels could result from construction activities associated with reworking and constructing new TPSS. These activities may include demolition, grading, minor excavation, foundation fabrication, paving and installation of systems components. No high vibration producing activity such as pile driving is anticipated to be necessary for the installation of the TPSS or the CBTC equipment. While the construction vibration may be briefly elevated, the change would not be substantial and would not create significant impacts¹¹.

J. ACQUISITIONS & RELOCATIONS REQUIRED

Implementation of the program will be on BART and Caltrans right-of-way. It will not result in displacements of residences or businesses. Caltrans is supportive of the use of their property based on the initial conversations between BART and Caltrans and a field meeting at the site on August 15, 2016. No full acquisitions or easements are required. BART has begun the process of negotiating a cooperative agreement with Caltrans for use of I-980 right-of-way for the Oakland 34th Street and I-980.

¹¹ Appendix H: Core Capacity Noise and Vibration Technical Memorandum, October 2016, p.37.

K. HAZARDOUS MATERIALS

The Final Negative Declaration [Appendix A] and addenda for HMC [Appendix B and Appendix C] assessed the potential for encountering hazardous materials. Although there are no known sources of groundwater pollution on the HMC site, the HMC Negative Declaration includes mitigation provisions if unknown contamination is discovered that includes remediation of contaminated sites prior to construction. The Negative Declaration makes note of a previous spill of chemicals stored in underground storage tanks on the Univar (formerly Chem Central) property, approximately 1/8 to 1/4 mile south/southwest of the HMC site. The contamination is not on HMC site, and the contamination plume is moving away from the HMC site. No effects are anticipated.

None of the proposed substations would be located on sites identified by the State Water Resources Control Board (SWRCB) as presenting contamination¹². Thus, no effects are anticipated at the time.

Based on current land use, the TPSS site located in Richmond has a potential risk of contamination due to its proximity to railyard. Metal, oil and gasoline contamination is often encountered in railyards. However, the installation of a TPSS involves only minimal subsurface ground disturbance. Therefore, no encounters with hazardous materials are anticipated. Any identified environmental site conditions that may represent a risk to public health and safety will be remediated in accordance with federal, state, and local environmental laws and regulations. The appropriate federal, state and local parties would be notified if site conditions that represent a risk to public health are identified.

Record Search

The California SWRCB GeoTracker website was searched for publicly available records for cleanup sites in the Leaking Underground Storage Tank (LUST) and Cleanup Program databases. The GeoTracker website also includes documentation for the Department of Toxic Substances Control (DTSC) EnviroStor database as a separate layer. Sites that were identified in close proximity to the TPSS sites on the GeoTracker website were reviewed to obtain information and documents regarding the known or potential extent of contamination related to those facilities.

Civic Center TPSS

The GeoTracker website identified three listings, which constituted one property within the vicinity of the Civic Center TPSS location. The property at 1169 Market Street in San Francisco is in the EnviroStor and LUST database. The 4-acre site is situated east of the intersection of Market Street and 8th Street, adjacent east of the Civic Center TPSS site. According to a 2003 Voluntary Action Agreement with DTSC, the property contained a waste paint consolidation area. The first LUST incident was closed in 1995. The results of the DTSC voluntary action review to determine whether additional characterization and/or cleanup of the property is unknown. Another UST was discovered during construction activities in May 2016. This UST was found to be leaking; however, adequate impacted soil was removed from the premises, and the incident was closed in July 2017.

Montgomery Station TPSS

Two nearby listings were found within the GeoTracker website, which constituted one property near the Montgomery Station TPSS site. The Former Chevron Building at 555/575 Market Street is adjacent southeast of the TPSS site and in the LUST database. The first LUST incident was discovered in 1996 and the facility received a Closure/No Further Action Level in 1997. The second LUST incident was discovered in 1998 and the facility was issued a closure in July 2000.

The listings noted above will not have any direct or indirect effects on the two underground TPSS sites in downtown San Francisco in Civic Center and Montgomery Stations. Installation of the two

¹² State Water Resources Control Board (Geotracker) <http://geotracker.waterboards.ca.gov> [Accessed on April 10, 2016]

TPSS sites will occur entirely within the existing station boxes and will not involve any excavation of soil.

Oakland south of 34th Street in I-980 right-of-way

The GeoTracker website did not identify any facilities within close proximity of the Oakland TPSS site.

Concord David and Minert Road:

The GeoTracker website did not identify any facilities within close proximity of the Concord TPSS site.

Richmond RYE Gap Breaker

The GeoTracker website did not identify any facilities within close proximity of the Richmond TPSS site. As already mentioned in the chapter text, this TPSS is in close proximity to a railyard, which is a potential concern due to heavy metals, volatile organic compounds, semi-volatile organic compounds, pesticides, and herbicides (for weed suppression).

In case larger excavations are required at any of the substation sites, any potential impacts can be addressed through standard measures below:

- Further Soil and Groundwater Investigations Prior to any Construction Activities
- Remediation of Contaminated Sites Prior to Construction
- Cease Work in the Event of Discovered Environmental Contamination During Construction.

L. COMMUNITY DISRUPTION AND ENVIRONMENTAL JUSTICE

BART, as a recipient of federal funds, is required by the FTA to comply with Title VI of the Civil Rights Act of 1964 and its amendments (Act). Title VI of the Civil Rights Act of 1964 requires that no person in the United States, on the grounds of race, color or national origin be excluded from, be denied the benefits of, or be subjected to discrimination, under any program or activity receiving federal financial assistance. Presidential Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” addresses environmental justice in minority and low income populations. Presidential Executive Order 13166 “Improving Access to Services for Persons with Limited English Proficiency” addresses services to those individuals with Limited English Proficiency (LEP).

FTA Circular 4702.1B, dated October 1, 2012, entitled *Title VI Requirements and Guidelines for Federal Transit Administration Recipients* (Title VI Circular) and FTA Circular 4703.1, dated August 15, 2012, entitled *Environmental Justice Policy Guidance for Federal Transit Administration Recipients* (EJ Circular), require that federal funding recipients, such as BART, review its transportation decisions to ensure equity in the transportation decision making process and to ensure that decisions are not made on the basis of race, color, national origin or socioeconomic status.

The existing BART system covers large portions of the Bay Area and bisects a number of communities, including designated minority and low-income populations. Below is an analysis of potential impacts, if any, from the project on Title VI/Environmental Justice (EJ) communities.

Expansion of the railcar fleet (306 vehicles)

Passengers will benefit from the additional revenue vehicles which will lead to less crowding and increased train frequencies distributed throughout the BART system. The actual train operating schedules will be established closer to the project opening date and staff will make every effort to

ensure equitable distribution of vehicles. Additionally, the Title VI service monitoring process reviews vehicle assignments throughout the system for equity considerations every three years as part of BART's Title VI Triennial Review for the FTA. Because the planned equitable distribution of rail vehicles will be a benefit to all passengers, there are no impacts anticipated. Therefore, no disproportionately high and adverse effects to Title VI/EJ communities are anticipated.

Phase 2 of Hayward Maintenance Complex (HMC)

HMC Phase 2 was the subject of a separate Categorical Exclusion [**Appendix D**] issued on September 21, 2011 by the FTA. The Negative Declaration [**Appendix A**] and the CE plus addenda [**Appendix B** and **Appendix C**] for HMC are incorporated into this document by reference. HMC was also part of a separate Environmental Justice (EJ) analysis that includes an analysis of the protected communities that could be affected by the HMC. The EJ analysis was submitted to the FTA along with the HMC Initial Study/Mitigated Negative Declaration in 2011. **Appendix N** presents the EJ analysis. Neither Phase 2 of HMC nor the environment affected by HMC Phase 2 have changed since 2011. The project as defined in the EJ Analysis incorporates measures to avoid, minimize, or mitigate adverse effects to the Title VI/EJ communities. For specific details on the measures, please refer to page 21 of **Appendix N**. Because there have been no changes to the project or environment since 2011 and per the EJ Analysis, the project has incorporated measures to avoid, minimize or mitigate adverse effects, there are no remaining impacts anticipated. Therefore, no disproportionately high and adverse effects to Title VI/EJ communities are anticipated.

Communications-Based Train Control (CBTC)

The CBTC equipment in operation will not make any noise, and it will be largely invisible to the public. The CBTC equipment will be entirely in existing transportation right-of-way and existing structures. No impacts from installation or operation of CBTC equipment are anticipated. Therefore, no disproportionately high and adverse effects are anticipated for any surrounding communities, including Title VI/EJ communities.

Traction Power Substations

Demographic Setting

A GIS analysis was performed to review the demographic characteristics of the communities around the five proposed TPSS sites. The affected geographic area by the project includes uses directly adjacent to the TPSS sites. For the purposes of this evaluation, the affected geographic area has been delineated by the Census Block Groups within a half mile buffer of every TPSS.

Two aspects that define EJ communities were analyzed for the census block around the substations:

- **Low Income Population:** Individuals whose income is at or below 200 percent of the poverty level established for households by the Department of Health and Human Services (HHS) poverty guidelines. This assumption is more inclusive of low-income populations, accounting for higher incomes in the Bay Area as compared to the rest of the United States. The 200 percent threshold is also consistent with the assumptions employed by the MTC in its February 2009 Equity Analysis Report.
- **Minority Population:** All people except for Non-Hispanic white as defined by the US Census. This includes persons who self-identified themselves as American Indian or Alaskan Native, Black or African American, Native Hawaiian or other Pacific Islander, or Hispanic or Latinos.

To identify Minority and Low Income populations geographically, a percentage threshold based on the total population within the BART four-county service area was determined. Using the 2010 Census data, the percentage of Minority population within the BART systems is 59% and the percentage of Low Income population is 26%. If the Minority or the Low-Income population of the

Census Block Group (community) within the Affected Geographic Area was greater than the BART service area percentage, then the community was identified as a Minority or Low Income Census Block Group.

Table 8 and **Table 9** show a summary of the findings for the Census Block of each proposed TPSS site. Maps and complete tables per substation location and Census Block are presented in **Appendix O**.

Table 8: Low Income Communities near Proposed TPSS

Substations	Total Population ¹³	Low Income Population	Percentage of Low Income Population	EJ Low Income Community?
<i>Civic Center</i>	54,187	27,779	52,0%	Yes
<i>Montgomery</i>	42,259	19,044	45,1%	Yes
<i>Oakland 34th Street and I-980</i>	21,943	10,140	46,2%	Yes
<i>Richmond RYE Gap Breaker</i>	21,119	12,508	59,2%	Yes
<i>Concord Minert Road</i>	14,643	2,384	16,3%	No

Table 9: EJ Minority Communities near Proposed TPSS

Substations	Total Population ¹⁴	Minority Population	Percentage of Minority Population	EJ Minority Community?
<i>Civic Center</i>	54,187	35,522	65,6%	Yes
<i>Montgomery</i>	42,259	19,044	64,5%	Yes
<i>Oakland 34th Street and I-980</i>	21,943	14,738	66,0%	Yes
<i>Richmond RYE Gap Breaker</i>	21,119	20,240	95,2%	Yes
<i>Concord Minert Road</i>	14,643	5,959	16,3%	No

Four out of five of the proposed TPSS locations are in Census tracts characterized as Title VI/EJ communities. These four TPSS sites are Civic Center, Montgomery, Oakland 34th Street and I-980 and Richmond RYE Gap Breaker.

Determination of Effects

Traction power substations currently exist at approximately 76 locations throughout the BART System, and are situated proportionally in locations necessary to provide the power distribution necessary to operate the System. Traction power substations cannot be concentrated in one particular portion of the System; they must be distributed throughout the System at regular intervals to be effective and must be placed in areas where low voltage is expected. As substations are distributed across the entirety of the BART System in both Title VI/EJ and non-Title VI/EJ communities, the proposed Transbay Corridor Core Capacity Program improvements do not specifically benefit nor disproportionately impact one community over another.

The planned substations are located on existing BART and Caltrans right-of-way within the current fenced trackway or fenced existing highway right-of-way not accessible to the public, or underground in BART’s existing station facilities. Thus, these new substations will not divide any community, affect or alter its character or have the potential to disrupt any community activities.

¹³ Total Population in half mile radius around substation

The noise and vibration analysis studies BART performed determined that the new traction power substations would not perceptibly increase existing noise levels along the corridor, and accordingly, no impacts are anticipated. Therefore, no disproportionately high and adverse effects are anticipated for any surrounding communities including Title VI/EJ communities.

Any fences or walls that are erected to obscure traction power substations will be equitable in materials, finishes and style to other similar facilities located in non-EJ communities. No adverse visual impacts are anticipated. Therefore, there are no disproportionately high and adverse visual effects to Title VI/EJ communities.

The projected elements in the CE are within existing transportation right-of-way with systems that are currently operational. Core Capacity project improvements will deliver direct and tangible travel time and reliability and overall mobility benefits to all riders of the system including Title VI/EJ populations that use the BART system.

While 4 out of the 5 proposed TPSS locations are in Title VI/EJ Communities, the analysis above finds that the proposed locations do not disproportionately or adversely impact Title VI/Environmental Justice communities. For any potential impacts that were found, feasible measures were included in the project that would eliminate or reduce the adverse effects to acceptable levels.

Finally, locations for TPSS were determined using objective criteria based on engineering and operational specifications. The distribution of these TPSS facilities adhere to BART's Environmental Justice Policy (2012) which ensures that, "decisions related to vehicle replacement and new investments, or changes in transit facilities, deliver equitable levels of service and benefits to minority and low-income populations." As mentioned above, TPSS are located throughout the entirety of the BART system in both Title VI/EJ and non-Title VI/EJ communities. The TPSS are necessary to keep BART operational which benefits the entire community (including Title VI/EJ communities) at large, and all communities will benefit proportionately from the increased service levels made possible by the project.

Per the FTA Title VI/EJ Circulars, proposed projects should look at the likely adverse effects and benefits, select alternatives, and incorporate measures to address impacts as needed. Due to operational and engineering specifications that prescribe the location of TPSS in a manner that can connect to the BART mainline, there are no feasible alternatives for modifying the locations of TPSS out of a specific community. While there are no alternatives, TPSS facilities do benefit all communities including minority and low-income, and with implementation of the recommended measures, all adverse effects to Title VI/EJ populations have been reduced or minimized to less-than-significant levels.

M. USE OF PUBLIC PARKLAND AND RECREATION AREAS

The Negative Declaration [**Appendix A**] and addenda [**Appendix B** and **Appendix C**] for HMC assessed the potential impacts on public parkland and recreation areas. No impacts are anticipated.

The table below lists the closest parks to the five new substations based on geographic information system and city databases.

Table 10: List of the Closest Parkland or Recreational Area

	Closest parkland or recreational area? (feet)	Name of the Closest Park
Civic Center Station	440	United Nations Plaza
Montgomery Station	350	McKesson Plaza
Oakland 34th Street & I-980	85	Grove Shafter Park
Concord – Minert Road	425	Oak Grove Middle School Playground
Richmond	1075	Lucas Park

The program will not use land from or otherwise affect parks or a recreation areas. Access to parks will be improved in general by more frequent peak hour service. There is no Section 4(f) use or temporary occupancy of public recreation areas.

N. IMPACTS ON WETLANDS

The Negative Declaration [**Appendix A**] and addenda [**Appendix B** and **Appendix C**] for HMC assessed potential impacts on wetlands. The project as defined would not have adverse effects on wetlands.

There are no wetlands in the vicinity of the traction power substation locations. The project would not involve any activities that will discharge dredged or fill material into waters and wetlands. No Section 404 Permit would be required. No adverse effects on wetlands are anticipated.

O. FLOODPLAIN IMPACTS

The Negative Declaration [**Appendix A**] and addenda [**Appendix B** and **Appendix C**] for HMC assessed potential impacts on floodplains. The project as defined would not have adverse effects on floodplains.

For the City and County of San Francisco, the GIS data are not available but the Federal Emergency Management Agency’s (FEMA) issued a preliminary flood map. The Downtown San Francisco Civic Center and Montgomery Substations are not located in the 100-years flood plain area designated on the City’s interim floodplain map. The project would not place structures in the 100-year flood hazard area that would impede or redirect flood flows¹⁴. Per FEMA’s Flood Insurance Rate Maps, the Concord David Avenue and Minert Road substation is located approximately 75 feet from the 100-year flood plain. **Appendix P** shows the location of the floodplains in relation to proposed TPSS sites. There is no floodplain area in the vicinity of the Richmond RYE Gap breaker substation.

No effects on the flood zone or to the floodplain elevation are anticipated.

P. IMPACTS ON WATER QUALITY, NAVIGABLE WATERWAYS, & COASTAL ZONES

The San Francisco Bay is approximately 2.5 miles from HMC Phase 2 and half a mile from the closest substation (Downtown San Francisco Montgomery Station). The Negative Declaration [**Appendix A**] for HMC assessed that the project as defined would not have adverse effects. The Downtown San Francisco Montgomery Station TPSS is underground and no effects on the bay are

¹⁴ City and County of San Francisco *San Francisco Floodplain Management Program* Available online: <http://sfgsa.org/san-francisco-floodplain-management-program> [accessed on October 5th, 2016]

anticipated. Except the bay, there are no other water bodies within a half mile radius of HMC or any substation sites.

Construction and areas of soil disturbance may be considered activities that may affect water quality. In case larger excavations are required, the project would avoid releases or discharges into waterways and the storm drain system. Storm water best management practices (as discussed in the Section *S Impacts Caused by Construction* on **page 47**) will be employed during construction as needed.

There would be no construction or operation of facilities that would result in any discharge into navigable waters since construction would not be along navigable waterways. Therefore, no Clean Water Act, Section 401 Certification would be required for the proposed project. No adverse effect on water quality, navigable waterways and coastal zones are anticipated.

Q. IMPACTS ON ECOLOGICALLY-SENSITIVE AREAS AND ENDANGERED SPECIES

The Negative Declaration [**Appendix A**] and addenda for HMC [**Appendix B** and **Appendix C**] assessed potential impacts on biological resources, including habitat, and concluded that the facility would have less than significant impacts.

The TPSS sites are located within the existing BART and Caltrans right-of-way, The two in San Francisco are located underground, while the three located in the East Bay are in transportation and industrial land use and not in or near any ecologically sensitive areas and endangered species, The Richmond and Concord sites feature gravel ballast trackway with sparse and intermittent vegetation, while the Oakland site is located under a freeway ramp structure. the project as defined would not have adverse effects on biological resources.

Endangered & Threatened Species

Information regarding the potential presence of species and critical habitats listed or proposed for listing under the ESA, was obtained from the following sources:

- US Fish and Wildlife Service
- California Natural Diversity Database (CNDDDB) of the California Department of Fish and Wildlife.

According to the California Natural Diversity Database (CNDDDB)¹⁵ of the California Department of Fish and Wildlife, the following endangered or threatened species have their habitat in the region where the substations will be located.

¹⁵ California Natural Diversity Database, GIS Data

Table 11: List of Endangered or Threatened Species in the Vicinity of the New TPSS Sites

Species	Location	Radius ^a	Status	Effects?	Explanation
Longfin Smelt (fish)	San Francisco	1/2 mile	Federal Listed Candidate, State Listed Threatened	None	No works in waterways
California Black Rail (bird)	San Francisco	1/2 mile	State Listed Threatened	None	Underground work
Beach Layia (plant)	San Francisco	500 feet	Federal and State Listed Endangered	None	No works executed on beaches
Alameda Whipsnake (snake)	Richmond & Concord	500 feet	Federal and State listed Threatened	None	Poor quality habitat

Maps of the CNDDDB with the location of these species habitat are provided in **Appendix P**.

The Longfin Smelt (*Spirinchus thaleichthys*) is a fish. Construction and operation would avoid discharges into waterways and thus, no effects are anticipated.

The California Black Rail (*Laterallus jamaicensis coturniculus*) is a bird. Since work in the San Francisco area will be underground, there would be no effect.

The Beach Layia (*Layia carnosa*) is a plant occurring in beach area in San Francisco. Since no work will take place on beaches and all work will be underground or on existing sidewalks, no effects are anticipated.

Alameda Whipsnake (*Masticophis lateralis euryxanthus*) may occur in grasslands and open woodlands. The Richmond and Concord TPSS site are railroad right-of-way consisting of gravel ballast trackway, with intermittent sparse vegetation. Since the sites are not grasslands or open woodlands, no effects are anticipated.

Under Section 7, Federal agencies must consult with the U.S. Fish and Wildlife Service (Service) when any agency action may potentially affect a listed endangered or threatened species. Since no effects on endangered or threatened species are anticipated, no Section 7 consultation was deemed necessary. No permits from the Army Corps, the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service are required.

Mature Tree Removal

The Civic Center and Montgomery substations in San Francisco are located entirely underground and there are no trees in the existing facilities. There are no trees at the Richmond RYE Gap Breaker TPSS site. Therefore, no tree removal is planned on those sites and no trees would be affected.

Tree removal may occur for installation of the *Concord - David Avenue and Minert Road* TPSS and the *Oakland south of 34th Street in the I-980 right-of-way* TPSS. The number of trees to be removed will be determined later in the design phase. Any future removal would be performed outside the nesting season as part of the best practices. If tree removal is needed, the tree(s) would be replaced at a 1:1 ratio outside BART’s operating envelope. Therefore, no adverse effects are anticipated. No trees will be affected on the HMC Phase 2 site.

R. IMPACTS ON SAFETY AND SECURITY

General Safety

The project would comply with seismic safety standards per BART Facilities Standards. The general design policy of BART Facilities Standards Structural Criteria for Seismic Design incorporates the relevant seismic safety provisions of the California Building Code (CBC) and the California Department of Transportation Bridge Design Specifications (CBDS) along with other professional industry standards. BART Design Criteria require that all operating facilities be designed to withstand the effects of the Maximum Credible Earthquake without significant degradation of structural integrity.

The project would comply with security procedures per BART Facilities Standards, both during construction and operation. Work would be coordinated with BART Police and a security plan would be developed for the project. No effects on general safety and security are anticipated.

Downtown San Francisco Civic Center Substation

The construction of the Downtown San Francisco Civic Center substation requires the permanent closure of two passenger entrances/exits to the station. Six entrances/exits will still be in operation. The remaining entrances/exits will satisfy the requirements of NFPA 130¹⁶ [**Appendix H**].

In the event of a failure, substation equipment may catch fire, introducing a safety risk at the concourse level. Ventilation will remove smoke from the underground station. A permanent fire rated barrier will be built as a part of the project. Therefore, no effects are anticipated.

Downtown San Francisco Montgomery Substation

The location of this substation is directly in the middle of Montgomery Station in BART's paid area, with a secondary location in the free area adjacent to an SFMTA stairway. The location is in an area with minimal foot traffic, within BART's paid area and next to MUNI's paid area. Redefining the perimeter and paid area barriers will be necessary and structural improvements may be necessary to support a new substation. Therefore, no effects are anticipated.

As with the Civic Center substation, in the event of a failure, substation equipment may catch fire introducing a safety risk at the concourse level. Ventilation will remove smoke from the station. A permanent fire rated barrier will be built as a part of the project. Therefore, no effects are anticipated.

Substation near public access

Substations would need to be fenced to prevent people from being in contact with electrical equipment. Substations in Richmond (RYE Gap Breaker Conversion), Concord (David Avenue and Minert Road) and Oakland (34th Street and I-980) will be fenced and signage will warn people of the danger, as with all current BART substations. Therefore, no effects are anticipated.

S. IMPACTS CAUSED BY CONSTRUCTION

The Final Negative Declaration [**Appendix A**] and addenda for HMC [**Appendix B** and **Appendix C**] assessed the impacts caused by construction and concluded that the project as defined would not have adverse effects during construction.

The potential construction impacts of the five new TPSS are discussed below.

¹⁶ NFPA 130: Standard for Fixed Guideway Transit and Passenger Rail Systems, National Fire Protection Association, Edition 2014

Construction Schedule¹⁷

Construction of HMC Phase 2 would commence approximately in Winter 2019 and would be separated in two key elements: the storage yard and the flyover. The construction of the storage yard would take approximately 24 months. The storage yard would be constructed simultaneously with the flyover that is projected to be built in approximately 35 months.

Installation of the new TPSS is expected to begin in the Fall of 2019. The projected span of construction activities for a TPSS is 10 months for each location in downtown San Francisco. A period of eight months per substation is anticipated for the East Bay substations located in Oakland, Richmond and Concord.

Installation of CBTC would consist of installation of new racks, servers, computers, communication equipment and cable trays within the existing wayside train control rooms and central control facilities. The activities would also include trenching for new cabling, concrete pads for electronic equipment and radio antennas along the trackway. A majority of the activities would involve testing the new system and associated software engineering. All of these associated activities will take place within existing BART right-of-way and existing facilities. BART anticipates that the installation would be occur in eight phases, with each of the phases focusing on a specific part of the BART system. Phases would start in 2019 and end in 2028.

Traffic management plan

For the downtown San Francisco TPSS locations, temporary partial street closures could be needed for the delivery and installation of the equipment. Depending on the station, an existing skylight or the existing BART entrance may be used to deliver the equipment to the underground level. Temporary sidewalk closures may be necessary. For the delivery through a passenger station entrance, the entrances will need to be closed to the public during the construction. Delivery of the largest equipment is expected to require a street level crane setup, with work performed during off hours, and with active traffic management to avoid adverse impacts.

During construction and installation, there may be occasional impacts to BART service and MUNI service. Since new raceways and conduits will need to be routed to connect the new substation to the existing contact rail system at track level, this work will need to occur during BART and MUNI non-operational hours. Access and work protections from train movement and electrification will need to be implemented.

Adequate space must be maintained during construction on the sidewalk and street. Work will need to occur during non-peak hours to minimize any impacts to automobile and pedestrian traffic. Community outreach efforts are also recommended for addressing any potential concerns from affected local businesses¹⁸.

Stormwater Pollution Prevention

BART will obtain coverage under a NPDES General Permit for stormwater, the BART District shall require the contractor to implement control measures consistent with the General Permit and recommendation and policies of the RWQCB – including submittal of a Notice of Intent with site map, developing a Storm Water Pollution Prevention Plan (SWPPP), and implementing BMPs

¹⁷ Construction schedule is at a preliminary stage and could change

¹⁸ PGH Wong, *Draft Core Capacity Traction Power Equipment Constructability Review Downtown San Francisco, May 8, 2016 [Appendix F]*

Air Quality

The major emission sources during construction are emissions from diesel-fueled construction equipment, dust generated by mechanical disturbance, and windblown dust from exposed soil. The proposed project would generate a limited amount of dust and other air pollutant emissions as construction will consist primarily of minor grading, the construction of concrete slabs, and the delivery and setting of equipment by use of a crane. The locations in Oakland, Richmond, and Concord have more potential for dust as the locations may have some exposed soil. The construction area for the San Francisco locations will be made up of street and sidewalks.

The Bay Area Air Quality Management District (BAAQMD) provides some screening criteria in their Air Quality Guidelines (May 2010). These criteria are to help determine whether a proposed project would result in potentially significant air quality impacts. The screening level for general light industry is 259,000 square feet. It is estimated that construction would occur over approximately 45,000 square feet (total for all 5 locations), well below the construction-related screening sizes used in the Air Quality Guidelines.

The BAAQMD recommends the implementation of the measures listed below irrespective of any potential of construction-related emissions exceeding applicable thresholds of significance. Project specifications will incorporate these measures as applicable and the construction contractor will be required to implement them. The construction manager will oversee and monitor the contractor's compliance with construction measures, rules, and regulations.

Basic Construction Measures Recommended for All Proposed Projects¹⁹

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Construction greenhouse gas (GHG) emissions include emissions produced by onsite construction equipment and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase. The measures listed above will also help reduce construction equipment GHG emissions. The frequency and occurrence of traffic related GHG emissions can be reduced by implementing better traffic management during construction phases.

¹⁹ BAAQMD, *Air Quality Guidelines, 2010*

BART will implement the BAAQMD recommended measures as listed above. No impacts are anticipated.

Noise and Vibration

Temporarily elevated noise and vibration levels could result from construction activities associated with re-working and constructing new TPSS²⁰. These activities may include demolition, grading, minor excavation, foundation fabrication, paving and installation of system components. The increased levels may occur in residential areas and at other noise-sensitive land uses located within 200 feet of the construction activity. No very high noise and vibration producing activity such as pile driving is anticipated to be necessary for elements of this program. Construction at each TPSS location will be for a limited amount of time. While construction noise and perhaps vibration levels will be briefly elevated, they will not be substantial and will not create impacts if best management practices are followed.

The following good practice measures will be applied by contract specifications to construction as appropriate to minimize temporary construction noise and vibration:

- All equipment powered by internal combustion engines shall be equipped with effective mufflers and silencers in good repair.
- All compressed air and hydraulically driven equipment shall be equipped with the manufacturer's "quiet package" if available.
- Avoid nighttime construction affecting residential neighborhoods.
- Locate stationary construction equipment as far as possible from noise-sensitive use.
- Construct temporary noise barriers, such as temporary walls or noise curtains between noise-sensitive receivers and any very noisy activities requiring an extended duration.
- Route construction-related truck traffic to roadways that will cause the least disturbance to nearby residents.
- Use alternative construction methods if necessary to minimize the use of impact and high vibration equipment (e.g., vibratory compactors) near sensitive land use.

BART will implement the best practices measures listed above. No impacts are anticipated.

Construction Management Best Practice

Best construction and management practices would be evaluated during the final design phase and could include but not limit to:

- Construction Phasing and Traffic Management Plan
- Construction Phasing to Reduce Air Emissions
- Dust Control during Construction
- Construction-Related Greenhouse Gas Best Management Practices
- Identify construction activities that, due to concerns regarding traffic safety or congestion, must take place during off-peak hours
- Conduct a Health and Safety Risk Assessment prior to any construction activity
- Develop a site-specific Health and Safety Plan

BART will implement the best practices measures listed above. No impacts are anticipated.

²⁰ *Noise and Vibration Technical Report [Appendix I]*, October 2016, p 37.

T. SUPPORTING TECHNICAL STUDIES OR MEMORANDA

On November 17, 2016, the BART Board adopted the Transbay Corridor Core Capacity Project with a finding that the 306 additional vehicles, communications based train control, and five new traction power substations are statutorily exempt from the California Environmental Quality Act (CEQA) in accordance with the Public Resources Code, Section 21080(b)(10) [Appendix J].

U. PUBLIC OUTREACH AND AGENCY COORDINATION

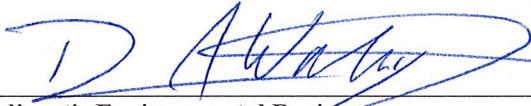
BART has coordinated with Caltrans regarding the TPSS proposed for installation in the I-980 right-of-way south of 34th Street in Oakland. Caltrans staff did not identify any issues, and the process for securing a cooperative agreement has been initiated.

BART is coordinating with the City and County of San Francisco relative to the closure of the Civic Center station entrances and the number, location, size, and design of the TPSS vent grates along Market Street. The letter [Appendix G]Error! Reference source not found. documents the City's support for the project.

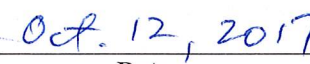
BART has coordinated with the MTC's Air Quality Conformity Task Force on the analysis process for an air quality conformity finding for the acquisition of additional vehicles.

The new BART vehicles, traction power enhancements, and the CBTC system are described on the BART website at: <https://www.bart.gov/about/projects> and https://www.bart.gov/sites/default/files/better-bart/BetterBART_Brochure_0.pdf

The action described above meets the criteria for a NEPA categorical exclusion (CE) in accordance with 23 CFR Part 771.118 (subsections (c)(1) (power substations and other discrete utilities within or adjacent to existing right of way), (c)(5) (installation and improvement of safety and communication equipment within or adjacent to existing right of way), (c)(7)(acquisition of rail cars that can be accommodated by existing facilities or by new facilities that qualify for categorical exclusion) and (c)(12) (projects within existing operational right of way including transit power substations and transit venting structures).



Applicant's Environmental Reviewer



Date

REFERENCE

The list of CEs in 23 CFR 771.118 focuses on actions most applicable to FTA. It is FTA's responsibility to determine whether the action described by the grant applicant ("applicant") falls within the CE category (i.e., the action meets all conditions listed in the CE), whether the action is inappropriately segmented from a larger project, and whether there are unusual circumstances that would make a CE determination inappropriate).

Grant applicants should include sufficient information for FTA to make a CE determination. A description of the project in the grant application, as well as any maps or figures typically included with the application or as requested by the FTA Regional Office, should be submitted to FTA to determine whether the CE applies.

Given the nature of the CEs listed under section 771.118(c), documentation demonstrating compliance with environmental requirements other than NEPA, such as Section 106 of the National Historic Preservation Act ("Section 106"), or Section 7 of the Endangered Species Act, may be necessary for the processing of the grant. That supporting documentation can be included in TEAM (preferred) or kept in the FTA Regional Office's project files. Other applicable environmental requirements must be met regardless of the

applicability of the CE under NEPA, but compliance with other environmental requirements does not elevate an action that otherwise is categorically excluded under section 771.118(c) to section 771.118(d).

Pursuant to 40 C.F.R. § 1506.5, applicants or applicants' contractors may prepare NEPA documents for submittal to federal agencies. However, the applicant is responsible for submitting accurate and complete documentation to FTA. The applicant should prepare a separate transmittal letter or statement to accompany the CE verifying that they have reviewed the information contained in the document when they transmit it to FTA. The transmittal should include the following statement:

“in submitting the Transbay Corridor Core Capacity Program categorical exclusion (CE) to the FTA, the applicant, the Bay Area Rapid Transit, affirms that it has reviewed and supports the information presented documenting the proposed action as meeting the criteria for a CE in accordance with 23 CFR Part 771.118 (d). Following independent review and verification by FTA, applicant requests that it be notified of the acceptability of its submission”