San Francisco Planning

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San Francisco, CA 94103
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CEQA Exemption Determination

PROPERTY INFORMATION/PROJECT DESCRIPTION

Project Address		Block/Lot(s)
SFMTA Train Control Upgrade Project		
Case No.		**Permit No.**
2022-000870ENV		
■ **Addition/ Alteration**	☐ **Demolition (requires HRE for Category B Building)**	☐ **New Construction**

Project description for Planning Department approval.

The San Francisco Municipal Transportation Agency (SFMTA) currently uses an automatic train control system (ATCS) to operate the Market Street Subway and Central Subway. The Train Control Upgrade Project (TCUP or "proposed project") would replace the existing Muni Metro automatic train control system (ATCS) in the Market Street and Central subways with a new Communications Based Train Control (CBTC) system and expand modern CBTC train control benefits to the surface light rail portions of the Muni Metro system. Under CBTC, the Muni Metro system would be managed centrally under a single, modernized system, and would support existing transit service and allow for the increase of passenger or commuter service on the Muni Metro system's rail lines . The CBTC technology uses WiFi or cellular connections to precisely track and continually communicate with every light rail train in service. The project would require installation of the following components: fiber optic cables in existing conduit alongside the existing trackway, small transponder tags between the tracks, CBTC radio and wireless access equipment (small boxes) in the subway and on City-owned light standards, as well as Overhead Contact System (OCS) poles, and CBTC equipment in cabinets along the surface routes and in existing City-owned equipment rooms in the subway. The
FULL PROJECT DESCRIPTION ATTACHED

EXEMPTION TYPE

The project has been determined to be exempt under the California Environmental Quality Act (CEQA).

☐	**Class 1 - Existing Facilities.** **(CEQA Guidelines section 15301)** Interior and exterior alterations; additions under 10,000 sq. ft.
☐	**Class 3 - New Construction.** **(CEQA Guidelines section 15303)** Up to three new single-family residences or six dwelling units in one building; commercial/office structures; utility extensions; change of use under 10,000 sq. ft. if principally permitted or with a CU.
☐	**Class 32 - In-Fill Development.** **(CEQA Guidelines section 15332)** New Construction of seven or more units or additions greater than 10,000 sq. ft. and meets the conditions described below: (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations. (b) The proposed development occurs within city limits on a project site of no more than 5 acres substantially surrounded by urban uses. (c) The project site has no value as habitat for endangered rare or threatened species. (d) Approval of the project would not result in any significant effects relating to traffic , noise, air quality, or water quality. (e) The site can be adequately served by all required utilities and public services.
■	**Other ____** Statutory Exemption per Public Resources Code Sections 21080(b)(10) and 21080(b)(11) (Specified Mass Transit Projects), and CEQA Guidelines section 15275(a).
☐	**Common Sense Exemption (CEQA Guidelines section 15061(b)(3)).** It can be seen with certainty that there is no possibility of a significant effect on the environment .

ENVIRONMENTAL SCREENING ASSESSMENT

Comments:

Per Public Resources Code sections 21080(b)(10) and 21080(b)(11) (Specified Mass Transit Projects) and CEQA Guidelines section 15275(a), CEQA does not apply to mass transit projects that institute or increase passenger or commuter service on rail lines already in use, including the modernization of existing stations.

This project is statutorily exempt, therefore none of the categorical exemption checkboxes in this exemption checklist apply.

Planner Signature: Jennifer M Barbour Mckellar

PROPERTY STATUS - HISTORIC RESOURCE

PROPERTY IS ONE OF THE FOLLOWING:	
☐	**Category A:** Known Historical Resource.
☐	**Category B:** Potential Historical Resource (over 45 years of age).
■	**Category C:** Not a Historical Resource or Not Age Eligible (under 45 years of age).

PROPOSED WORK CHECKLIST

Check all that apply to the project.	
☐	**Change of use and new construction.** Tenant improvements not included.
☐	**Regular maintenance or repair** to correct or repair deterioration, decay, or damage to building.
☐	**Window replacement** that meets the Department's *Window Replacement Standards*.
☐	**Garage work.** A new opening that meets the *Guidelines for Adding Garages and Curb Cuts*, or replacement of a garage door in an existing opening that meets the Residential Design Guidelines.
☐	**Deck, terrace construction, or fences** not visible from any immediately adjacent public right-of-way.
☐	**Mechanical equipment installation** that is not visible from any immediately adjacent public right-of-way.
☐	**Dormer installation** that meets the requirements for exemption from public notification under *Zoning Administrator Bulletin No. 3: Dormer Windows*.
☐	**Addition(s)** not visible from any immediately adjacent public right-of-way for 150 feet in each direction; or does not extend vertically beyond the floor level of the top story of the structure, or does not cause the removal of architectural significant roofing features.
☐	**Façade or storefront alterations** that do not remove, alter, or obscure character -defining features.
☐	**Restoration** based upon documented evidence of a building's historic condition, such as historic photographs, plans, physical evidence, or similar buildings.
Note: Project Planner must check box below before proceeding.	
☐	Project is not listed.
☐	Project involves scope of work listed above.

ADVANCED HISTORICAL REVIEW

Check all that apply to the project.

☐ **Reclassification of property status**. *(Attach HRER Part I relevant analysis; requires Principal Preservation Planner approval)*

- ☐ Reclassify to Category A
- ☐ Reclassify to Category C
- ☐ Lacks Historic Integrity
- ☐ Lacks Historic Significance

☐ Project involves a **known historical resource (CEQA Category A)**

☐ Project does not substantially impact character-defining features of a historic resource (see Comments)

☐ Project is compatible, yet differentiated, with a historic resource.

☐ Project consistent with the Secretary of the Interior Standards for the Treatment of Historic Properties

Note: If ANY box above is checked, a Preservation Planner MUST sign below.

☐ **Project can proceed with EXEMPTION REVIEW**. The project has been reviewed by the Preservation Planner and can proceed with exemption review.

Comments by Preservation Planner:

Preservation Planner Signature:

EXEMPTION DETERMINATION

■ **No further environmental review is required. The project is exempt under CEQA.**

Project Approval Action:	**Signature:**
SFMTA Board approval of a contract	Jennifer M Barbour Mckellar 01/22/2024

Supporting documents are available for review on the San Francisco Property Information Map, which can be accessed at https://sfplanninggis.org/pim/. Individual files can be viewed by clicking on the Planning Applications link, clicking the "More Details" link under the project's environmental record number (ENV) and then clicking on the "Related Documents" link.

Once signed and dated, this document constitutes an exemption pursuant to CEQA Guidelines and Chapter 31 of the SF Admin Code. Per Chapter 31, an appeal of an exemption determination to the Board of Supervisors shall be filed within 30 days after the Approval Action occurs at a noticed public hearing, or within 30 days after posting on the Planning Department's website a written decision or written notice of the Approval Action, if the approval is not made at a noticed public hearing.

Full Project Description

The San Francisco Municipal Transportation Agency (SFMTA) currently uses an automatic train control system (ATCS) to operate the Market Street Subway and Central Subway. The Train Control Upgrade Project (TCUP or "proposed project") would replace the existing Muni Metro automatic train control system (ATCS) in the Market Street and Central subways with a new Communications Based Train Control (CBTC) system and expand modern CBTC train control benefits to the surface light rail portions of the Muni Metro system. Under CBTC, the Muni Metro system would be managed centrally under a single, modernized system, and would support existing transit service and allow for the increase of passenger or commuter service on the Muni Metro system's rail lines.

The CBTC technology uses WiFi or cellular connections to precisely track and continually communicate with every light rail train in service. The project would require installation of the following components: fiber optic cables in existing conduit alongside the existing trackway, small transponder tags between the tracks, CBTC radio and wireless access equipment (small boxes) in the subway and on City-owned light standards, as well as Overhead Contact System (OCS) poles, and CBTC equipment in cabinets along the surface routes and in existing City-owned equipment rooms in the subway.

The geographic scope of the project is the entire Muni Metro trackway, both underground and along surface streets, except the F-line on the surface of Market Street and the F-line trackway north of the Ferry Portal are not included. Installation would be geographically phased with an overall construction duration of approximately 6 years. See Attachment A to the Project Description memorandum, both attached.

Date: January 22, 2024
To: Jennifer McKellar, San Francisco Planning Department
From: Mark Hansen, San Francisco Municipal Transportation Agency (SFMTA)
Through: Marcus Barrango, SFMTA
Re: **Train Control Upgrade Project**
Case Number: 2022-000870ENV

SUMMARY

The Train Control Upgrade Project (TCUP or "proposed project") would replace the existing Muni Metro automatic train control system (ATCS) in the Market Street and Central subways with a new Communications Based Train Control (CBTC) system and expand modern CBTC train control benefits to the surface portions of the Muni Metro light rail system. Under CBTC, the Muni Metro system would be managed centrally under a single, modernized system. The proposed project would support existing Muni service and allow for the increase of passenger or commuter service on the Muni Metro system's rail lines.

BACKGROUND

The SFMTA is responsible for the management of the Municipal Railway public transit system. It operates a network of bus routes, the Muni Metro light rail system, and several historic cable car and streetcar lines. The Muni Metro system consists of Light Rail Vehicles (LRV) running on fixed guideway surface railways and underground tunnels and provides public transit service within San Francisco. The SFMTA currently uses an ATCS that first went into service in 1998. ATCS is a type of train control technology that controls trains in the 7-mile Market Street Subway and in the 1.6-mile long Central Subway. The ATCS controls the automatic movement of LRVs with electronic loop cables that permit communication between the trains and signal infrastructure in the subway. The system enforces a minimum safety separation between trains based on safe braking distances from the last known position of preceding trains. ATCS also permits trains to move through the tunnel at a faster pace than allowable when vehicles are operated entirely under human control. Current Muni Metro transit service is not possible without this technology.

When first introduced in 1998, the ATCS increased the throughput of trains in the Market Street Subway compared to the previous fixed-block train control system and greatly

improved the efficiency of the Muni Metro network. This system is now reaching the end of its useful life and must be completely overhauled or replaced.

As the ATCS approaches its end-of-life, reliability of the system has worsened. Trips on Muni Metro have highly variable travel times, due in part to frequent delays in the subway caused by congestion and train control system shortcomings. Following the 2019 Muni Reliability Working Group's identification of train control as a significant factor impacting rail service, SFMTA has made replacement of the ATCS system a top priority.

PROPOSED PROJECT

The TCUP is an SFMTA priority capital project to replace the nearly 30-year-old ATCS in the subways with a new Communications Based Train Control System (CBTC). The project would also expand CBTC control outside of the subways to the surface portions of the Muni Metro light rail system, where signals and switches are currently operated independently of the ATCS in a first come, first serve configuration. Under CBTC, the Muni Metro system would be managed centrally under a single, modernized system.

Unlike the existing ATCS, this newer CBTC technology uses WiFi or cellular connections to precisely track and continually communicate with every LRV in service. The existing ATCS cannot be used outside the subway. With the new technology, CBTC can manage train movements throughout the entire double-tracked Metro network. In the subway, CBTC would work like the existing ATCS and use automatic headway management to adjust the speed and dwell time of trains. On the surface, the CBTC system would communicate adjustments to LRV operators who would remain in control of the train. While Global Positioning Systems (GPS) is currently used to track LRVs on the surface, CBTC's telecommunications technology is more accurate and more directly accessible to the control center staff. The greater visibility CBTC provides to the SFMTA control center and operators would result in more effective train management and better LRV service for the entire Muni Metro system.

The SFMTA expects TCUP to confer the following benefits:

- Increase the capacity of the Muni Metro system
- Maintain the high standards of safety currently provided by the ATCS in the subway and extend modern safety protections to surface operations
- Enable shorter, more consistent travel times and wait times
- Provide a reliable train control system that supports Muni Metro at all times
- Support configurable and flexible service changes and contingency operations

- Continually update the new system to include the latest service-proven components and software

The proposed project would support existing transit service and allow for the increase of passenger or commuter service on the Muni Metro system's rail lines.

Project Scope

The upgrade would be performed along the entire Muni Metro trackway, both underground and along surface streets. The geographic scope of this project would not include the F-line on the surface of Market Street or the trackway north of the Ferry Portal (a portal is the entryway where a rail line transitions between the surface and a tunnel or subway) previously used by the currently suspended E-line. (See Attachment A for project area/geographic scope of the project.)

The proposed project is currently in the project planning phase, and SFMTA will be selecting a train control supplier to provide detailed design, procurement, implementation, support, and related services for a CBTC system. The SFMTA will then contract separately with third-party installers to provide installation services for CBTC equipment. However, generally the project would require the following types of physical improvements alongside the Muni Metro trackway (it is not anticipated that the trackway itself would be moved/removed or replaced):

1. The installation of fiber optic cables in existing conduit alongside the Muni Metro trackway. The detailed design will identify specific areas along the surface running portion of Muni Metro tracks where new conduit may be necessary. Where new conduit may be needed, excavation typically may be up to 36 inches deep and 24 inches wide. The surface running portion of Muni Metro is approximately 25 miles, which includes revenue trackway and non-revenue trackway. Excavation will not be required in the light-rail yards.
2. The installation of small transponder tags between the tracks at predetermined intervals, with no need for excavation.
3. The installation of CBTC radio and wireless access equipment (small boxes) along the subway portions of the Muni Metro system, which are approximately 8.6-miles in length.
4. The installation of CBTC radio and wireless access equipment (small boxes) on City-owned light standards, as well as Overhead Contact System (OCS) poles which support the system of wires that supply power to LRVs. This CBTC radio and wireless access equipment enables communication between trains under CBTC

and the central system and would not be installed on portions of the Muni Metro system not receiving CBTC, including the F line on the surface of Market Street and the trackway north of the Ferry Portal. The primary purpose of fiber optic cabling along or adjacent to the trackway is to connect this wayside equipment to the central CBTC servers. Wayside equipment would need to be connected to this fiber optic cabling via top-off conduits, which would require trenching up to 36 inches deep and 24 inches wide from the Muni Metro trackway to City-owned light standards or OCS poles on the sidewalk. No equipment is proposed on poles that are historic (e.g., Path of Gold poles along Market Street).

5. The installation of CBTC server, radio, or signaling equipment in existing electronics equipment cabinets near Muni Metro interlocking locations and signalized intersections in the public right-of-way. Interlocking locations are track junctions or crossings where signals and track switches prevent conflicting train movements. If existing equipment cabinets are unavailable, the project would require the construction of new CBTC electronic equipment cabinets in the public right-of-way along the Muni Metro trackway. These cabinets are typically 48 inches high, 50 inches wide, and 26 inches deep. (See Figure 1 below for an example). Any new cabinets would need a fiber optic connection and would require excavation similar to the scenario described in item 4 above.
6. The installation of new CBTC equipment in existing City-owned equipment rooms in the Market Street Subway and Central Subway.

Figure 1. Example of Interlocking cabinet (left) at 4th & King streets.

Construction

Detailed design provided by the selected train control supplier will help determine the exact scope and phasing of construction activities. In general, construction activities would be necessary for the following types of work: the installation of fiber in existing conduits along the Muni Metro trackway, the installation of new conduit where needed, the installation of new CBTC wayside equipment, and connecting wayside equipment to conduit trunklines along the trackway.

Construction activities for the project are expected to be geographically phased. Phases may overlap, but the construction activities for each phase are only planned to occur on up to three city blocks at a time, to minimize impact to the public right-of-way. The longest individual phase is anticipated to be 24-28 months. The overall construction duration is anticipated to be approximately 6 years.

An initial “proving” or “pilot” phase would launch CBTC only on the surface trackway between the Ferry Portal (at Embarcadero & Folsom Street) and the Muni Metro East maintenance facility (at 25th Street and Illinois Street), as well as the surface trackway between the Central Subway Portal (at 4th and Bryant streets) and 4th and King streets. This phase also includes equipping the LRVs with CBTC equipment. This would allow for testing of the complete system and adjustments while minimizing delays and impacts to the system. The project would then move into the subways to replace the ATCS with the

new CBTC, which is the most challenging and technically complex part of the system. Finally, the project would expand to the remaining surface trackway on the rest of the system. Specific sub-phasing within the pilot, subway replacement, and surface expansion phases will be determined during detailed design.

Work under each phase may include storage tracks (short sections or pockets of track connected to the main trackway used to remove trains from service), wyes (sections of track used to turn around trains), terminal loops (the loop at the end of the trackway), and any other trackway where Muni Metro trains may travel while in service and that are controlled by the train control system.

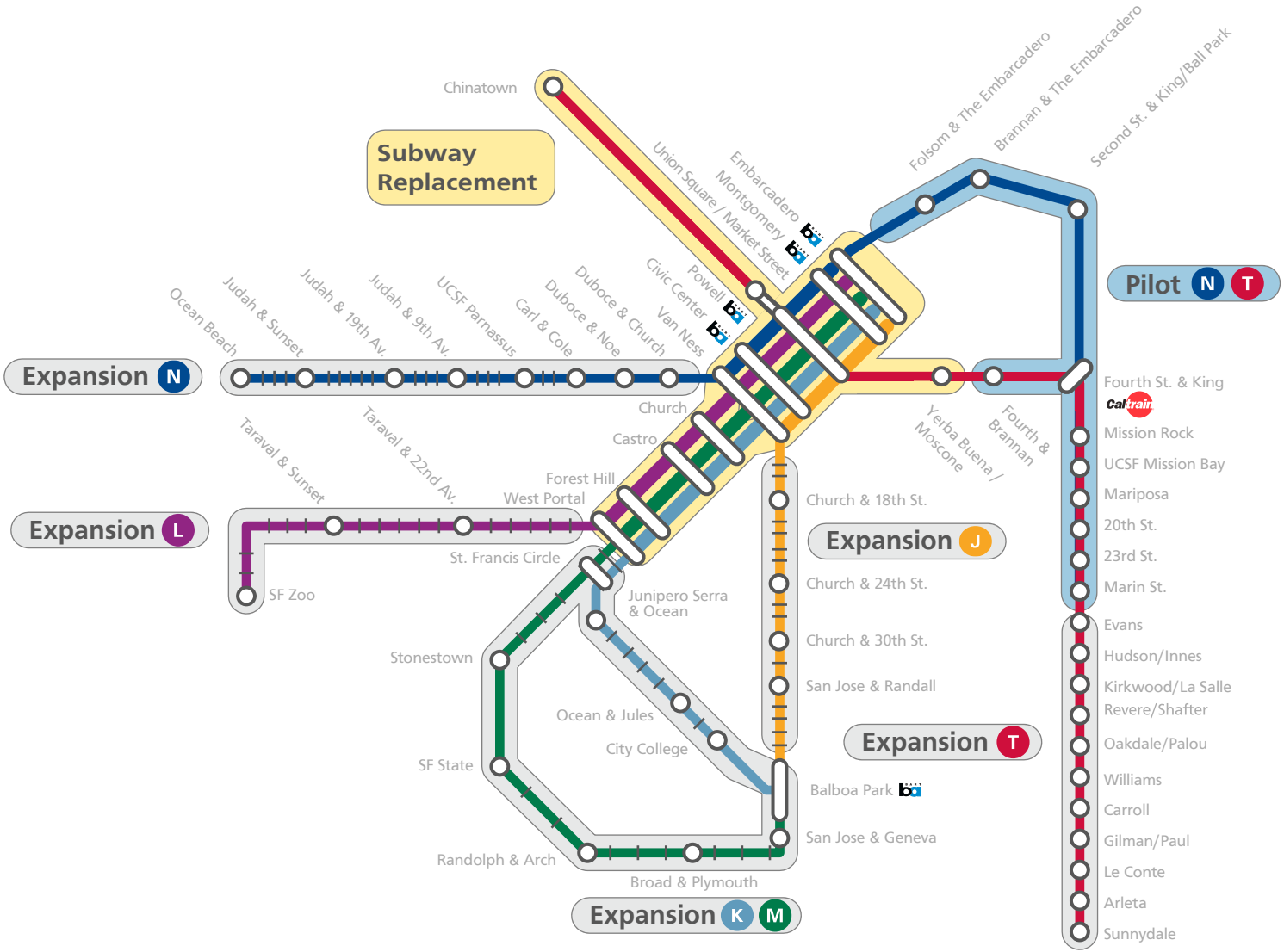
A phased approach would minimize the risks associated with replacing the existing train control system while the system is in service and ensure that operations staff can become comfortable with the system as each phase is completed. Each phase would feature detailed design and construction, allowing the design and construction of subsequent phases to overlap.

Approval Action

The Approval Action as defined by San Francisco Administrative Code Chapter 31, Section 31.04(h)(2) would be SFMTA Board approval of a contract with a train control system supplier to design and furnish a new CBTC system. The approval action starts the 30-day appeal period for the environmental review determination under Administrative Code Section 31.16.

ATTACHMENT A

Phase Map: Pilot, Subway Replacement, Surface Expansion


Subway Replacement
Chinatown
Union Square / Market Street
Embarcadero
Montgomery
Powell
Civic Center
Van Ness
Church
Castro
Duboce & Church
Duboce & Noe
Carl & Cole
UCSF Parnassus
Judah & 9th Av.
Judah & 19th Av.
Judah & Sunset
Ocean Beach
Expansion N
Taraval & 22nd Av.
Taraval & Sunset
Forest Hill
West Portal
Expansion L
St. Francis Circle
SF Zoo
Junipero Serra & Ocean
Stonestown
Ocean & Jules
City College
SF State
Randolph & Arch
Broad & Plymouth
Expansion K M
Church & 18th St.
Expansion J
Church & 24th St.
Church & 30th St.
San Jose & Randall
Expansion T
Balboa Park
San Jose & Geneva
Yerba Buena / Moscone
Fourth & Brannan
Folsom & The Embarcadero
Brannan & The Embarcadero
Second St. & King/Ball Park
Pilot N T
Fourth St. & King
Caltrain
Mission Rock
UCSF Mission Bay
Mariposa
20th St.
23rd St.
Marin St.
Evans
Hudson/Innes
Kirkwood/La Salle
Revere/Shafter
Oakdale/Palou
Williams
Carroll
Gilman/Paul
Le Conte
Arleta
Sunnydale