DRAFT ENVIRONMENTAL IMPACT REPORT
VOLUME 1

Potrero Yard Modernization Project
2500 Mariposa Street

PLANNING DEPARTMENT
CASE NO. **2019-021884ENV**

STATE CLEARINGHOUSE NO. 2020089022

	Draft EIR Publication Date:	**JUNE 30, 2021**
	Draft EIR Public Hearing Date:	**AUGUST 26, 2021**
	Draft EIR Public Comment Period:	**JULY 1, 2021 - AUGUST 31, 2021**

SAN FRANCISCO
PLANNING
DEPARTMENT

Written and electronic comments should reference the Case No. and be sent to:

Jennifer Barbour McKellar, EIR Coordinator | San Francisco Planning Department
49 South Van Ness Avenue, Suite 1400 | San Francisco, CA 94103
CPC.PotreroYardEIR@sfgov.org

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San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
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NOTICE OF PUBLIC HEARING

AND AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT

Hearing Date:	**August 26, 2021**
Time:	**Not before 1:00 PM**
Location:	**Remote or In-person Hearing - Visit https://sfplanning.org/planning-commission for details**
Case Type:	**Environmental (Draft Environmental Impact Report)**
Hearing Body:	**Planning Commission**

PROPERTY INFORMATION

Project Address:	2500 Mariposa Street
Cross Street(s):	Mariposa, Hampshire, Bryant, and 17th Streets
Block /Lot No.:	3971/001
Zoning District(s):	Public (P) Zoning District 65-X Height and Bulk District
Plan Area:	Mission Area Plan

APPLICATION INFORMATION

Case No.:	2019-021884ENV
Building Permit:	Not filed yet
Applicant/Agent:	San Francisco Municipal Transportation Agency, Licinia Iberri
Telephone:	(415) 646-2715
E-Mail:	Licinia.Iberri@sfmta.com

PROJECT DESCRIPTION

The San Francisco Planning Department has prepared a draft environmental impact report (Draft EIR) in connection with this joint development project that includes public transit and private residential and commercial components. The project is jointly sponsored by the City and County of San Francisco (City) through the San Francisco Municipal Transportation Agency (SFMTA) and the selected development consortium identified through the developer selection process.

The project site is at 2500 Mariposa Street, an approximately 4.4-acre parcel. It is located in San Francisco's Mission District near the South of Market and Potrero Hill neighborhoods (to the north and east, respectively). The project site is owned by the City, through the SFMTA. The proposed project would demolish the Potrero Trolley Coach Division Facility (Potrero Yard) and replace it with a new transit facility to accommodate the expansion of the SFMTA's transit vehicle fleet. The new transit facility would have space for bus parking and circulation (up to 213 buses); SFMTA maintenance, operation, and administrative uses; and joint development uses. The new, approximately 1,300,000-gross-square-foot structure would occupy the site and rise to heights ranging from 75 to 150 feet across the site. It would contain a three-level, approximately 75-foot-tall replacement transit facility plus a mix of commercial and residential uses in the remainder of the project as part of a joint development program between SFMTA and a private project co-sponsor. The joint development program would include a ground-floor commercial use and residential entry lobbies, with integrated residential and transit facility uses on the second through sixth floors of the three-level replacement transit facility. The majority of residential development would be atop the replacement transit facility on floors 7 through 13.

The proposed project includes four variants that consider modifications to limited features or aspects of the project: the Emergency Exit Relocation Variant, which would relocate the bus emergency exit from 17th Street to Hampshire Street; the Joint Development Lobby Relocation Variant, which would relocate the proposed joint development lobby on Mariposa Street to Hampshire Street; the Active 17th Street Variant, which would relocate internal bus ramps from the north to south sides of the site to allow the mix of joint development uses to be developed along 17th Street; and the Employee and Family Support Variant, which would reprogram a portion of the ground-floor commercial uses to include a child care use.

The project site is included on the following list compiled pursuant to Section 65962.5 of the California Government Code: State Water Resources Control Board Leaking Underground Storage Tank Sites (listed as a "LUST Cleanup Site (Closed)") (Geotracker ID T0607500109) in September 1991 (GeoTracker website accessed March 24, 2021).

DRAFT EIR: The Draft EIR finds that the proposed Potrero Yard Modernization Project at 2500 Mariposa Street would result in the following significant and unavoidable project-level environmental impacts even with mitigation: historical architectural resources and air quality. The Draft EIR provides a detailed project description, an analysis of the physical environmental effects of the project and its variants, and identification of feasible mitigation measures and alternatives that would avoid or lessen the severity of impacts. It is available for public review and comment on the Planning Department's website at http://www.sf-planning.org/sfceqadocs.

The purpose of the public hearing is for the Planning Commission and Planning Department staff to receive comments on the adequacy of the EIR. The Planning Commission will not respond to any of the comments or take action on the project at this hearing. Certification of the Final EIR will take place at a later hearing. Please be advised that due to the COVID-19 emergency, the Planning Commission may conduct this hearing remotely using videoconferencing technology or in-person at City Hall. Additional information may be found on the Planning Department's website or by contacting the planner below. Contact the planner below if you wish to be on the mailing list for future notices.

In addition, there will be a hearing before the Historic Preservation Commission on Wednesday, August 4, 2021 at 12:30 p.m. or later in order for the Historic Preservation Commission to provide its comments on the Draft EIR. Please be advised that due to the COVID-19 emergency, the Planning Commission may conduct this hearing remotely using videoconferencing technology or in-person at City Hall.

Public comments on the Draft EIR will be accepted from July 1, 2021 to 5:00 p.m. on August 31, 2021.

FOR MORE INFORMATION OR TO SUBMIT COMMENTS ON THE EIR, PLEASE CONTACT:

Planner: Jennifer McKellar Telephone: (628) 652-7563

E-Mail: CPC.PotreroYardEIR@sfgov.org

GENERAL INFORMATION ABOUT PROCEDURES

Members of the public are not required to provide personal identifying information when they communicate with the Commission or the Department. All written or oral communications, including submitted personal contact information, may be made available to the public for inspection and copying upon request and may appear on the Department's website or in other public documents.

Only commenters on the Draft EIR will be permitted to file an appeal of the certification of the Final EIR to the Board of Supervisors.

A USB or paper copy of the Draft EIR are available upon request; please contact Jennifer McKellar at **CPC.PotreroYardEIR@sfgov.org** or (628) 652-7563. Written comments should be addressed to Jennifer McKellar, EIR Coordinator, San Francisco Planning Department, 49 South Van Ness Avenue, Suite 1400, San Francisco, CA 94103, or emailed to **CPC.PotreroYardEIR@sfgov.org**. Comments received at the public hearing and in writing will be responded to in a Responses to Comments on the Draft EIR document.

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LIST OF ACRONYMS AND ABBREVIATIONS

ABAG	Association of Bay Area Governments
AC Transit	Alameda-Contra Costa Transit
ACL	absolute cumulative limit
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AERMOD	U.S. EPA's atmospheric dispersion modeling system
APEZ	Air Pollutant Exposure Zones
AQI	Air Quality Index
ARPP	archeological resource preservation plan
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
California Register	California Register of Historical Resources
CalEEMod	California Emissions Estimator Model
Caltrans	Californian Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
City	City and County of San Francisco
CMP	Congestion Management Plan
CO	carbon monoxide
CO2e	carbon dioxide equivalents
dB	decibel
dBA	decibel a-weighted
DBI	Department of Building Inspection
DEPH	diethylhexyl phthalate
DLOP	Driveway and Loading Operations Plan
DPM	diesel particulate matter
DPR	Department of Parks and Recreation
EIR	Environmental Impact Report
EMFAC	EMission FACtors Model
ERO	Environmental Review Officer
FAR	floor area ratio
FCC	Federal Communications Commission
FTA	Federal Transportation Authority
GGT	Golden Gate Transit
GHG	greenhouse gases
HABS/HALS	Historic American Buildings/Historic American Landscape Survey
HMUPA	Hazardous Materials Unified Program Agency
HPC	Historic Preservation Commission
HRA	health risk assessment
HRE	Historic Resource Evaluation
HRER	Historic Resource Evaluation Response
HVAC	heating, ventilation, and air conditioning
I-80	Interstate 80
I-280	Interstate 280
in/sec	inches per second

L_{90}	sound level exceeded 90 percent of a specified time
lb	pounds
L_{dn}	24-hour sound level metric
LEED	Leadership in Energy and Environmental Design
L_{eq}	equivalent sound level
L_{max}	the instantaneous maximum noise level measured during a defined time interval
LOS	Level of Service
LT	Long-Term
LTS	Less Than Significant
LTSM	Less Than Significant with Mitigation
MEIR	maximally exposed individual resident
MERV	Minimum Efficiency Reporting Value
MMRP	Mitigation Monitoring and Report Program
mph	miles per hour
MTC	Metropolitan Transportation Commission
MTS	Metropolitan Transportation System
Muni	San Francisco Municipal Railway
National Register	National Register of Historic Places
ng/m^3	nanograms per cubic meter
NI	No Impact
NOP	Notice of Preparation
NO_X	oxides of nitrogen
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
OCS	overhead contact system
OEHHA	Office of Environmental Health Hazard Assessment
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
O_3	ozone
P	Public Use (zoning designation)
Pb	lead
PCBs	polychlorinated biphenyls
PDA	priority development area
PDR	production, distribution, and repair
PG&E	Pacific Gas & Electricity
PM	particulate matter
PM_{10}	PM composed of particulates that are 10 microns in diameter or less
$PM_{2.5}$	PM composed of particulates that are 2.5 microns in diameter or less
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PTR	Preservation Team Review
RMS	root-mean-square
ROG	reactive organic gases
ROSE	Recreational and Open Space Element

RWDI	Rowan William Davies Irwin
RWQCB	Regional Water Quality Control Board
Samtrans	San Mateo County Transit
SB	Senate Bill
SCMs	standard construction measures
SFCTA	San Francisco County Transportation Authority
SFMTA	San Francisco Municipal Transportation Agency
SFPUC	San Francisco Public Utilities Commission
SHPO	State Historic Preservation Office
SoMa	South of Market
SO_2	sulfur dioxide
ST	Short-Term
STC	sound transmission class
SU	Significant and Unavoidable
SUD	Special Use District
SUM	Significant and Unavoidable with Mitigation
TACs	toxic air contaminants
TASC	Transportation Advisory Staff Committee
TAAS	Theoretical Annual Available Sunlight
TAZ	transportation analysis zone
TCR	tribal cultural resources
TDM	Transportation Demand Management
TFMP	Transit Fleet Management Plan
TNM	Traffic Noise Model
TNC	transportation network companies
TOG	total organic gases
UMU	Urban Mixed Use (zoning designation)
U.S.C.	United States Code
U.S. EPA	U.S. Environmental Protection Agency
U.S. 101	U.S. Highway 101
VdB	root-mean-square velocity level denoted in the decibel scale
VDECS	Verified Diesel Emission Control Strategies
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WETA	Water Energy Transportation Authority
$\mu g/m^3$	micrograms per cubic meter

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SUMMARY

INTRODUCTION

This document is an environmental impact report (EIR) for the Potrero Yard Modernization Project (proposed project). This summary chapter is intended to highlight major areas of importance in the environmental analysis as required by section 15123 of the California Environmental Quality Act (CEQA) Guidelines. This chapter provides a summary of the proposed project and project variants including a summary list of the San Francisco Public Works Standard Construction Measures (SCMs) incorporated into the proposed project or project variants, a summary of the environmental impacts of the proposed project or project variants, a summary of alternatives to the proposed project or project variants including identification of the environmentally superior alternative, and a summary of environmental issues to be resolved and areas of known controversy.

The summary of the environmental impacts of the proposed project or project variants provides a brief discussion of the date of issuance of the Notice of Preparation (NOP) of an EIR and Notice of a Public Scoping Meeting, the topics analyzed in the EIR and initial study, and the terms used in the EIR to describe the level of significance of impacts. It is followed by a summary table that presents the environmental impacts of the proposed project or project variants identified in the EIR by topic and, where applicable, the corresponding mitigation measures that would reduce or lessen significant impacts (levels of significance are described on p. S.4-S.5). Improvement measures (measures which are not required to mitigate significant impacts but that would further reduce the magnitude of less-than-significant effects) are also identified. The significant impacts identified in the initial study for the proposed project or project variants are listed in a separate summary table, along with the mitigation measures that would reduce them to less-than-significant levels. Following these summary tables is a description of the alternatives to the proposed project or project variants that are addressed in this EIR, a table that compares the characteristics and environmental impacts of those alternatives with those of the proposed project or project variants as well as other project alternatives, and the identification of the environmentally superior alternative.

Table S.1: Summary of Impacts of Proposed Project or Project Variants Identified in the EIR, beginning on p. S.7, and **Table S.2: Summary of Significant Impacts of Proposed Project or Project Variants Identified in the Initial Study**, beginning on p. S.29, provide an overview of the following:

- Environmental impacts with the potential to occur as a result of the proposed project or project variants;
- The level of significance of the environmental impacts before implementation of any applicable mitigation measures;

- Mitigation measures that would avoid or reduce significant environmental impacts;
- Improvement measures that would reduce less-than-significant impacts; and
- The level of significance for each impact after the mitigation measures are implemented.

S.1 PROJECT SYNOPSIS

The project site is at 2500 Mariposa Street (Potrero Yard). It is located in the northeast portion of San Francisco's Mission District near the South of Market and Potrero Hill neighborhoods (to the north and east, respectively). The project site is owned by the City and County of San Francisco (City), through the San Francisco Municipal Transportation Agency (SFMTA). The site is approximately 192,000 square feet (or 4.4 acres) and occupies the equivalent of roughly two typical city blocks (200 by 400 feet). It is bounded by 17th Street to the north, Hampshire Street to the east, Mariposa Street to the south, and Bryant Street to the west. The west portion of the site is occupied by a trolley bus storage yard and the east portion by a maintenance and operations building. The maintenance and operations building, originally constructed in 1915, is considered a historical resource for purposes of CEQA. Implementation of the proposed project or project variants would require demolition of the maintenance and operations building, the existing historical architectural resource on the site.

The proposed project would demolish the Potrero Trolley Coach Division Facility (Potrero Yard) and replace it with a new transit facility to accommodate the expansion of the SFMTA's transit vehicle fleet. The new transit facility would have space for bus parking (up to 213 buses) and circulation; SFMTA maintenance, operation, and administrative uses; and joint development uses. The new, approximately 1,300,000-gross-square-foot structure would occupy the 4.4-acre site and rise to heights ranging from 75 to 150 feet across the site. It would contain a three-level, approximately 75-foot-tall replacement transit facility plus a mix of commercial and residential uses in the remainder of the project as part of a joint development program between the SFMTA (project sponsor and property owner and a private project co-sponsor (developer). Together the SFMTA and the private project co-sponsor will be referenced as the project sponsor team. The joint development program would include a ground-floor commercial use and residential entry lobbies, with integrated residential and transit facility uses on the second through sixth floors of the three-level replacement transit facility. The majority of residential development would be atop the replacement transit facility on floors 7 through 13.

The proposed project includes four variants that consider modifications to limited features or aspects of the project: the Emergency Exit Relocation Variant, which would relocate the bus emergency exit from 17th Street to Hampshire Street; the Joint Development Lobby Relocation Variant, which would relocate a ground-floor joint development lobby from Mariposa Street to Hampshire Street; the Active 17th Street Variant, which would relocate internal bus ramps from the north to south sides of the site to allow the mix of joint development uses to be developed along

17th Street; and the Employee and Family Support Variant, which would reprogram a portion of the ground-floor commercial uses to include a child care use.

Additionally, the project sponsor team would develop a City project where public works would have a role in the oversight of the project construction contracts; therefore, the project would be subject to public works' SCMs.[1] The SCMs listed below would be incorporated as part of the proposed project or project variants and are related to the following environmental resource areas: seismic and geotechnical considerations, air quality, water quality, traffic, noise, hazardous materials, biological resources (bird protection, tree conservation, environmentally sensitive areas), visual and aesthetic considerations (construction staging), and cultural resources (archaeological and historic architectural resources).

- Public Works Standard Construction Measure #1, Seismic and Geotechnical Studies
- Public Works Standard Construction Measure #2, Air Quality
- Public Works Standard Construction Measure #3, Water Quality
- Public Works Standard Construction Measure #4, Traffic
- Public Works Standard Construction Measure #5, Noise
- Public Works Standard Construction Measure #6, Hazardous Materials
- Public Works Standard Construction Measure #7, Biological Resources
- Public Works Standard Construction Measure #8, Visual and Aesthetic Considerations, Project Site
- Public Works Standard Construction Measure #9, Cultural Resources

EIR Appendix C contains a copy of the SCMs and its attachments. The proposed project or project variants would also be subject to other pertinent City regulations governing construction.

S.2 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND IMPROVEMENT MEASURES

The San Francisco Planning Department (planning department) published an NOP of an Environmental Impact Report and Notice of Public Scoping Meeting on August 19, 2020, announcing its intent to prepare and distribute an EIR (the NOP is presented as **EIR Appendix A**). The planning department prepared an EIR with an initial study (the initial study is presented as **EIR Appendix B**). The initial study found that the proposed project's or project variant's impacts on the environmental topics of Land Use and Planning, Population and Housing, Cultural

[1] San Francisco Municipal Transportation Agency, Memorandum from Jeff Tumlin, Director of Transportation, through Sarah Jones, SFMTA Planning Director and Andrea Contreras, SFMTA Environmental Review Team Lead; to Boris Deunert, San Francisco Public Works Regulatory Affairs Manager, SFMTA Commitment to Public Works Regulatory Affairs QA/QC Implementation Process and Standard Construction Measures, June 15, 2021.

Resources (archaeological resources and human remains), Tribal Cultural Resources, Greenhouse Gas Emissions, Recreation, Utilities and Service Systems, Public Services, Biological Resources, Geology and Soils, Hydrology and Water Quality, Hazards and Hazardous Materials, Energy, Mineral Resources, Agriculture and Forestry Resources, and Wildfire would either have no impact, be less than significant or less than significant with mitigation. The initial study determined that the proposed project or project variants would not have a significant adverse environmental effect relating to these issues and further analysis was not required for these issues.

The initial study found that the topics for which there is the potential for project-specific effects to be significant or for which the analysis requires additional detail are as follows: Cultural Resources (historic architectural resources), Transportation and Circulation (all topics), Noise and Vibration (all topics except aviation-related ones), Air Quality (all topics), Wind, and Shadow. Thus, these topics are included in the EIR.

As described above in Project Synopsis, p. S.2, construction of the proposed project or project variants would be carried out with oversight by public works. Therefore, project construction requires the inclusion of public works' SCMs for the purposes of protecting human health and safety as well as environmental resources. Some of public works' SCMs, listed above and incorporated as part of the proposed project or project variants, would be superseded by project-specific mitigation measures, e.g., **SCM #2, Air Quality**, **Mitigation Measure M-AQ-1: Off-Road Construction Equipment Emissions Minimization**. In addition, some elements of **SCM #9, Cultural Resources**, may not be fully incorporated as a result of project-specific information related to cultural resources, e.g., distance of significant off-site historical resources from construction-related activities on the project site.

All impacts of the proposed project or project variants, associated mitigation measures, and improvement measures identified in this EIR are summarized in **Table S.1: Summary of Impacts of Proposed Project or Project Variants Identified in the EIR**, pp. S.7-S.28. These impacts are listed in the same order as they appear in **EIR Chapter 3, Environmental Setting and Impacts**. The levels of significance of impacts before and after implementation of applicable mitigation measures are identified as:

- **No Impact (NI)** – No adverse changes (or impacts) to the environment are expected.
- **Less Than Significant (LTS)** – Impact that would not exceed the defined significance criteria or would be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations.
- **Less Than Significant with Mitigation (LTSM)** – Impact that is significant but reduced to a less-than-significant level through implementation of the identified mitigation measure(s).
- **Significant and Unavoidable with Mitigation (SUM)** – Impact that exceeds the defined significance criteria and cannot be reduced to less-than-significant levels through

compliance with existing local, state, and federal laws and regulations and/or implementation of all feasible mitigation measures.

- **Significant and Unavoidable (SU)** – Impact that exceeds the defined significance criteria and cannot be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations, and for which there are no feasible mitigation measures.

Where applicable, **Table S.1** and **Table S.2** identify project conditions, expressed as mitigation measures, that would reduce the identified impact(s) to less-than-significant levels. The impact's level of significance after implementation of the required mitigation measure is provided in the column labeled "Level of Significance after Mitigation." All mitigation measures and improvement measures that are applicable to the proposed project are also applicable to the project variants.

Table S.1 and **Table S.2** should not be relied upon for a thorough understanding of the proposed project or its variants and their associated impacts and mitigation needs; it is presented for the reader as an overview of impacts, mitigation measures, and improvement measures of the proposed project or project variants. Please see the relevant environmental topic sections in **EIR Chapter 3, Environmental Setting and Impacts**, and the initial study, **Section E, Evaluation of Environmental Effects** (**EIR Appendix B**) for a thorough discussion and analysis of project-level and cumulative environmental impacts and the mitigation measures identified to address those impacts, as well as the basis for any proposed improvement measures.

As described below in **Table S.1**, this EIR identifies two significant and unavoidable impacts even with incorporation of mitigation. As discussed in **EIR Section 3.B, Cultural Resources**, project impacts related to historic architectural resources would remain even with mitigation because the proposed project or project variants would demolish the existing historic building and would:

- Materially alter, in an adverse manner, the physical characteristics of the Potrero Trolley Coach Division Facility that justify its inclusion in the California Register of Historic Resources.

As discussed in **EIR Section 3.E, Air Quality**, although project impacts related to the exposure of sensitive receptors to substantial pollutant concentrations resulting in excess cancer health risk exposure under project and cumulative conditions were determined to be less than significant with mitigation, there is uncertainty regarding the health risk from construction activities due to the potential for changes to the off-road equipment roster and intensity of average daily use of the various pieces of off-road equipment. Therefore, the significant and unavoidable project and cumulative health risk air quality impacts would remain even with mitigation because the proposed project or project variants would:

- Generate emissions of toxic air contaminants, including diesel particulate matter, total organic gases, and particulate matter (2.5 microns), at levels which would result in an exceedance of the health protective risk exposure level for sites within a mapped air quality exposure zone that is also within a health vulnerable zip code.

Implementation of **Mitigation Measures M-CR-1a: Documentation of Historical Resource, M-CR-1b: Salvage Plan, M-CR-1c: Interpretation of the Historical Resource, and M-CR-1d: Oral Histories**, pp. 3.B.29-3.B.32, would lessen the impact of the proposed project or project variants; however, implementation of these mitigation measures would not reduce this significant impact to a less-than-significant level. Therefore, this impact would be considered significant and unavoidable with mitigation.

Implementation of **Mitigation Measure M-AQ-1: Off-Road Construction Emissions Minimization Plan**, along with **Mitigation Measure M-AQ-3: Emergency Diesel Generator Health Risk Reduction Plan**, would lessen the construction- and operation-related contributions of the proposed project or project variants to the exposure of sensitive receptors to substantial pollutant concentrations resulting excess cancer health risk exposure. However, implementation of **Mitigation Measure M-AQ-1** would not reduce the construction-related contribution substantially enough below the threshold of significance. Therefore, this impact was determined to be significant and unavoidable with mitigation.

The initial study identified topics that were determined not to apply to the proposed project or project variants and topics where the proposed project or project variants would have no impact, a less-than-significant impact, or an impact that would be less-than-significant with mitigation. For potentially significant impacts, mitigation measures are identified that would reduce these impacts to a less-than-significant level. As shown in **Table S.2: Summary of Significant Impacts of Proposed Project or Project Variants Identified in the Initial Study**, beginning on pp. S.29, the initial study identified significant impacts related to tribal cultural resources and to geology and soils (paleontology) that would be reduced to less-than-significant levels with implementation of the mitigation measures identified.

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Table S.1: Summary of Impacts of Proposed Project or Project Variants Identified in the EIR

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
Legend: NI = No Impact; LTS = Less than significant or negligible impact, no mitigation required; S = Significant; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable			
EIR Section 3.B, Cultural Resources (Historic Architectural Resources)			
CR-1: The proposed project or project variants would cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5 of the CEQA Guidelines.	S	**Mitigation Measures M-CR-1a: Documentation of Historical Resource (HRER Part II, Mitigation Measure 1)** Prior to issuance of a demolition permit, the project sponsor team shall undertake Historic American Building/Historic American Landscape Survey-like (HABS/HALS-like) documentation of the building features. The documentation shall be undertaken by a professional who meets the Secretary of the Interior's Professional Qualifications Standards for Architectural History, History, or Architecture (as appropriate) to prepare written and photographic documentation of the Potrero Trolley Coach Division Facility. The specific scope of the documentation shall be reviewed and approved by the Planning Department but shall include the following elements: **Measured Drawings** – A set of measured drawings shall be prepared that depict the existing size, scale, and dimension of the historic resource. Planning Department staff will accept the original architectural drawings or an as-built set of architectural drawings (e.g., plans, sections, elevations). Planning Department staff will assist the consultant in determining the appropriate level of measured drawings. **Historic American Buildings/Historic American Landscape Survey-Level Photographs** – Either Historic American Buildings/Historic American Landscape Survey (HABS/HALS) standard large-format or digital photography shall be used. The scope of the digital photographs shall be reviewed by Planning Department staff for concurrence, and all digital photography shall be conducted according to the latest National Park Service (NPS) standards. The photography shall be undertaken by a qualified professional with demonstrated experience in HABS/HALS photography. Photograph views for the data set shall include contextual views; views of each side of the building and interior views, including	SUM

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
Legend: NI = No Impact; LTS = Less than significant or negligible impact, no mitigation required; S = Significant; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable			
		any original interior features, where possible; oblique views of the building; and detail views of character-defining features. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historic photographs shall also be collected, reproduced, and included in the data set. **HABS/HALS Historical Report** – A written historical narrative and report shall be provided in accordance with the HABS/HALS Historical Report Guidelines. The written history shall follow an outline format that begins with a statement of significance supported by the development of the architectural and historical context in which the structure was built and subsequently evolved. The report shall also include architectural description and bibliographic information. **Video Recordation (HRER Part II, Mitigation Measure 3)** – Video recordation shall be undertaken before demolition or site permits are issued. The project sponsor team shall undertake video documentation of the affected historical resource and its setting. The documentation shall be conducted by a professional videographer, one with experience recording architectural resources. The documentation shall be narrated by a qualified professional who meets the standards for history, architectural history, or architecture (as appropriate) set forth by the Secretary of the Interior's Professional Qualification Standards (36 Code of Federal Regulations Part 61). The documentation shall include as much information as possible—using visuals in combination with narration—about the materials, construction methods, current condition, historic use, and historic context of the historical resource. This mitigation measure would supplement the traditional HABS/HALS documentation, and would enhance the collection of reference materials that would be available to the public and inform future research. **Softcover Book** – A Print-on-Demand softcover book shall be produced that includes the content from the historical report, historical photographs,	

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
Legend: NI = No Impact; LTS = Less than significant or negligible impact, no mitigation required; S = Significant; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable			
		HABS/HALS photography, measured drawings, and field notes. The Print-on-Demand book shall be made available to the public for distribution. The project sponsor team shall transmit such documentation to the History Room of the San Francisco Public Library, San Francisco Architectural Heritage, the Planning Department, and the Northwest Information Center. The HABS/HALS documentation scope will determine the requested documentation type for each facility, and the project sponsor team will conduct outreach to identify other interested groups. All documentation will be reviewed and approved by the Planning Department's staff before any demolition or site permit is granted for the affected historical resource. **Mitigation Measure M-CR-1b: Salvage Plan (HRER Part II, Mitigation Measure 2)** Prior to any demolition that would remove character-defining features, the project sponsor team shall consult with the planning department as to whether any such features may be salvaged, in whole or in part, during demolition/alteration. The project sponsor team shall make a good faith effort to salvage materials of historical interest to be utilized as part of the interpretative program. **Mitigation Measure M-CR-1c: Interpretation of the Historical Resource (HRER Part II, Mitigation Measure 4)** The project sponsor team shall facilitate the development of an interpretive program focused on the history of the project site. The interpretive program should be developed and implemented by a qualified professional with demonstrated experience in displaying information and graphics to the public in a visually interesting manner, such as a museum or exhibit curator. This program shall be initially outlined in a proposal for an interpretive plan subject to review and approval by Planning Department staff. The proposal shall include the proposed format and the publicly-accessible location of the interpretive content, as well as high-quality graphics and written narratives. The proposal prepared by the qualified consultant describing the general parameters of the interpretive program	

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		shall be approved by Planning Department staff prior to issuance of the architectural addendum to the site permit. The detailed content, media, and other characteristics of such an interpretive program shall be approved by Planning Department staff prior to issuance of a Temporary Certificate of Occupancy. The interpretative program shall include but not be limited to the installation of permanent on-site interpretive displays or screens in publicly accessible locations. Historical photographs, including some of the large-format photographs required by Mitigation Measure M-CR-1a, may be used to illustrate the site's history. The oral history program required by Mitigation Measure M-CR-1d will also inform the interpretative program. The primary goal is to educate visitors and future residents about the property's historical themes, associations, and lost contributing features within broader historical, social, and physical landscape contexts. These themes would include but not be limited to the subject property's historic significance for its association with the earliest years of San Francisco's Municipal Railway, the United States' first publicly owned street railway and for its distinctive characteristics as a car barn, for its post-Earthquake period of construction, and as the work of master Michael M. O'Shaughnessy. **Mitigation Measure M-CR-1d: Oral Histories (HRER Part II, Mitigation Measure 5)** The project sponsor team shall undertake an oral history project on the resource that may include interviews of people such as former employees. The project shall be conducted by a professional historian in conformance with the Oral History Association's Principles and Best Practices (https://www.oralhistory.org/principles-and-best-practices-revised-2018/). In addition to transcripts of the interviews, the oral history project shall include a narrative project summary report containing an introduction to the project, a methodology description, and brief summaries of each conducted interview. Copies of the completed oral history project shall be submitted to the San Francisco Public	

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		Library, Planning Department, and other interested historical institutions. The oral history project shall also be incorporated into the interpretative program.	
CR-2: Construction of the proposed project or project variants would not materially alter, in an adverse manner, the physical characteristics of any off-site historical resource that justifies its inclusion in the California Register of Historical Resources.	LTS	No mitigation measures are required.	N/A
C-CR-1: The proposed project or project variants, in combination with cumulative projects, would not materially alter, in an adverse manner, the physical characteristics of historical resources that justify their eligibility for inclusion in the California Register of Historical Resources, resulting in a cumulative impact.	LTS	No mitigation measures are required.	N/A
EIR Section 3.C, Transportation and Circulation			
TR-1: Construction of the proposed project or project variants would not require a substantially extended duration or intense activity and the secondary effects would not create potentially hazardous conditions for	LTS	**Improvement Measure I-TR-A: Construction Management Plan – Additional Measures** As part of the project's construction management plan, the SFMTA and a private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) will require additional measures to further minimize	N/A

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people walking, bicycling, or driving; or interfere with accessibility for people walking or bicycling; or substantially delay public transit.		disruptions to people walking and bicycling, transit, and emergency vehicles during project construction: The additional measures include: • *Carpool, Bicycle, Walk, and Transit Access for Construction Workers*—To minimize parking demand and vehicle trips associated with construction workers, the construction contractor will include as part of the Construction Management Plan methods to encourage carpooling, bicycle, walk, and transit access to the project site by construction workers. These methods could include providing secure bicycle parking spaces, participating in free-to-employee and employer ride matching program from www.511.org, participating in emergency ride home program through the City of San Francisco (www.sferh.org), and providing transit information to construction workers. • *Project Construction Updates for Adjacent Businesses and Residents*—To minimize construction impacts on access to nearby residences and businesses, the project sponsor team will provide nearby residences and adjacent businesses with regularly updated information regarding project construction, including construction activities, peak construction vehicle activities, travel lane closures, and parking lane and sidewalk closures (e.g., via the project's website). At regular intervals to be defined in the construction management plan, a regular email notice will be distributed by the project sponsor team that would provide current construction information of interest to neighbors, as well as contact information for specific construction inquiries or concerns.	
TR-2: Operation of the proposed project or project variants would not create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations	LTS	No mitigation measures are required.	N/A

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TR-3: Operation of the proposed project or project variants would not interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access.	LTS	No mitigation measures are required.	N/A
TR-4: Operation of the proposed project or project variants would not substantially delay public transit.	LTS	No mitigation measures are required.	N/A
TR-5: Operation of the proposed project or project variants would not cause substantial additional VMT or substantially induce automobile travel.	LTS	No mitigation measures are required.	N/A
TR-6: Operation of the proposed project or project variants would not result in a loading deficit.	LTS	**Improvement Measure I-TR-B: Driveway and Loading Operations Plan (DLOP)** The project sponsor team will be required to prepare and implement a Driveway and Loading Operations Plan (DLOP). The DLOP will be prepared by the private project co-sponsor, in coordination with the SFMTA, and submitted as part of the application for the first temporary occupancy permit. The DLOP will include provisions to manage loading activities and driveway operations associated with the below-grade onsite loading spaces; provisions for assessing on-street commercial and passenger loading supply and protocol for expanding on-street supply, if needed; provisions for trash/recycling/compost truck access and collection operations; provisions for residential move-in and move-out operations; provisions for scheduling Muni deliveries using the onsite loading facilities; and	N/A

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		provisions for accommodating recurring deliveries such as UPS, Federal Express, and USPS within the onsite loading facilities. The intent of the DLOP is to reduce potential conflicts between passenger and freight loading and transit operations, and between passenger and freight loading activities and people walking and bicycling, and other vehicles in the project vicinity, as well as to maximize reliance on onsite facilities to accommodate freight loading demand.	
C-TR-1: The proposed project or project variants, in combination with cumulative projects, would not result in significant construction-related transportation impacts.	LTS	**Improvement Measure I-TR-A**, above, would apply to this cumulative impact.	N/A
C-TR-2: The proposed project or project variants, in combination with cumulative projects, would not create potentially hazardous conditions.	LTS	No mitigation measures are required.	N/A
C-TR-3: The proposed project or project variants, in combination with cumulative projects, would not interfere with accessibility.	LTS	No mitigation measures are required.	N/A
C-TR-4: The proposed project or project variants, in combination with cumulative projects, would not substantially delay public transit.	LTS	No mitigation measures are required.	N/A

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C-TR-5: The proposed project or project variants, in combination with cumulative projects, would not cause substantial additional VMT or substantially induce automobile travel.	LTS	No mitigation measures are required.	N/A
C-TR-6: The proposed project or project variants, in combination with cumulative projects, would not result in significant loading impacts.	LTS	No mitigation measures are required.	N/A
EIR Section 3.D, Noise and Vibration			
NO-1: Construction of the proposed project or project variants would generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the San Francisco Noise Ordinance or applicable standards of other agencies.	S	**Mitigation Measure M-NO-1: Construction Noise Control** The SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall prepare construction noise control documentation as detailed below. Prior to issuance of any demolition or building permit, the project sponsor team shall submit a project-specific construction noise control plan to the Environmental Review Officer (ERO) or the ERO's designee for approval. The construction noise control plan shall be prepared by a qualified acoustical engineer, with input from the construction contractor, and include all feasible measures to reduce construction noise. The construction noise control plan shall identify noise control measures to meet a performance target of construction activities not resulting in a noise level greater than 90 dBA at noise-sensitive receptors and 10 dBA above the ambient noise level at noise-sensitive receptors. The project sponsor team shall ensure that requirements of the construction noise control plan are included in contract specifications. If nighttime construction is required, the plan shall include specific measures to reduce nighttime construction noise. The plan shall also	LTSM

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		include measures for notifying the public of construction activities, complaint procedures, and a plan for monitoring construction noise levels in the event complaints are received. The construction noise control plan shall include the following measures to the degree feasible, or other effective measures, to reduce construction noise levels: • Use construction equipment that is in good working order, and inspect mufflers for proper functionality; • Select “quiet” construction methods and equipment (e.g., improved mufflers, use of intake silencers, engine enclosures); • Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors; • Prohibit the idling of inactive construction equipment for more than five minutes; • Locate stationary noise sources (such as compressors) as far from nearby noise-sensitive receptors as possible, muffle such noise sources, and construct barriers around such sources and/or the construction site. • Avoid placing stationary noise-generating equipment (e.g., generators, compressors) within noise-sensitive buffer areas (as determined by the acoustical engineer) immediately adjacent to neighbors. • Enclose or shield stationary noise sources from neighboring noise-sensitive properties with noise barriers to the extent feasible. To further reduce noise, locate stationary equipment in pit areas or excavated areas, if feasible; and • Install temporary barriers, barrier-backed sound curtains and/or acoustical panels around working powered impact equipment and, if necessary, around the project site perimeter. When temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of the barrier panels and the ground, shall be	

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		closed with material that completely closes the gaps, and dense enough to attenuate noise. The construction noise control plan shall include the following measures for notifying the public of construction activities, complaint procedures, and monitoring construction noise levels: • Designate an on-site construction noise manager for the project; • Notify neighboring noise-sensitive receptors within 300 feet of the project construction area at least 30 days in advance of high-intensity noise-generating activities (e.g., pier drilling, pile driving, and other activities that may generate noise levels greater than 90 dBA at noise-sensitive receptors) about the estimated duration of the activity; • Post a sign onsite describing noise complaint procedures and a complaint hotline number that shall always be answered during construction; • Implement a procedure for notifying the planning department of any noise complaints within one week of receiving a complaint; • Establish a list of measures for responding to and tracking complaints pertaining to construction noise. Such measures may include the evaluation and implementation of additional noise controls at sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat); and • Conduct noise monitoring (measurements) at the beginning of major construction phases (e.g., demolition, grading, excavation) and during high-intensity construction activities to determine the effectiveness of noise attenuation measures and, if necessary, implement additional noise control measures.	

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		The construction noise control plan shall include the following additional measures in the event of pile-driving activities: • When pile driving is to occur within 600 feet of a noise-sensitive receptor, implement "quiet" pile-driving technology (such as pre-drilling of piles, sonic pile drivers, auger cast-in-place, or drilled-displacement, or the use of more than one pile driver to shorten the total pile-driving duration [only if such measure is preferable to reduce impacts to sensitive receptors]) where feasible, in consideration of geotechnical and structural requirements and conditions; • Where the use of driven impact piles cannot be avoided, properly fit impact pile driving equipment with an intake and exhaust muffler and a sound-attenuating shroud, as specified by the manufacturer; and • Conduct noise monitoring (measurements) before, during, and after the pile-driving activity.	
NO-2: Construction of the proposed project or project variants would generate excessive groundborne vibration or groundborne noise levels.	S	**Mitigation Measure M-NO-2: Vibration-Sensitive Equipment at 2601 Mariposa Street (KQED Building)** Prior to construction, the SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall designate and make available a community liaison to respond to vibration complaints from building occupants at the KQED building, located at 2601 Mariposa Street. Contact information for the community liaison shall be posted in a conspicuous location so that it is clearly visible to building occupants most likely to be disturbed. Through the community liaison, the project sponsor team shall provide notification to property owners and occupants of 2601 Mariposa Street at least 10 days prior to construction activities involving equipment that can generate vibration capable of interfering with vibration-sensitive equipment, informing them of the estimated start date and duration of vibration-generating construction activities. Equipment types capable of generating such vibration include an impact	LTSM

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		pile driver, or similar equipment, operating within 250 feet of the building or a vibratory roller, or similar equipment, operating within 125 feet of the building. If feasible, the project sponsor team shall identify potential alternative equipment and techniques that could reduce construction vibration levels. Alternative equipment and techniques may include, but are not limited to: • pre-drilled piles, • caisson drilling, • oscillating or rotating pile installation, • jetting piles into place using a water injection at the tip of the pile could be substituted for driven piles, if feasible, based on soil conditions, • static rollers could be substituted for vibratory rollers in some cases. If concerns prior to construction or complaints during construction related to equipment interference are identified, the community liaison shall work with the project sponsor team and the affected building occupants to resolve the concerns such that the vibration control measures would meet a performance target of the 65 VdB vibration level threshold for vibration sensitive equipment, as set forth by Federal Transit Authority (FTA). To resolve concerns raised by building occupants, the community liaison shall convey the details of the complaint(s) to the project sponsor team, such as who shall implement specific measures to ensure that the project construction meets the performance target of 65 VdB vibration level for vibration sensitive equipment. These measures may include evaluation by a qualified noise and vibration consultant, scheduling certain construction activities outside the hours of operation or recording periods of specific vibration-sensitive equipment if feasible, and/or conducting ground-borne vibration monitoring to document that the project can meet the performance target of 65 VdB at specific distances and/or locations. Ground-borne vibration monitoring, if appropriate to resolve concerns, shall be conducted by a qualified noise and vibration consultant.	

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NO-3: Operation of the proposed project or project variants would generate a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan, or applicable standards of other agencies.	S	**Mitigation Measure NO-3: Fixed Mechanical Equipment Noise Control for Building Operations** The SFMTA and a private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall prepare operational noise control documentation as detailed below. Prior to approval of a building permit, the project sponsor team shall submit documentation to the Environmental Review Officer (ERO) or the officer's designee, demonstrating with reasonable certainty that the building's fixed mechanical equipment (such as heating, ventilation and air conditioning [HVAC] equipment) meets the noise limits specified in sections 2909 (b) and 2909 (d) of the noise ordinance (i.e., an 8-dB increase above the ambient noise level at the property plane for commercial or mixed-use properties; and interior noise limits of 55 dBA and 45 dBA for daytime and nighttime hours inside any sleeping or living room in a nearby dwelling unit on a residential property assuming windows open, respectively). Acoustical treatments required to meet the noise ordinance may include, but are not limited to: • Enclosing noise-generating mechanical equipment; • Installing relatively quiet models of air handlers, exhaust fans, and other mechanical equipment; • Using mufflers or silencers on equipment exhaust fans; • Orienting or shielding equipment to protect noise-sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat) to the greatest extent feasible; • Increasing the distance between noise-generating equipment and noise-sensitive receptors; and/or • Placing barriers around the equipment to facilitate the attenuation of noise.	LTSM

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		Compliance with this fixed-mechanical equipment noise control for building operations standard requirement does not obviate the need for the equipment to demonstrate compliance with the noise ordinance throughout the lifetime of the project.	
C-NO-1: Construction noise as a result of the proposed project or project variants, combined with construction noise from cumulative projects in the vicinity, would cause a substantial temporary increase in ambient noise levels.	S	**Mitigation Measure NO-1**, above, would apply to this cumulative impact.	LTSM
C-NO-2: Construction vibration as a result of the proposed project or project variants, combined with construction vibration from cumulative projects in the vicinity, would not generate excessive groundborne vibration or groundborne noise levels.	LTS	No mitigation measures are required.	N/A
C-NO-3: Operation of the proposed project or project variants, combined with operation noise from cumulative projects in the vicinity, would cause a substantial permanent increase in ambient noise levels in the project vicinity.	LTS	No mitigation measures are required.	N/A

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EIR Section 3.E, Air Quality			
AQ-1: During construction, the proposed project or project variants would not generate significant fugitive dust emissions, but would generate criteria air pollutant emissions at levels which would result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.	S	**Mitigation Measure M-AQ-1: Off-Road Construction Equipment Emissions Minimization.** The SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall comply with the following: (A) Engine Requirements. (1) All off-road equipment greater than or equal to 25 horsepower shall have engines that meet U.S. EPA or California Air Resources Board Tier 4 Final off-road emission standards. (2) Where access to alternative sources of power is available, portable diesel engines shall be prohibited. If access to alternative sources of power is infeasible, portable diesel engines shall meet the requirements of Subsection (A)(1). (3) Diesel engines, whether for off-road or on-road equipment, shall not be left idling for more than two minutes, at any location, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment (e.g., traffic conditions, safe operating conditions). The project sponsor team shall post legible and visible signs in English, Spanish, and Chinese, in designated queuing areas and at the construction site to remind operators of the two-minute idling limit. (4) The project sponsor team shall instruct construction workers and equipment operators on the maintenance and tuning of construction equipment and require that such workers and operators properly maintain and tune equipment in accordance with manufacturer specifications.	LTSM

		(B) Waivers. (1) The San Francisco Planning Department Environmental Review Officer (ERO) may waive the equipment requirements of Subsection (A)(1) if: a particular piece of off-road Tier 4 Final equipment is not regionally available, not technically feasible, or would not produce desired emissions reduction due to expected operating modes. In granting the waiver, the project sponsor team must demonstrate with substantial evidence that the project construction does not exceed the BAAQMD threshold for NOx (54 lbs/day) by resulting in a net increase of average daily NOx emissions greater than 4 pounds per day. The project sponsor team must also demonstrate with substantial evidence that the overall combined construction and operational excess cancer risk does not exceed 7 per 1 million persons exposed at nearby sensitive receptors. (C) Construction Emissions Minimization Plan. (1) Before starting onsite construction activities, the project sponsor team shall submit a Construction Emissions Minimization Plan (Plan) to the ERO for review and approval. The Plan shall state, in reasonable detail, how the project sponsor team will meet the requirements of Section A. (2) The Plan shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for every construction phase. The description may include, but is not limited to: equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel use and hours of operation. (3) The project sponsor team shall ensure that all applicable requirements of the Plan have been incorporated into the contract specifications. The Plan shall include a certification statement that the project sponsor team agrees to comply fully with the Plan. (4) The project sponsor team shall make the Plan available to the public for review onsite during working hours. The project sponsor team shall post at the construction site a legible and visible sign summarizing the Plan. The sign shall also state that the public may ask to inspect the Plan for the project at any time during working hours and shall explain how to request to inspect the Plan. The project sponsor team shall post at least	

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		one copy of the sign in a visible location on each side of the construction site facing a public right-of-way. (D) Monitoring (1) After start of construction activities, the project sponsor team shall submit biannual reports to the ERO documenting compliance with the Plan. After completion of construction activities and prior to receiving a final certificate of occupancy, the project sponsor team shall submit to the ERO a final report summarizing construction activities, including the start and end dates and duration of each construction phase, and the specific information required in the Plan.	
AQ-2: During operation, the proposed project or project variants would generate criteria air pollutant emissions at levels that would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.	LTS	No mitigation measures are required.	N/A
AQ-3: Construction and operation of the proposed project or project variants would generate toxic air contaminants, including diesel particulate matter, at levels which would expose sensitive receptors to substantial pollutant concentrations.	S	**Mitigation Measure M-AQ-3: Emergency Diesel Generator Health Risk Reduction Plan** The SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as the project sponsor team) shall comply with the following: 1. Require all emergency diesel generators to meet Tier 4 Final emission standards, reduce annual testing limit to 20 hours per year for each generator, and vent generator exhaust above the 75-foot roofline of the project building; or	SUM

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		2. Require all emergency diesel generators to meet Tier 4 Final emission standards, reduce annual testing limit to 20 hours per year for each generator, and vent generator exhaust on the west or north side of the project building; or 3. Require all emergency generators to be battery-powered; or 4. The project sponsor team shall retain a qualified air quality consultant to develop an Emergency Diesel Generator Health Risk Reduction Plan. The project sponsor team shall submit the plan to the San Francisco Planning Department Environmental Review Officer (ERO) for review and approval prior to issuance of a permit for emergency diesel generators from the San Francisco Department of Building Inspection or the Bay Area Air Quality Management District. The plan must include, for each emergency diesel generator, a description of the anticipated venting location, engine specifications, and annual maintenance testing procedures. The plan must demonstrate with substantial evidence that annual maintenance testing will not result in the project's overall construction and operational cancer risk exceeding 7 per one million persons exposed at nearby offsite sensitive receptors. Additionally, the operator of the facility at which the generators are located shall be required to maintain records of the testing schedule for each emergency diesel generator for the life of that generator and to provide this information for review to the planning department within three months of requesting such information. **Mitigation Measure M-AQ-1** would also apply to this impact.	
AQ-4: The proposed project or project variants would not conflict with implementation of the 2017 Bay Area Clean Air Plan.	LTS	No mitigation measures are required.	N/A

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AQ-5: The proposed project or project variants would not create objectionable odors that would affect a substantial number of people.	LTS	No mitigation measures are required.	N/A
C-AQ-1: The proposed project or project variants, in combination with cumulative projects in the vicinity, would contribute considerably to cumulative health risk impacts on sensitive receptors.	S	**Mitigation Measures M-AQ-1** and **M-AQ-3**, above, would apply to this cumulative impact.	SUM
EIR Section 3.F, Wind			
WI-1: The proposed project or project variants would create wind hazards in publicly accessible areas of substantial pedestrian use in the vicinity of the project site.	S	**Mitigation Measure M-WI-1: Design Measures to Reduce Project-Specific Wind Impacts** The project sponsor team shall retain a qualified wind consultant to prepare, in consultation with the San Francisco Planning Department (planning department), a wind impact mitigation report that identifies design measures to reduce the project's wind impacts in the project scenario. Prior to certification of the Final Environmental Impact Report, the project sponsor team shall submit the wind impact mitigation report to the planning department for its final review and approval. The wind impact mitigation report shall incorporate updated information on the building design based on a list of potential wind reduction measures identified below, along with the estimated effectiveness of each measure to reduce the identified off-site wind hazards. • Porous façades on portions of the north, east and west sides for natural ventilation as part of the heating, ventilation, and air conditioning strategy for the new transit facility at the second and third levels	LTSM

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		• Recessed building corner up to 12 feet in height at the southwest corner of proposed building near Bryant/Mariposa intersection • Vertical elevated screens on portions of the second and third levels of the west façade (Bryant Street) • Vertical wind screens at grade level on the adjacent Bryant Street sidewalk near the Bryant/Mariposa intersection Such wind reduction design measures may include additional on-site landscaping, or equivalent wind-reducing features; and off-site wind reduction measures such as landscaping, streetscape improvements or other wind-reducing features, such as wind screens. The project sponsor team shall implement as many of the design measures identified in the wind impact mitigation report as needed to reduce the proposed project's or project variants' potential to create a new wind hazard or exacerbate an existing wind hazard in publicly accessible areas of substantial pedestrian use to less-than-significant levels. The final wind impact mitigation report should not find that the project produces a net increase of the already identified wind hazard exceedances. The planning department shall approve the final list of wind reduction measures that the project sponsor team shall implement.	
C-WI-1: The proposed project or project variants, in combination with cumulative projects, would not alter wind in a manner that would make a cumulatively considerable contribution to a significant cumulative wind impact.	S	**Mitigation Measure M-WI-1**, above, would apply to this cumulative impact	LTSM

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
Legend: NI = No Impact; LTS = Less than significant or negligible impact, no mitigation required; S = Significant; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable			
EIR Section 3.G, Shadow			
SH-1: The proposed project or project variants would not create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces.	LTS	No mitigation measures are required.	N/A
C-SH-1: The proposed project or project variants in combination with cumulative projects in the vicinity would not create new shadow in a manner that substantially and adversely affects the use and enjoyment of publicly accessible open spaces. The proposed project or project variants would not make a cumulatively considerable contribution to a significant cumulative shadow impact.	LTS	No mitigation measures are required.	N/A

Source: SWCA

Table S.2: Summary of Significant Impacts of Proposed Project or Project Variants Identified in the Initial Study

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Legend: NI = No Impact; LTS = Less than significant or negligible impact, no mitigation required; S = Significant; LTSM = Less than significant with mitigation; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; NA = Not Applicable			
Tribal Cultural Resources (initial study section E.5)			
TCR-1: Construction of the proposed project or project variants could cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074.	S	**Mitigation Measure M-TCR-1: Tribal Cultural Resources Preservation and/or Interpretive Program** During ground-disturbing activities that encounter archeological resources, if the Environmental Review Officer (ERO) determines that a significant archeological resource is present, and if in consultation with the affiliated Native American tribal representatives, the ERO determines that the resource constitutes a tribal cultural resource (TCR) and that the resource could be adversely affected by the proposed project, the proposed project shall be redesigned so as to avoid any adverse effect on the significant tribal cultural resource, if feasible. If the ERO, in consultation with the project sponsor team, determines that preservation-in-place of the TCR would be both feasible and effective, then the archeological consultant shall prepare an archeological resource preservation plan (ARPP). Implementation of the approved ARPP by the archeological consultant shall be required when feasible. If the ERO, in consultation with the affiliated Native American tribal representatives and the project sponsor team, determines that preservation-in-place of the TCR is not a sufficient or feasible option, then the project sponsor team shall implement an interpretive program of the TCR in consultation with affiliated Native American tribal representatives. An interpretive plan produced in consultation with affiliated Native American tribal representatives, at a minimum, and approved by the ERO, would be required to guide the interpretive program. The plan shall identify proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, artifacts displays and interpretation, and educational panels or other informational displays.	LTSM

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Legend: NI = No Impact; LTS = Less than significant or negligible impact, no mitigation required; S = Significant; LTSM = Less than significant with mitigation; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; NA = Not Applicable			
C-TCR-1: The proposed project or project variants, in combination with cumulative projects in the vicinity, would not result in significant cumulative tribal cultural resources impacts.	S	Implement **Mitigation Measure M-TCR-1 Tribal Cultural Resources Preservation and/or Interpretive Program**, above.	LTSM
Geology and Soils (initial study section E.16)			
GE-6: The proposed project or project variants could directly or indirectly destroy a unique paleontological resource or site**.**	S	**Mitigation Measure M-GE-6a: Inadvertent Discovery of Paleontological Resources** Worker Awareness Training - Prior to commencing construction, and ongoing throughout ground disturbing activities (e.g., excavation, utility installation, the project sponsor team and/or their designee shall ensure that all project construction workers are trained on the contents of the Paleontological Resources Alert Sheet, as provided by the Planning Department. The Paleontological Resources Alert Sheet shall be prominently displayed at the construction site during ground disturbing activities for reference regarding potential paleontological resources. In addition, the project sponsor team shall inform the contractor and construction personnel of the immediate stop work procedures and other procedures to be followed if bones or other potential fossils are unearthed at the project site. Should new workers that will be involved in ground disturbing construction activities begin employment after the initial training has occurred, the construction supervisor shall ensure that they receive the worker awareness training as described above. The project sponsor team shall complete the standard form/affidavit confirming the timing of the worker awareness training to the Environmental Review Officer (ERO). The affidavit shall confirm the project's location, the date of training, the location of the informational handout display, and the number of participants. The	LTSM

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Legend: NI = No Impact; LTS = Less than significant or negligible impact, no mitigation required; S = Significant; LTSM = Less than significant with mitigation; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; NA = Not Applicable			
		affidavit shall be transmitted to the ERO within five (5) business days of conducting the training. Paleontological Resource Discoveries - In the event of the discovery of an unanticipated paleontological resource during project construction, ground disturbing activities shall temporarily be halted within 25 feet of the find until the discovery is examined by a qualified paleontologist as recommended by the Society of Vertebrate Paleontology standards (SVP 2010) and Best Practices in Mitigation Paleontology (Murphey et al. 2019). Work within the sensitive area shall resume only when deemed appropriate by the qualified paleontologist in consultation with the ERO. The qualified paleontologist shall determine: 1) if the discovery is scientifically significant; 2) the necessity for involving other responsible or resource agencies and stakeholders, if required or determined applicable; and 3) methods for resource recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines Section 15064.5, California Public Resources Code Chapter 17, Section 5097.5, Paleontological Resources Preservation Act 2009). The Paleontological Evaluation Letter shall be submitted to the ERO for review within 30 days of the discovery. If the qualified paleontologist determines that a paleontological resource is of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, the qualified paleontologist shall prepare a Paleontological Mitigation Program. The mitigation program shall include measures to fully document and recover the resource of scientific importance. The qualified paleontologist shall submit the mitigation program to the ERO for review and approval within 10 business days of the discovery. Upon approval by the ERO, ground disturbing activities in the project area shall resume and be	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
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		monitored as determined by the qualified paleontologist for the duration of such activities. The mitigation program shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and identification procedures; 3) curation of paleontological resources of scientific importance into an appropriate repository; and 4) preparation of a Paleontological Resources Report (report or paleontology report) at the conclusion of ground disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility. The project sponsor team shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology report shall be submitted to the ERO for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with the ERO. **Mitigation Measure M-GE-6b: Preconstruction Paleontological Evaluation and Monitoring Plan during Construction** The project sponsor team shall engage a qualified paleontologist to develop a site-specific monitoring plan prior to commencing soil-disturbing activities at the project site. The Preconstruction Paleontological Monitoring Plan would determine project construction activities requiring paleontological monitoring based on those may affect sediments with moderate sensitivity for paleontological resources. Prior to issuance of any demolition permit, the project sponsor team shall submit the Preconstruction Paleontological Monitoring Plan to the ERO for approval.	

		At a minimum, the plan shall include: 1. Project Description 2. Regulatory Environment – outline applicable federal, state and local regulations 3. Summary of Sensitivity Classification(s) 4. Research Methods, including but not limited to: 4.a. Field studies conducted by the approved paleontologist to check for fossils at the surface and assess the exposed sediments. 4.b. Literature Review to include an examination of geologic maps and a review of relevant geological and paleontological literature to determine the nature of geologic units in the project area. 4.c. Locality Search to include outreach to the University of California Museum of Paleontology in Berkeley. 5. Results: to include a summary of literature review and finding of potential site sensitivity for paleontological resources; and depth of potential resources if known. 6. Recommendations for any additional measures that could be necessary to avoid or reduce any adverse impacts to recorded and/or inadvertently discovered paleontological resources of scientific importance. Such measures could include: 6.a. Avoidance: If a known fossil locality appears to contain critical scientific information that should be left undisturbed for subsequent scientific evaluation. 6.b. Fossil Recovery: If isolated small, medium- or large-sized fossils are discovered during field surveys or construction monitoring, and they are determined to be scientifically significant, they should be recovered. Fossil recovery may involve collecting a fully exposed fossil from the ground surface, or may involve a systematic excavation, depending upon the size and complexity of the fossil discovery. 6.c. Monitoring: Monitoring involves systematic inspections of graded cut slopes, trench sidewalls, spoils piles, and other types of construction excavations for the presence of fossils, and the fossil recovery and documentation of these fossils before they are destroyed by further ground disturbing actions. Standard	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
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		monitoring is typically used in the most paleontologically sensitive geographic areas/geologic units (moderate, high, and very high potential); while spot-check monitoring is typically used in geographic areas/geologic units of moderate or unknown paleontological sensitivity (moderate or unknown potential). 6.d. Data recovery and reporting: Fossil and associated data discovered during soils disturbing activities should be treated according to professional paleontological standards and documented in a data recovery report. The plan should define the scope of the data recovery report. The consultant shall document the monitoring conducted according to the monitoring plan and any data recovery completed for significant paleontological resource finds discovered, if any. Plans and reports prepared by the consultant shall be considered draft reports subject to revision until final approval by the ERO. The final monitoring report and any data recovery report shall be submitted to the ERO prior to the certificate of occupancy.	

S.3. SUMMARY OF PROJECT ALTERNATIVES

Four alternatives to the proposed project or project variants are evaluated in this EIR:

- the No Project Alternative (Alternative A), as required by CEQA
- the Full Preservation Alternative (Alternative B)
- the Partial Preservation Alternative (Alternative C)
- the Transit Facility Plus Commercial Only Alternative (Alternative D)

These alternatives are summarized below and described in detail in **EIR Chapter 5, Alternatives**.

Table S.3: Comparison of Characteristics of the Proposed Project and EIR Alternatives, pp. S.41-S.45, presents a comparison of the characteristics of the proposed project or project variants to the alternatives. As the impacts of the proposed project are substantially the same as those for each of the four project variants, the alternatives impact analysis does not include a separate comparative analysis for project variants. Three of the project variants—the Emergency Exit Relocation Variant, the Active 17th Street Variant, and the Employee/Family Support Variant—would be feasible variants with any of the alternatives. However, the Joint Development Lobby Relocation Variant would not be a feasible variant with any of the project alternatives because a joint development lobby along Mariposa Street (between York and Hampshire streets) would not be developed for residential uses and therefore would not need to be relocated under Alternatives B and C, which would include residential uses, or Alternative D, which would not include a residential use. **Table S.4: Comparison of Significant Impacts of the Proposed Project and EIR Alternatives**, pp. S.46-S.52, presents a comparison of the potential significant environmental impacts of the proposed project or project variants to those that may result from the alternatives.

ALTERNATIVE A: NO PROJECT ALTERNATIVE

CEQA Guidelines section 15126.6(e) requires that, among the project alternatives, a "no project" alternative be evaluated. CEQA Guidelines section 15126.6(e)(2) requires that the no project alternative analysis "discuss the existing conditions…as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and policies and consistent with the available infrastructure and community services."

Alternative A (the No Project Alternative) assumes that the existing site would continue to function as a transit storage and maintenance facility, which would not constitute a change from existing conditions, and that the existing land use controls on the project site would continue to govern site development and would not be changed.

Under Alternative A, the historical architectural resource and air quality impacts associated with excess cancer health risk exposure would not occur and all other potential impacts identified for the proposed project or project variants would not occur.

ALTERNATIVE B: FULL PRESERVATION ALTERNATIVE

Under Alternative B, the existing, approximately 45-foot-tall office wing along Mariposa Street would be retained and the remainder of the maintenance and operations building would be demolished, including the shops wing along Hampshire Street north of the office wing.

Alternative B: Full Preservation Alternative would preserve the portion of the existing maintenance and operations building along Mariposa and Hampshire streets on the southeast portion of site that includes most of the character-defining features of the resource. As part of its adaptation for future transit use, this alternative would also retain and rehabilitate much of the architectural detailing and character-defining features of the property that convey the significance of the historic property. New construction would be reduced by approximately 240,000 gross square feet with reductions to the circulation, storage, maintenance, and operations space in the replacement transit facility. Additionally, the residential development above the transit facility podium would be shifted to the west portion of site, away from the retained historic resource and reduced in size, resulting in 98 fewer units.

Unlike the proposed project or project variants, Alternative B would result in a less-than-significant impact on historic architectural resources. Like the proposed project or project variants, Alternative B would not generate any significant transportation and circulation impacts related to construction but would generate construction-related noise, vibration, and air quality impacts: 1) exposure of sensitive receptors to construction noise in excess of the City's Noise Ordinance, 2) exposure of vibration-sensitive equipment to construction vibration, and 3) toxic air contaminant emissions and excess cancer health risk exposure of sensitive receptors. Thus, construction-related impacts under Alternative B would be substantially the same as under the proposed project or project variants and the same set of construction-related noise and vibration and air quality mitigation measures would apply to Alternative B. Unlike the proposed project or project variants, under Alternative B air quality impacts associated with toxic air contaminant emissions and excess cancer health risk exposure would be reduced to less-than-significant levels with implementation of **Mitigation Measures M-AQ-1** and **M-AQ-3** because Alternative B would have a reduced construction program. Additionally, the construction-related improvement measure for transportation and circulation would also apply to Alternative B.

Development of the new structure on the project site would have substantially similar effects on wind conditions to those resulting from the proposed project or project variants. Therefore, as with the proposed project or project variants, Alternative B would be subject to the same wind mitigation testing program.

With a reduced development program compared to the proposed project or project variants, operational impacts under Alternative B for transportation and circulation, noise, and air quality would be substantially the same (or less than) those under the proposed project or project variants. Thus, the same set of operation-related noise and air quality mitigation measures would apply to Alternative B. Additionally, the operation-related improvement measure for transportation and circulation would also apply to Alternative B.

Significant impacts identified in the initial study for the proposed project or project variants, i.e., tribal cultural resources and paleontological resources, would also occur under Alternative B because excavation would not change. Under Alternative B, these impacts would be reduced to less-than-significant levels with the applicable mitigation measures identified for the proposed project or project variants. No new significant impacts would occur under Alternative B.

ALTERNATIVE C: PARTIAL PRESERVATION ALTERNATIVE

Alternative C: Partial Preservation Alternative would preserve, retain, and rehabilitate the historic property similar to Alternative B, but not to the level that it would continue to be able to convey the significance of the historic property. Although new construction would be reduced by a similar amount as Alternative B (reduction of approximately 230,000 gross square feet) and space reductions would be imposed on the same set of transit facility functions (storage, circulation, maintenance, and operations), the massing of the replacement transit facility would not be set back from the retained office wing as effectively as under Alternative B, i.e., with larger notches at the west and north edges of the office wing and deeper setbacks above the office wing. Furthermore, the residential development above the transit facility podium would be more similar to the proposed project or project variants than Alternative B with respect to the setbacks and massing of the residential floors above the transit facility podium.

Although Alternative C would reduce the significant impact to the historic property, it would not reduce it to a less-than-significant level. Therefore, as with the proposed project or project variants, Alternative C would result in a significant impact on historic architectural resources, and mitigation would be imposed. As with the proposed project or project variants, the identified mitigation would not reduce the impact to a less-than-significant level; thus, it would remain significant and unavoidable even with mitigation under Alternative C.

Like the proposed project or project variants, Alternative C would not generate any significant transportation and circulation impacts related to construction but would generate construction-related noise, vibration, and air quality impacts: 1) exposure of sensitive receptors to construction noise in excess of the City's Noise Ordinance, 2) exposure of vibration-sensitive equipment to construction vibration, and 3) toxic air contaminant emissions and excess cancer health risk exposure of sensitive receptors. Thus, construction-related impacts under Alternative C would be substantially the same as under the proposed project or project variants and the same set of construction-related noise and vibration and air quality mitigation measures would apply Alternative C. Unlike the proposed project or project variants, under Alternative C air quality impacts associated with toxic air contaminant emissions and excess cancer health risk exposure would be reduced to less-than-significant levels with implementation of **Mitigation Measures M-AQ-1** and **M-AQ-3** because Alternative C would have a reduced construction program. Additionally, the construction-related improvement measure for transportation and circulation would also apply to Alternative C.

Development of the new structure on the project site would have substantially similar effects on wind conditions as the proposed project or project variants. Therefore, as with the proposed project or project variants, Alternative C would be subject to the same wind mitigation testing program.

With a reduced development program compared to the proposed project or project variants, operational impacts under Alternative C for transportation and circulation, noise, and air quality would be substantially the same as (or less than) those under the proposed project or project variants. Thus, the same set of operation-related noise and air quality mitigation measures would apply to Alternative C. Additionally, the operation-related improvement measure for transportation and circulation would also apply to Alternative C.

Significant impacts identified in the initial study for the proposed project or project variants, i.e., tribal cultural resources and paleontological resources, would also occur under Alternative C because excavation would not change. Under Alternative C, these impacts would be reduced to less-than-significant levels with the applicable mitigation measures identified for the proposed project or project variants. No new significant impacts would occur under Alternative C.

ALTERNATIVE D: TRANSIT FACILITY PLUS COMMERCIAL ONLY ALTERNATIVE

Alternative D: Transit Facility Plus Commercial Only Alternative would demolish the existing maintenance and operations building as under the proposed project or project variants. Unlike the proposed project or project variants, the residential component of the joint development would not be part of the Alternative D land use program. Thus, new construction would be reduced by approximately 540,000 gross square feet, and the replacement transit facility would be developed similar to the transit facility under the proposed project or project variants with ground-floor commercial uses. Due to the removal of residential development above the replacement transit facility, the maximum height of the Alternative D would be 75 feet, exclusive of rooftop mechanical space.

This EIR presents Alternative D as a reduced density alternative that addresses the significant and unavoidable air quality impacts of the proposed project or project variants. In addition, Alternative D provides an understanding of the environmental impacts of redeveloping the site with a new transit facility that would also include commercial uses for City-decisionmakers and the public. Alternative D would not reduce the significant and unavoidable impact to the historic architectural resource. Therefore, as with the proposed project or project variants, Alternative D would result in a significant impact on historic architectural resources, and mitigation would be imposed. As with the proposed project or project variants, mitigation would not reduce the impact to a less-than-significant level; thus, the significant impact on historic architectural resources would remain significant and unavoidable even with mitigation under Alternative D.

Like the proposed project or project variants, Alternative D would not generate any significant transportation and circulation impacts related to construction but would generate construction-related noise, vibration, and air quality impacts: 1) exposure of sensitive receptors to construction noise in excess of the City's Noise Ordinance, 2) exposure of vibration-sensitive equipment to construction vibration, and 3) toxic air contaminant emissions and excess cancer health risk exposure of sensitive receptors. Thus, construction-related impacts under Alternative D would be substantially the same as (or less than) under the proposed project or project variants. For example, the change in scope to the construction program -- to build a smaller structure in less time -- would result in reductions to the construction-related noise and air quality impacts under the proposed project or project variants). Nonetheless, the same set of construction-related noise and vibration and air quality mitigation measures would apply to Alternative D. Unlike the proposed project or project variants, under Alternative D air quality impacts associated with toxic air contaminant emissions and excess cancer health risk exposure would be less than those of the proposed project or project variants and would be reduced to less-than-significant levels with mitigation. Additionally, the construction-related improvement measure for transportation and circulation would also apply to Alternative D.

Additionally, development of the new structure on the project site would have substantially similar effects on wind conditions as the proposed project or project variants. Therefore, as with the proposed project or project variants, Alternative D would be subject to the same wind mitigation testing program.

With a reduced development program compared to the proposed project or project variants, operational impacts under Alternative D for transportation and circulation, noise, and air quality would be substantially the same as (or less than) those under the proposed project or project variants. Thus, the same set of operation-related noise and air quality mitigation measures would apply to Alternative D. Additionally, the operation-related improvement measure for transportation and circulation would also apply to Alternative D.

Significant impacts identified in the initial study for the proposed project or project variants, i.e., tribal cultural resources and paleontological resources, would also occur under Alternative D because excavation would not change. Under Alternative D, these impacts would be reduced to less-than-significant levels with the applicable mitigation measures identified for the proposed project or project variants. No new significant impacts would occur under Alternative D than are identified for the proposed project or project variants.

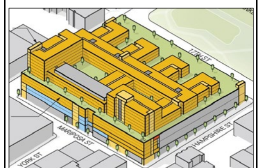
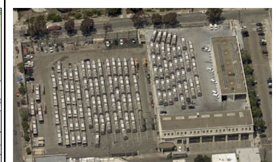
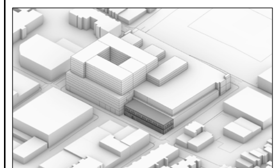
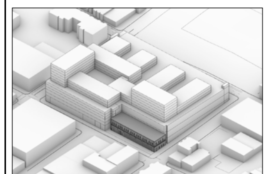
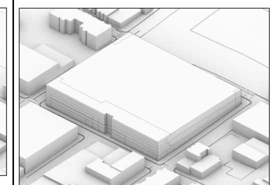
ENVIRONMENTALLY SUPERIOR ALTERNATIVE

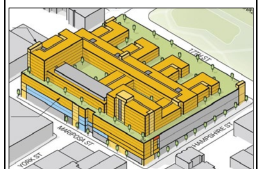
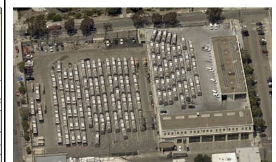
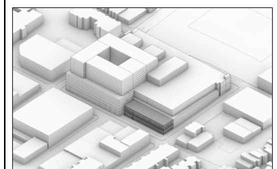
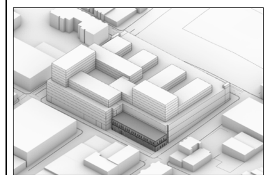
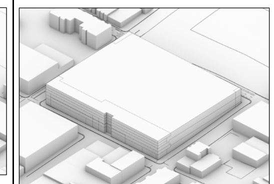
Pursuant to CEQA Guidelines section 15126.6(e)(2), if the no project alternative is the environmentally superior alternative, then an EIR is required to identify another environmentally superior alternative from among the alternatives evaluated. The environmentally superior alternative is the alternative that best avoids or lessens any significant effects of the proposed project or project variants, even if the alternative would impede to some degree the attainment of the project objectives. The proposed project or project variants would have a significant impact related to historical architectural resources that cannot be mitigated to a less-than-significant level. Alternative A: No Project Alternative is considered the overall environmentally superior alternative because it would not result in the significant impacts associated with implementation of the proposed project or project variants. Alternative A, however, would not meet any of the basic project objectives. Alternative A, Alternative B, Alternative C, and Alternative D would avoid or substantially lessen the significant and unavoidable project and cumulative air quality impacts associated with the project-related exposure of sensitive receptors to substantial pollutant concentrations resulting in excess cancer health risk exposure. Alternative A would avoid these impacts because it would not redevelop the site. Alternatives B, C, and D would lessen the air quality impacts, primarily through the reduced construction program, and with implementation of the identified air quality mitigation measures would reduce excess cancer health risk exposure to less-than-significant levels. However, Alternative D would not avoid or substantially lessen the significant and unavoidable historic architectural resource impact.

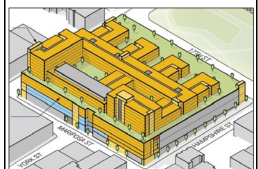
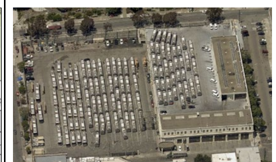
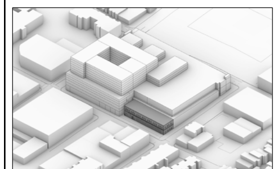
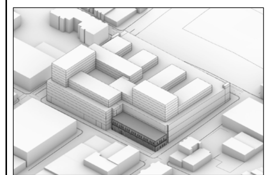
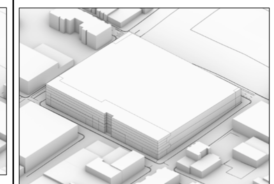
Thus, Alternative B: Full Preservation Alternative would be the environmentally superior alternative because it would have the fewest significant environmental impacts from among the alternatives evaluated. Alternative B would retain and rehabilitate the existing office wing of the maintenance and operations building and develop the new structure with appropriate setbacks from the office wing. Additionally, the massing of new construction above the replacement transit facility would be shifted to the west portion of the site. As a result, it would avoid the significant adverse impact on the historical resource. Significant construction- and operation-related tribal cultural resources, noise and vibration, wind, and paleontological resources impacts would be similar to those resulting from the proposed project or project variants and other alternatives and would be mitigated to less-than-significant levels. The significant air quality impacts associated with exposure of sensitive receptors to substantial pollutant concentrations resulting in excess cancer health risk exposure would also be mitigated to less-than-significant levels.

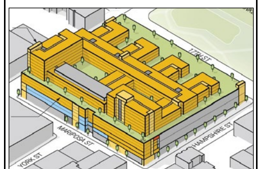
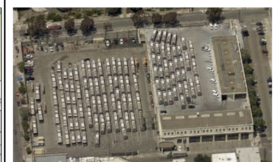
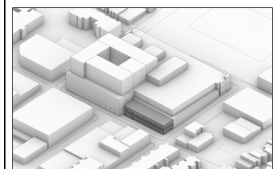
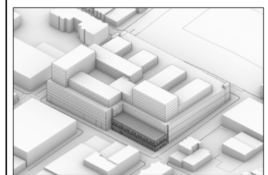
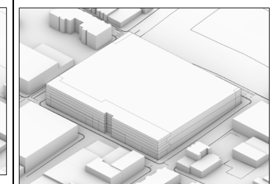
In addition, Alternative B would not result in any new significant impacts or substantially more severe impacts as compared to the proposed project or project variants.

Table S.3: Comparison of Characteristics of the Proposed Project and EIR Alternatives

	Proposed Project NOTE A	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative** NOTE B	**Alternative C: Partial Preservation Alternative** NOTE B	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Characteristics of the Proposed Project and Project Alternatives					
Transit Facility Podium Height (feet)	75	10.5 – 44	75	75	75
Number of Transit Facility Stories	3	2	3	3	3
High-Rise Tower Height (feet)	Up to 150	–	Up to 150	Up to 150	–
Number of Joint Development Stories	Up to 13	–	Up to 13	Up to 13	–
Excavation Depth	35 feet; 248,900 cubic yards	–	35 feet; 248,900 cubic yards	35 feet; 248,900 cubic yards	35 feet; 248,900 cubic yards
Construction Duration	3 – 4 years	–	3 – 4 years	3 – 4 years	2.5 – 3 years
Building and Site Characteristics	**1,300,000 gsf**	**221,450 gsf**	**1,060,000 gsf**	**1,070,000 gsf**	**756,000 gsf**
Paved Bus Storage Yard	–	112,450 gsf	–	–	
Enclosed Bus Facility	723,000 gsf	109,000 gsf	578,000 gsf	597,000 gsf	723,000 gsf
Ramps & Circulation, Bus Storage and Service	*671,000 gsf*	–	*532,000 gsf*	*551,000 gsf*	*671,000 gsf*
Administration and Common Area	*52,000 gsf*	–	*46,000 gsf*	*46,000 gsf*	*52,000 gsf*
Residential	544,000 gsf	–	449,000 gsf	440,000 gsf	–
Commercial	33,000 gsf	–	33,000 gsf	33,000 gsf	33,000 gsf

	Proposed Project NOTE A 	**Alternative A: No Project Alternative** 	**Alternative B: Full Preservation Alternative** NOTE B 	**Alternative C: Partial Preservation Alternative** NOTE B 	**Alternative D: Transit Facility Plus Commercial Only Alternative** 
Residential Units	**575**	–	**477**	**459**	–
Studio	141	–	114	110	–
One-Bedroom	206	–	172	165	–
Two- to Three-Bedroom	228	–	191	184	–
Open Space	**91,000 sq. ft.**		**81,000 sq. ft.**	**84,000 sq. ft.**	**91,000 sq. ft.**
Transportation and Circulation Features of the Proposed Project and Project Alternatives					
Maintenances Repair Bays	**18**	**24**	**16**	**16**	**18**
Vehicle Parking Spaces NOTE C	**310**	**214**	**270**	**283**	**310**
Trolley Coaches (40 foot/60 foot)	213 (63/150)	158 (65/93)	194 (74/120)	207 (43/164)	213 (63/150)
Non-Revenue Vehicles (large/standard)	97 (8/89)	56	76 (3/73)	76 (3/73)	97 (8/89)
SFMTA Staff	0	0	0	0	0
Residential	0	–	0	0	–
Loading Supply	**160 curb feet (3/2)**	**0 curb feet (0/1)**	**100 curb feet (2/2)**	**100 curb feet (2/2)**	**40 curb feet (1/2)**
Commercial (On-Street/Off-Street)	40 curb feet (1/2)	0 curb feet (0/1)	40 curb feet (1/2)	40 curb feet (1/2)	40 curb feet (1/2)
Passenger (On-Street/Off-Street)	120 curb feet (2/0)	None	60 curb feet (1/0)	60 curb feet (1/0)	–
On-Street Parking Spaces Removed Along Adjacent Streets	**48**	–	**24**	**24**	**19**

	Proposed Project [NOTE A] 	**Alternative A: No Project Alternative** 	**Alternative B: Full Preservation Alternative** [NOTE B] 	**Alternative C: Partial Preservation Alternative** [NOTE B] 	**Alternative D: Transit Facility Plus Commercial Only Alternative** 
Bicycle Parking Spaces	**773**	**5**	**295**	**291**	**69**
Class 1	736 [NOTE D]	0	252	249	60
Class 2	37	5	43	42	9
Streetscape Changes					
Curb Cuts [NOTE E]					
17th Street between Bryant and Hampshire streets	1 (42 feet)	1 (52 feet)	1 (42 feet)	1 (42 feet)	1 (42 feet)
Mariposa Street between Bryant and Hampshire streets	4 (20 feet, 97 feet, 63 feet, 47 feet)	4 (30 feet, 50 feet, 13 feet, 146 feet)	3 (20 feet, 97 feet, 222 feet)	3 (20 feet, 97 feet, 222 feet)	4 (20 feet, 97 feet, 63 feet, 47 feet)
Sidewalk Extensions					
Bryant Street north of Mariposa Street	Yes	No	Yes	Yes	Yes
Mariposa Street east of Bryant Street	Yes	No	Yes	Yes	Yes
Hampshire Street north of Mariposa Street	Yes	No	No	No	Yes
Sidewalk Improvements					
Mariposa Street widening	12-foot width	7-foot width	12-foot width	12-foot width	12-foot width
Street tree retention and replacement	Yes	No	Yes	Yes	Yes

	Proposed Project [NOTE A] 	**Alternative A: No Project Alternative** 	**Alternative B: Full Preservation Alternative** [NOTE B] 	**Alternative C: Partial Preservation Alternative** [NOTE B] 	**Alternative D: Transit Facility Plus Commercial Only Alternative** 
Intersection Improvements					
Raided crosswalk with rapid flash beacon at crossing of 17th Street at Hampshire Street	Yes	No	Yes	Yes	Yes
Curb ramps for pedestrian crossings adjacent to the project site and a curb ramp on the southeastern side of the Mariposa/York street intersection facing Mariposa Street	Yes	No	Yes	Yes	Yes
Continental-style crosswalks at all approaches at the intersections of Hampshire/17th streets, Hampshire/Mariposa streets, Mariposa/York streets	Yes	No	Yes	Yes	Yes
Bicycle Lanes					
17th Street between Bryant and Hampshire streets	Protected, widened, painted green	No	Protected, widened, painted green	Protected, widened, painted green	Protected, widened, painted green
Bus Stops					
Northwest and southeast corners of Mariposa and Bryant streets	New shelters, transit notification systems, and lighting	No	New shelters, transit notification systems, and lighting	New shelters, transit notification systems, and lighting	New shelters, transit notification systems, and lighting

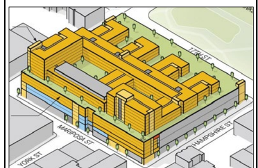
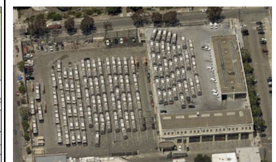
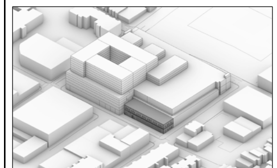
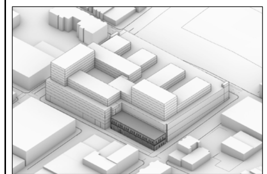
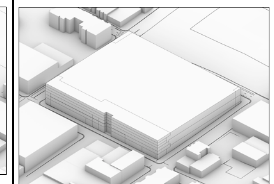
	Proposed Project NOTE A	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative** NOTE B	**Alternative C: Partial Preservation Alternative** NOTE B	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Transportation Demand Management Measures NOTE F	Yes	–	Yes	Yes	Yes
Sustainability Features					
LEED Certification Goal	LEED Gold	–	LEED Gold	LEED Gold	LEED Gold
Utility Infrastructure					
Connect to existing water, AWSS, sewer, and electrical infrastructure systems (Bryant, 17th, Hampshire and Mariposa streets)	Yes	–	Yes	Yes	Yes

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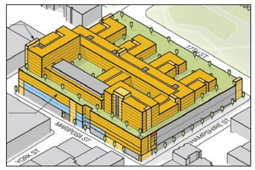
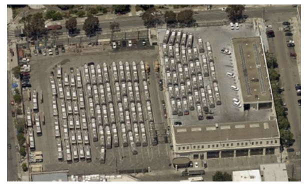
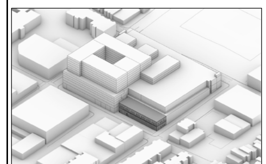
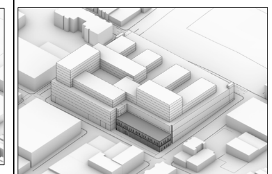
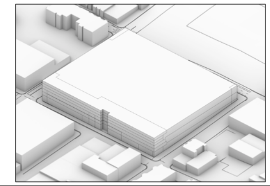
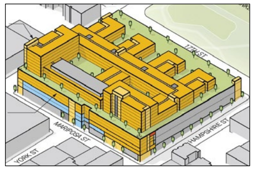
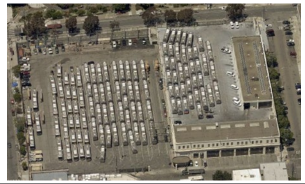
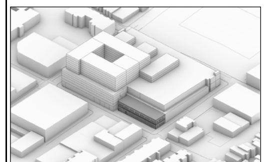
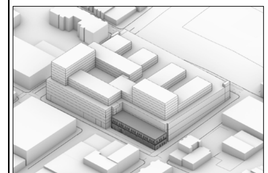
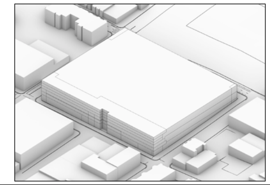
Table S.4: Comparison of Significant Impacts of the Proposed Project and EIR Alternatives

	Proposed Project	Alternative A: No Project Alternative	Alternative B: Full Preservation Alternative	Alternative C: Partial Preservation Alternative	Alternative D: Transit Facility Plus Commercial Only Alternative
					
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
Cultural Resources Impacts (EIR Section 3.B)					
Onsite Historical Architectural Resource					
CR-1: The proposed project or project variants would cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5 of the CEQA Guidelines.	SUM	No Impact (NI)	Less than the proposed project or project variants (LTS)	Similar to but reduced from those of the proposed project or project variants (SUM)	Similar to the proposed project or project variants (SUM)
Tribal Cultural Resources (Initial Study Topic E.5)					
Change in Significance					
TCR-1: Construction of the proposed project or project variants could cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)

	Proposed Project	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative**	**Alternative C: Partial Preservation Alternative**	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
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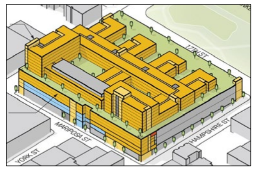
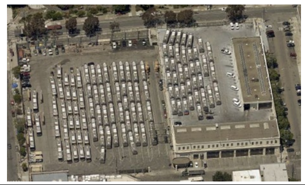
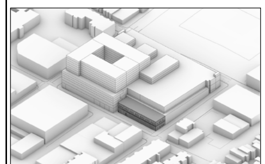
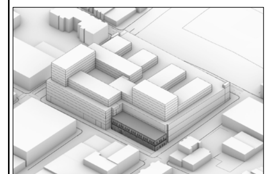
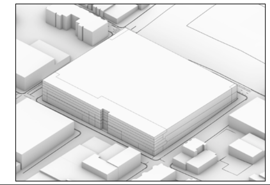
Cumulative Tribal Cultural Resources					
C-TCR-1: The proposed project or project variants, in combination with cumulative projects in the vicinity, would not result in significant cumulative tribal cultural resources impacts.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)
Noise and Vibration Impacts (EIR Section 3.D)					
Construction Noise					
NO-1: Construction of the proposed project or project variants would generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the San Francisco Noise Ordinance or applicable standards of other agencies.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)

	Proposed Project	Alternative A: No Project Alternative	Alternative B: Full Preservation Alternative	Alternative C: Partial Preservation Alternative	Alternative D: Transit Facility Plus Commercial Only Alternative
					
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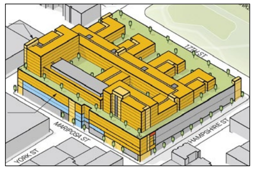
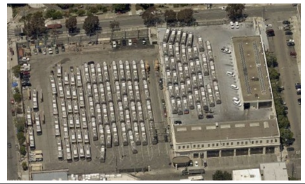
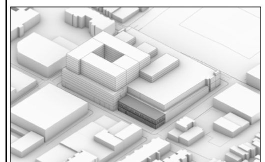
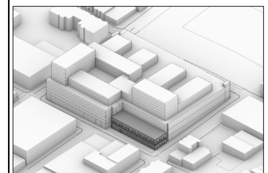
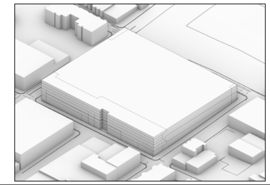
Construction Vibration					
NO-2: Construction of the proposed project or project variants would generate excessive groundborne vibration or groundborne noise levels.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)
Operational Noise					
NO-3: Operation of the proposed project or project variants would generate a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan, or applicable standards of other agencies.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)
Cumulative Construction Noise					
C-NO-1: Construction noise as a result of the proposed project or project variants, combined with	LTSM	No Impact (NI)	Similar to the proposed project or	Similar to the proposed project or	Similar to the proposed project or project variants (LTSM)

	Proposed Project 	Alternative A: No Project Alternative 	Alternative B: Full Preservation Alternative 	Alternative C: Partial Preservation Alternative 	Alternative D: Transit Facility Plus Commercial Only Alternative 
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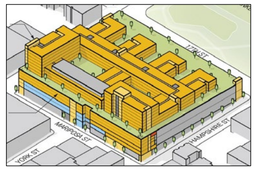
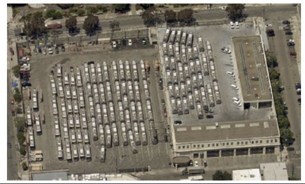
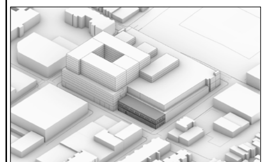
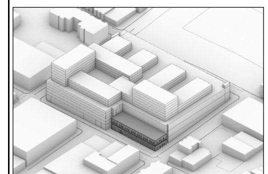
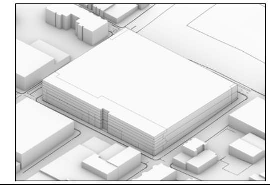
construction noise from cumulative projects in the vicinity, would cause a substantial temporary increase in ambient noise levels.			project variants (LTSM)	project variants (LTSM)	
Air Quality Impacts (EIR Section 3.E)					
Fugitive Dust and Criteria Air Pollutants (Construction)					
AQ-1: During construction, the proposed project or project variants would not generate significant fugitive dust emissions, but would generate criteria air pollutant emissions at levels which would result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.	LTSM	No Impact (NI)	Similar to but less than the proposed project or project variants (LTSM)	Similar to but less than the proposed project or project variants (LTSM)	Less than the proposed project or project variants (LTSM)

	Proposed Project	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative**	**Alternative C: Partial Preservation Alternative**	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
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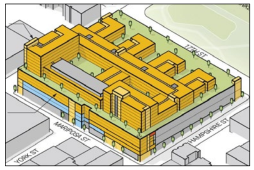
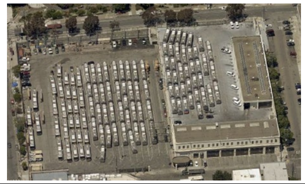
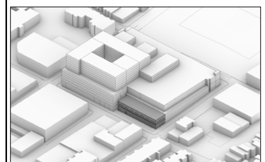
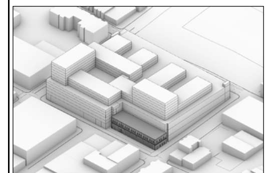
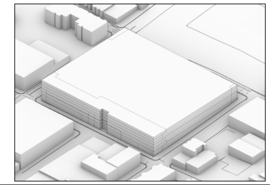
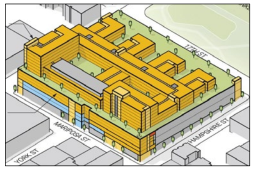
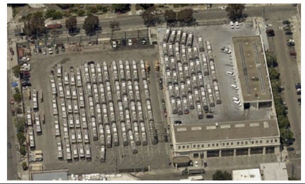
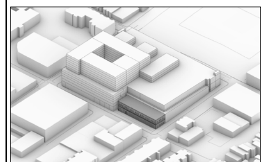
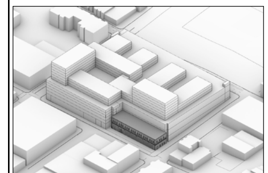
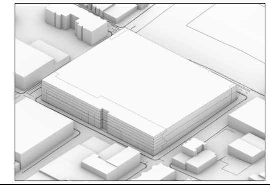
Toxic Air Contaminants (Construction and Operation)					
AQ-3: Construction and operation of the proposed project or project variants would generate toxic air contaminants, including DPM, at levels which would expose sensitive receptors to substantial pollutant concentrations.	SUM	No Impact (NI)	Similar to but less than the proposed project or project variants (LTSM)	Similar to but less than the proposed project or project variants (LTSM)	Less than the proposed project or project variants (LTSM)
Cumulative Air Quality					
C-AQ-1: The proposed project or project variants, in combination with cumulative projects in the vicinity, would contribute considerably to cumulative health risk impacts on sensitive receptors.	SUM	No Impact (NI)	Similar to but less than the proposed project or project variants (LTSM)	Similar to but less than the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)

	Proposed Project	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative**	**Alternative C: Partial Preservation Alternative**	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
Wind Impacts (EIR Section 3.F)					
Wind in Outdoor Public Areas					
WI-1: The proposed project or project variants would create wind hazards in publicly accessible areas of substantial pedestrian use in the vicinity of the project site.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)
Cumulative Wind					
C-WI-1: The proposed project or project variants, in combination with cumulative projects in the vicinity, would alter wind in a manner that would make a cumulatively considerable contribution to a significant cumulative wind impact.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)

	Proposed Project	Alternative A: No Project Alternative	Alternative B: Full Preservation Alternative	Alternative C: Partial Preservation Alternative	Alternative D: Transit Facility Plus Commercial Only Alternative
					
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
Geology and Soils Impacts (Initial Study Topic E.16)					
Paleontological Resources					
GE-6: The proposed project or project variants could directly or indirectly destroy a unique paleontological resource or site**.**	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)

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S.4. AREAS OF KNOWN CONTROVERSY AND ISSUES TO BE RESOLVED

The planning department received an Environmental Evaluation Application for the proposed project on November 20, 2019. The filing of the application initiated the environmental review process. In accordance with CEQA Guidelines sections 15063 and 15082, the planning department published a NOP of an EIR and Notice of Public Scoping Meeting (**EIR Appendix A**) on August 19, 2020, announcing its intent to prepare and distribute a focused EIR and beginning the formal CEQA scoping process. The 30-day NOP public scoping period began on August 19, 2020 and ended on September 18, 2020. Pursuant to CEQA Guidelines section 15083, the planning department held a public scoping meeting on Tuesday, September 2, 2020, between 6 p.m. and 8 p.m.

The purpose of the 30-day NOP public scoping period (or scoping process) is to allow the public and government agencies to comment on the issues and provide input on the scope of the EIR. Individuals and agencies who received the notice include local, regional, and state agencies; property owners and adjacent residents and tenants within 300 feet of the project site; and other potentially interested parties who requested such notice, including neighborhood organizations. During the NOP public scoping period, a total of eight comments were provided: one speaker provided oral comments[2] at the scoping meeting and seven comment letters and emails were submitted to the planning department. The planning department prepared an initial study (see **EIR Appendix B**) that includes a discussion and analysis of the potential environmental impacts of the proposed project or project variants with respect to all of the topics included in Appendix G of the CEQA Guidelines, as modified by the planning department. The initial study also identifies the topics to be addressed in the EIR.

EIR Chapter 1, Introduction, pp. 1.3-1.5, provides summaries of the comments received during the NOP scoping period. The summaries note where the issues are specifically addressed in the EIR or the initial study (**EIR Appendix B**). On the basis of public comments received, known areas of controversy and issues to be resolved are summarized in **EIR Chapter 4, Other CEQA Considerations,** under “Areas of Known Controversy and Issues to be Resolved”, pp. 4.8-4.9, as follows:

- Rehabilitation of the existing site as an alternative
- Reevaluation of the need for the project given 2020 changes in housing and transit demand due to the COVID-19 response
- Preservation of the existing onsite historical architecture
- Impacts to bicyclists, including accident rate changes

[2] This commenter provided two discrete sets of comments during the public scoping meeting.

- Noise impacts on residents
- Impacts to industrial uses in the Mission District neighborhood
- Impacts related to affordable housing in the project vicinity and rent increases
- Impacts on neighborhood characteristics such as the existing architectural character that includes small manufacturing, live-work lofts, and historic buildings
- Parking for Muni workers in the project vicinity and impacts on Muni workers as well as businesses and residents in the vicinity
- Wind and shadow impacts on residents
- Impacts on Franklin Square due to the increased number of local residents and employees
- Impacts on birds, including nesting birds
- Artificial lighting impacts on wildlife

Environmental concerns raised in public comment letters were taken into consideration in the EIR and initial study impact analyses (see **EIR Appendix B** for the initial study).

1. INTRODUCTION

EIR Chapter 1, Introduction, presents a summary of the Potrero Yard Modernization Project at 2500 Mariposa Street, outlines the purpose of this Environmental Impact Report (EIR), summarizes the environmental review process, and describes the organization of the EIR.

A. PROJECT SUMMARY

The project sponsor, the San Francisco Municipal Transportation Agency (SFMTA), proposes to replace the Potrero Trolley Coach Division Facility at 2500 Mariposa Street (Potrero Yard), in the northeast portion of San Francisco's Mission District near the South of Market and Potrero Hill neighborhoods. The proposed project would accommodate the expansion of the SFMTA's transit vehicle fleet in a new replacement structure with space for bus parking and circulation (up to 213 buses); SFMTA maintenance, operation, and administrative uses; and joint development uses. The new, approximately 1,300,000-gross-square-foot structure would occupy the 4.4-acre site and rise to heights ranging from 75 to 150 feet across the site. It would contain a three-level, approximately 75-foot-tall replacement transit facility plus a mix of commercial and residential uses in the remainder of the project as part of a joint development program between the SFMTA (project sponsor and property owner) and a private project co-sponsor (developer). Together the SFMTA and the private project co-sponsor are referred to as the project sponsor team. The joint development program would include a ground-floor commercial use and residential entry lobbies, with integrated residential and transit facility uses on the second through sixth floors of the three-level replacement transit facility. The majority of residential development would be atop the replacement transit facility on floors 7 through 13. **EIR Chapter 2, Project Description**, presents further details about the proposed project and four project variants.

B. ENVIRONMENTAL REVIEW PROCESS

Purpose of this Environmental Impact Report

This EIR has been prepared by the San Francisco Planning Department (planning department) in the City and County of San Francisco, the Lead Agency for the project, in compliance with the provisions of the California Environmental Quality Act (CEQA) (California Public Resources Code section 21000 et seq.), the CEQA Guidelines (California Code of Regulations Title 14, section 15000 et seq.), and Chapter 31 of the San Francisco Administrative Code. The lead agency is the public agency that has the principal responsibility for carrying out or approving a project.

Pursuant to CEQA Guidelines section 15161, this is a project-level EIR (an EIR that examines the physical environmental impacts of a specific development project). As determined and guided by findings of the initial study for the proposed project or project variants (see **EIR Appendix B**), this

EIR evaluates the potential for the proposed project or project variants[1] to cause significant impacts under a limited number of environmental topics: cultural resources (historic architectural resources), transportation and circulation, noise and vibration, air quality, wind, and shadow. The initial study determined that the remaining environmental topics would have less-than-significant impacts with mitigation, less-than-significant impacts, no impacts, or would not be applicable, and therefore, they were not carried forward for analysis in this EIR. As defined in CEQA Guidelines section 15382, a "significant effect on the environment" is:

> . . . a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

This EIR assesses potentially significant impacts of the proposed project and project variants. As stated in CEQA Guidelines section 15121(a), an EIR is an informational document intended to inform public agency decision-makers and the public of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. CEQA requires that public agencies not approve projects until all feasible means available have been employed to substantially lessen the significant environmental effects of such projects.

Before any discretionary project approvals may be granted for the proposed project or project variants, the San Francisco Planning Commission (planning commission) must certify the EIR as adequate, accurate, and objective. EIR adequacy is defined in CEQA Guidelines section 15151, Standards for Adequacy of an EIR, which states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

The degree of specificity required in an EIR should "correspond to the degree of specificity involved in the underlying activity which is described in the EIR" (CEQA Guidelines section 15146).

[1] The proposed project includes four variants that consider modifications to limited features or aspects of the project. They are described in **EIR Chapter 2, Project Description**, pp. 2.56-2.58.

City decision-makers will use the certified EIR, along with other information and public processes, to determine whether to approve, modify, or disapprove the proposed project or project variants, and to require any feasible mitigation measures as conditions of project approval.

C. STEPS IN THE EIR PROCESS

CEQA Guidelines sections 15080 to 15097 set forth the EIR process, which includes multiple phases involving notification and input from responsible agencies and the public. The main steps in this process are described below.

Notice of Preparation of an Environmental Impact Report

On November 20, 2019, the project sponsor submitted an Environmental Evaluation Application for the Potrero Yard Modernization Project to the planning department.[2] This filing initiated the environmental review process. The EIR process includes an opportunity for the public to review and comment on the proposed project's potential environmental effects and to further inform the environmental analysis.

On August 19, 2020, the planning department published a Notice of Preparation (NOP) of an Environmental Impact Report and Notice of Public Scoping Meeting (**EIR Appendix A, Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping Meeting, August 19, 2020**), announcing its intent to solicit public comments on the scope of the environmental analysis and to prepare and distribute an EIR on the Potrero Yard Modernization Project. The planning department mailed the Notice of Availability of an NOP and Notice of Public Scoping Meeting to the State Clearinghouse and relevant state and regional agencies; occupants of adjacent properties; property owners and occupants within 300 feet of the project site; and other potentially interested parties, including neighborhood organizations and others that have requested such notice. A legal notice in the newspaper was also published on Wednesday, August 19, 2020.

Public Review of and Comments on the Notice of Preparation

Publication of the NOP initiated a 30-day public review and comment period that ended on September 18, 2020. Pursuant to the California Public Resources Code section 21083.9 and CEQA Guidelines section 15206, the planning department held a public scoping meeting on September 2, 2020, to receive input on the scope of the environmental review for this project.[3] During the NOP

[2] San Francisco Municipal Transportation Authority, Environmental Evaluation Application for the Potrero Yard Modernization Project, November 20, 2019. This document and all other documents cited herein, unless otherwise noted, will be made available by request for review by emailing CPC.PotreroYardEIR@sfgov.org or calling 628-652-7563.

[3] The public scoping meeting was held using an online platform on Tuesday, September 2, 2020, between 6 p.m. and 8 p.m. A transcript of the proceedings and written comments are available as part of Case No. 2019-021884ENV.

public scoping period, a total of eight comments were provided: one speaker provided oral comments[4] at the scoping meeting and seven comment letters and emails were submitted to the planning department. The comments received in response to the NOP and a copy of the transcript from the public scoping meeting are available for review as part of Case File No. 2019-021884ENV. The planning department has considered the comments made by the public in preparation of the Draft EIR for the proposed project and project variants. Comments on the NOP that relate to environmental issues are summarized below and are addressed in this EIR.

The topics raised in the written and oral comments include, but are not limited to, the environmental topics listed in **Table 1.1: Summary of Scoping Comments**, which also summarizes the main issues raised in the comments.

Table 1.1: Summary of Scoping Comments

EIR or Initial Study (IS) Section	Main Issues Raised
EIR Chapter 2 **Project Description**	• A reassessment of the housing market and transit demand given economic and transportation changes during the COVID-19 pandemic • The context of the proposed project within SFMTA's greater building programs • Updates on SFMTA's budgets and facility planning • SFMTA's financial ability to deliver the project
EIR Section 3.C **Transportation and Circulation**	• The effects of no parking provided onsite and Muni workers parking in the neighborhood. • The effects of an increase in the number of Muni workers included in the proposed project, with the removal of on-street and off-street parking, on small businesses and residents in the neighborhood • Parking impacts on the neighborhood due to the increase in Muni workers with very early morning start times who would likely drive but do not have parking onsite • Parking impacts on Muni workers due to the removal of onsite parking and the increased demand from more onsite Muni workers and new onsite residents with no dedicated parking • Upgrades to transportation infrastructure included to accommodate new residents, workers, and pedestrians/visitors in the project area • The expected increase in pedestrian traffic, besides that from Muni workers and new residents, and how an increase in pedestrian traffic will impact adjacent properties • Project effects on cyclists and the expected increase in bicycle-related traffic accidents
EIR Section 3.D **Noise and Vibration**	• Noise impacts on residents in the immediate vicinity, including at 475 Hampshire Street • Findings required under Administrative Code Chapter 29
EIR Section 3.F **Wind**	• Wind impacts on residents in the immediate vicinity

[4] This commenter provided two discrete sets of comments during the public scoping meeting.

EIR or Initial Study (IS) Section	Main Issues Raised
EIR Section 3.G Shadow	• Shadow impacts on residents in the immediate vicinity, including residents at 475 Hampshire Street
EIR Chapter 5 Alternatives	• Details about SFMTA's process in identifying and proposing facility replacement and not electing for facility rehabilitation
Initial Study Section E.1 Land Use and Planning	• Project impacts on the artist culture and community that lives and works in the Mission District (e.g., gentrification) and how identified impacts will be mitigated to preserve the artistic culture of the area
Initial Study Section E.3 Population and Housing	• Project impacts on neighborhood characteristics, such as live-work lofts, artist studios, and small manufacturing businesses • Project impacts on the neighborhood related to gentrification, rent increases, further forced relocation, and the artist culture in the neighborhood, and how identified impacts will be mitigated • Project impacts on the Muni workforce and specifically the younger generation who may live far away and cannot afford to live nearby
Initial Study Section E.4 Cultural Resources/Historic Architectural Resources	• Effects on the historical features of the existing building • Effects on the existing architectural character of the neighborhood (such as artist lofts, small manufacturing businesses, and historical buildings)
Initial Study Section E.5 Tribal Cultural Resources	• Requirements of Assembly Bill 52 and Senate Bill 18, and Native American Heritage Commission recommendations for cultural resources research, surveys, and reporting
Initial Study Section E.12| Recreation	• Impacts on Franklin Square • Measures to be taken to accommodate increased park use by new residents and Muni workers
Initial Study Section E.15 Biological Resources	• Artificial lighting and its impacts on biological resources • Exterior window glass and concerns about bird collisions • The potential for nesting birds and the need for nesting bird surveys, nesting bird buffers, and bird monitoring

The topics raised in the NOP comment letters and at the public scoping meeting are summarized in the table above and, to the extent these are related to potential physical environmental impacts of the project, have been addressed in the Draft EIR with initial study. Comments expressing support for, or opposition to, the proposed project (including components of the proposed project) or project variants will be considered independently of the environmental review process by City decision-makers as part of their decision to approve, modify, or disapprove the proposed project or project variants.

Draft Environmental Impact Report

This Draft EIR, including the initial study (**EIR Appendix B, Initial Study – Potrero Yard Modernization Project (including Water Supply Assessment), June 30, 2021**), has been prepared in accordance with CEQA and the CEQA Guidelines. It provides an analysis of the project-specific physical environmental impacts of construction and operation of the proposed project and project variants, and the proposed project's or project variant's contribution to the environmental impacts from cumulative projects in the vicinity, the City as a whole, or larger geographic areas, as applicable.

The Draft EIR is available for viewing or downloading at the planning department website, *sfplanning.org/sfceqadocs*, by selecting Environmental Impact Reports and Negative Declarations under "Select a Review Category" or by searching for Case File No. 2019-021884ENV or Potrero Yard Modernization Project under "Search Title Name and Address". Due to the COVID-19 pandemic, no in-person document viewing at the planning department office is available at the date of publication. You may request that a copy be sent to you by calling 628-652-7563 or emailing the EIR Coordinator at *CPC.PotreroYardEIR@sfgov.org*. In addition, all documents referenced in this Draft EIR, including the initial study, are available upon request using the same contact information above.

HOW TO COMMENT ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

This Draft EIR, including the initial study, was published on June 30, 2021. There will be a public hearing before the planning commission during the approximately 62-day public review and comment period for this EIR to solicit public comment on the adequacy and accuracy of information presented in this Draft EIR. The public comment period for this EIR is July 1, 2021 to August 31, 2021. The public hearing on this Draft EIR has been scheduled before the planning commission for August 26, 2021.

Please be advised that due to the COVID-19 emergency, the planning commission may conduct this hearing remotely using videoconferencing technology or in-person at City Hall. Additional information may be found on the planning department's website. Please check *https://sfplanning.org/hearings-cpc* the week of the hearing for the hearing agenda, location and/or public access code, or contact the assigned planner. The hearing will be streamed online at SFGovTV, *https://sfgovtv.org/planning*, or on cable channels 26 or 78, subject to SFGovTV scheduling. Please note, if the hearing is held remotely, only members of the planning commission and department staff will have access to the video conferencing session, and members of the public can watch the hearing from the sources listed above. If the hearing is held remotely, members of the public may make live public comment during the hearing item by phone, using the phone number (415) 655-0001 and entering a Public Comment Access Code that changes weekly for each hearing. The Public Comment Access Code along with information on how to provide public comment at the hearing will be made available on *https://sfplanning.org/hearings-cpc* for the specified hearing date. Further information and instructions on accessing the planning commission hearing and making a public comment are detailed on the planning department's website, *https://sfplanning.org/hearings-cpc*. Written comments from members of the public may be submitted to *CPC.PotreroYardEIR@sfgov.org*.

A hearing has also been scheduled on August 4, 2021 before the San Francisco Historic Preservation Commission (historic preservation commission) in order for the historic preservation commissioners to provide comments to the planning commission on the Draft EIR, including the initial study. Please be advised that due to the COVID-19 emergency, the Historic Preservation Commission may conduct this hearing remotely using videoconferencing technology or in-person at City Hall. Additional information may be found on the planning department's website. Please check *https://sfplanning.org/hearings-hpc* the week of the hearing for the hearing agenda, location and/or public access code or contact the assigned planner. If the hearing is held remotely, only members of the historic preservation commission and department staff will have direct access to the video conference software. If the hearing is held remotely, members of the public may make live public comment during the hearing item by phone, using the phone number (415) 655-0001 and entering a Public Comment Access Code that changes weekly for each historic preservation commission hearing. The Public Comment Access Code will be made available with additional instruction on how to comment at the hearing. Please check *https://sfplanning.org/hearings-hpc* for the specified hearing date, or contact the assigned planner for this information. The public can watch this hearing online at SFGovTV, *https://sfgovtv.org/planning*, on cable channels that will be specified in the hearing agenda, and via the online platform link accessible on the planning department's website, *https://sfplanning.org/hearings-hpc*.

Please note that public comments at the historic preservation commission hearing will not be treated as comments on the Draft EIR and will not be responded to in the Responses to Comments on the Draft EIR document (described below). These comments are made to the historic preservation commission as they develop the historic preservation commission's comments for the planning commission.

In addition, during the public review and comment period, members of the public are invited to submit written comments on the adequacy of the document, that is, whether this Draft EIR, including the initial study, identifies and analyzes the possible environmental impacts and identifies appropriate mitigation measures. Those who testify at the hearing on the Draft EIR or submit written comments and who provide an address (mailing or e-mail) will automatically receive a notification when the Responses to Comments on the Draft EIR document is available on the planning department website. Others may request such notification, or request a USB or paper copy, by contacting the EIR Coordinator, Jennifer McKellar, at *CPC.PotreroYardEIR@sfgov.org* or 628-652-7563.

Written comments should be submitted to:

Jennifer McKellar, EIR Coordinator
SFMTA Potrero Yard Modernization Project EIR
San Francisco Planning Department
49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103

Or by e-mail to:

CPC.PotreroYardEIR@sfgov.org

Comments must be received by 5:00 p.m. on August 31, 2021. If attachments are provided as part of an e-mail comment on the Draft EIR, please provide them in a text-searchable pdf format, if possible.

Commenters are not required to provide personal identifying information. All written or oral communications, including submitted personal contact information, may be made available to the public for inspection and copying upon request and may appear on the planning department's website or in other public documents.

Only commenters on the Draft EIR, including the initial study, will be permitted to file an appeal of the certification of the Final EIR to the San Francisco Board of Supervisors (board of supervisors).

Final Environmental Impact Report

Following the close of the Draft EIR public review and comment period, the planning department will prepare and publish a document entitled "Responses to Comments on the Draft EIR," which will contain a copy of all comments on this Draft EIR and the City's responses to substantive comments, and any necessary changes to the text, along with copies of the letters received and a transcript of the planning commission public hearing on the Draft EIR. This Draft EIR, together with the Responses to Comments document, will be considered by the planning commission in an advertised public meeting, and then certified as a Final EIR, if deemed adequate. The Responses to Comments document will indicate the date reserved for consideration of EIR certification at the planning commission.

The planning commission, the board of supervisors, and other decision-makers will use the information in the Final EIR in their deliberations on whether to approve, modify, or deny the proposed project or aspects of the proposed project. If the planning commission and the board of supervisors decide to approve the proposed project or project variants, their approval action must include findings that identify significant project-related impacts that would result; discuss mitigation measures or alternatives that have been adopted to reduce significant impacts to less-than-significant levels; and explain reasons for rejecting mitigation measures or alternatives if any are infeasible for legal, social, economic, technological, or other reasons.

A mitigation monitoring and reporting program must be adopted by the planning commission and the board of supervisors as part of the adoption of the CEQA findings and project approvals by those bodies. The mitigation monitoring and reporting program identifies the measures included in the proposed project or project variants or imposed by the decision-makers as conditions of approval, the entities responsible for carrying out the measures, and the timing of implementation.

If significant unavoidable impacts would remain after all feasible mitigation measures are implemented, the approving body, if it elects to approve the proposed project or project variants, must adopt a statement of overriding considerations explaining how the benefits of the proposed project or project variants would outweigh the significant environmental impacts.

D. ORGANIZATION OF THIS EIR

This EIR is organized into six chapters, as described below.

The **Summary** chapter provides a concise overview of the proposed project and project variants and lists the San Francisco Public Works Standard Construction Measures,[5] necessary approvals; the environmental impacts that would result from the proposed project or project variants; mitigation measures identified to reduce or eliminate these impacts; project alternatives; and areas of known controversy and issues to be resolved.

Chapter 1, Introduction, provides a summary of the proposed project and project variants and describes the type, purpose, and function of the EIR; the environmental review process and comments received on the NOP; and the organization of the EIR.

Chapter 2, Project Description, presents details about the proposed project and project variants and the approvals required for implementation.

Chapter 3, Environmental Setting and Impacts, includes an introductory section that describes the format of the chapter and a general discussion of the approach to the cumulative analysis. Chapter 3 addresses the following topics:

- Cultural Resources (historic architectural resources only)
- Transportation and Circulation (all topics)
- Noise and Vibration (all topics except aviation-related ones)
- Air Quality (all topics)
- Wind
- Shadow

Each topic section includes a description of existing conditions with respect to the particular environmental topic (environmental setting); the regulatory framework; the approach to analysis;

5 San Francisco Municipal Transportation Agency, Memorandum from Jeff Tumlin, Director of Transportation, through Sarah Jones, SFMTA Planning Director and Andrea Contreras, SFMTA Environmental Review Team Lead; to Boris Deunert, San Francisco Public Works Regulatory Affairs Manager, SFMTA Commitment to Public Works Regulatory Affairs QA/QC Implementation Process and Standard Construction Measures, June 15, 2021.

identification and evaluation of project-specific and cumulative impacts; and mitigation measures and improvement measures, when appropriate.

Chapter 4, Other CEQA Considerations, addresses potential growth-inducing impacts of the proposed project and project variants and identifies significant effects that cannot be avoided if the proposed project or project variants is implemented, as well as significant irreversible impacts of the proposed project and project variants, and areas of known controversy and project-related issues that have not been resolved.

Chapter 5, Alternatives, presents and analyzes a range of alternatives to the proposed project or project variants. Four alternatives are described and evaluated: a No Project Alternative, which is required by CEQA; a Full Preservation Alternative; a Partial Preservation Alternative; and a Transit Facility Plus Commercial Only Alternative. This chapter also identifies the environmentally superior alternative. It discusses alternatives that were considered for analysis in the EIR but rejected and gives the reasons for their rejection.

Chapter 6, Authors and Persons Consulted, identifies the EIR authors and the agencies, organizations, and individuals consulted during preparation of the EIR. It also lists the project sponsor, their attorneys, and any consultants working on their behalf.

The EIR has nine appendices, as follows:

- Appendix A: Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping Meeting, August 19, 2020
- Appendix B: Initial Study – Potrero Yard Modernization Project (including Water Supply Assessment), June 30, 2021
- Appendix C: San Francisco Public Works Standard Construction Measures for Public Works Projects and Draft Construction Contract Procedures
- Appendix D: Historic Architectural Resources Evaluations
- Appendix E: Transportation and Circulation Calculation Details and Supporting Information
- Appendix F: Noise Measurement and Calculation Data
- Appendix G: Air Quality Calculation Details and Supporting Information
- Appendix H: Pedestrian Wind Study
- Appendix I: Shadow Analysis Report

For paper copies of the EIR, appendices are provided on a USB attached to the back cover of the EIR. The EIR Appendices are also available on the planning department's website at *sfplanning.org/sfceqadocs*. In addition, USB and paper copies of the Draft EIR and the EIR Appendices will also be made available by request by emailing *CPC.PotreroYardEIR@sfgov.org* or calling 628-652-7563. Referenced materials will also be made available for review upon request.

2. PROJECT DESCRIPTION

A. PROJECT OVERVIEW

The project sponsor, the San Francisco Municipal Transportation Agency (SFMTA), proposes to replace the Potrero Trolley Coach Division Facility at 2500 Mariposa Street (Potrero Yard). The proposed project would accommodate the expansion of the SFMTA's transit vehicle fleet in a new replacement structure with space for bus parking and circulation (up to 213 buses); SFMTA maintenance, operation, and administrative uses; and joint development uses. The new, approximately 1,300,000-gross-square-foot structure would occupy the 4.4-acre site and rise to heights ranging from approximately 75 to 150 feet across the site. The new structure would contain a three-level, approximately 75-foot-tall replacement transit facility plus a mix of commercial and residential uses in the remainder of the project as part of a joint development program between the SFMTA (project sponsor and property owner) and a private project co-sponsor (developer). Together the SFMTA and the private project co-sponsor are referred to as the project sponsor team. The joint development program would include a ground-floor commercial use and residential entry lobbies, with integrated residential and transit facility uses on the second through sixth floors of the three-level replacement transit facility. The majority of residential development would be atop the replacement transit facility on floors 7 to 13. Four project variants are also considered: 1) the Emergency Exit Relocation Variant, which would relocate the bus emergency exit from 17th Street to Hampshire Street, 2) the Joint Development Lobby Relocation Variant, which would relocate a ground-floor joint development lobby from Mariposa Street to Hampshire Street, 3) the Active 17th Street Variant, which would relocate internal bus ramps from the north to south sides of the site to allow the mix of joint development uses to along 17th Street, and 4) the Employee and Family Support Variant, which would reprogram ground-floor commercial uses to include a family support/childcare use.

B. PROJECT OBJECTIVES

The SFMTA seeks to achieve the following set of basic and additional objectives by undertaking the proposed project or project variants:

BASIC OBJECTIVES

MODERNIZED POTRERO YARD TRANSIT FACILITY

- Rebuild, expand, and modernize the SFMTA's Potrero Bus Yard by 2026 to efficiently maintain and store a growing Muni bus fleet according to the SFMTA Fleet Plan and Facilities Framework schedule.

- Construct the first SFMTA transit facility with infrastructure for battery electric buses to facilitate Muni's transition to an all-electric fleet, in accordance with San Francisco and California policy.
- Construct a new public asset that is resilient to earthquakes and projected climate change effects, and provides a safe, secure environment for the SFMTA's employees and assets.
- Improve working conditions for the SFMTA's workforce of transit operators, mechanics, and front-line administrative staff through a new facility at Potrero Yard.

SFMTA FACILITIES FRAMEWORK AND BUILDING PROGRESS PROGRAM

- Achieve systemwide master plan priorities by consolidating two currently scattered transit support functions at Potrero Yard:
  - Improve and streamline transit operator hiring by consolidating the SFMTA's operator training function in a new, state-of-the-art facility.
  - Support efficient Muni operations by consolidating the Street Operations division in a modern, convenient facility.

COMMUNITY INPUT

- Implement inclusive and transparent stakeholder engagement in designing this project and completing the California Environmental Quality Act (CEQA) process.

RESPONSIBLE PUBLIC INVESTMENT

- Create a development that is financially feasible, meaning that the public asset can be funded by public means and public transportation funds are used only for the bus yard component.

ADDITIONAL OBJECTIVES

STREETSCAPE AND URBAN DESIGN

- Enhance safety and reduce conflicts between transit, commercial vehicles, bicyclists, drivers, and pedestrians in the project site vicinity.
- Improve the architectural and urban design character of the project site by replacing the existing fences and blank walls with more active, transparent street walls, to the extent feasible.

MIXED USE DEVELOPMENT AND HOUSING

- Maximize the reuse of this 4.4-acre site in a central, mixed-use neighborhood by creating a mixed-use development and providing dense housing and striving to maximize the number of affordable units on the site.
- Increase the City and County of San Francisco's (City) supply of housing by contributing to the Mayor's Public Lands for Housing goals, the San Francisco General Plan Housing Element goals, and the Association of Bay Area Governments' Regional Housing Needs Allocation for San Francisco by optimizing the number of dwelling units, including affordable housing, particularly near transit.
- Support transit-oriented development and promote the use of public transportation through an innovative and comprehensive transportation demand management program.

- Ensure that joint development is able to fund its own construction and ongoing management without reliance on City subsidy other than what is originally assumed as part of the project budget while ensuring that SFMTA's transportation funds are only allocated for the transit use.

SUSTAINABILITY

- Demonstrate the City's leadership in sustainable development by constructing an environmentally low-impact facility intended to increase the site's resource efficiency.[1]

C. PROJECT LOCATION AND SITE CHARACTERISTICS

The project site is located in the northeast portion of San Francisco's Mission District near the South of Market and Potrero Hill neighborhoods (to the north and east, respectively). (See **Figure 2.1: Project Location**, p. 2.4.) The Potrero Yard site is bounded by 17th Street to the north, Hampshire Street to the east, Mariposa Street to the south, and Bryant Street to the west and includes a trolley bus[2] storage yard and a maintenance and operations building. The project site is located across 17th Street from the approximately 4.4-acre Franklin Square open space and is approximately 0.25 mile west of U.S. Highway 101, approximately 0.5 mile east of the 16th and Mission Bay Area Rapid Transit District (BART) station, and approximately 0.5 mile north of San Francisco General Hospital.

The project site occupies the entirety of Assessor's Parcel 3971/001 and is owned by the City, through the SFMTA. The site is approximately 192,000 square feet (or 4.4 acres) and occupies the equivalent of roughly two typical city blocks (200 by 400 feet). The site is rectangular and measures approximately 480 feet along 17th and Mariposa streets and approximately 400 feet along Bryant and Hampshire streets. The western half of the site, as well as the vacated York Street right-of-way, is occupied by the asphalt-paved bus storage yard, which has a bus wash rack and running repair station along its northern and western edges, respectively. A fare collection shop and a defunct vacuum station are located on the east side of the bus yard near the maintenance and operations building in the former York Street right-of-way. The eastern half of the site is occupied by the predominantly single-story maintenance and operations building, which includes a second-floor parking deck and a second-story office level and maintenance bay along Mariposa and Hampshire streets, respectively. (See **Figure 2.2: Existing Site Plan**, p. 2.5.)

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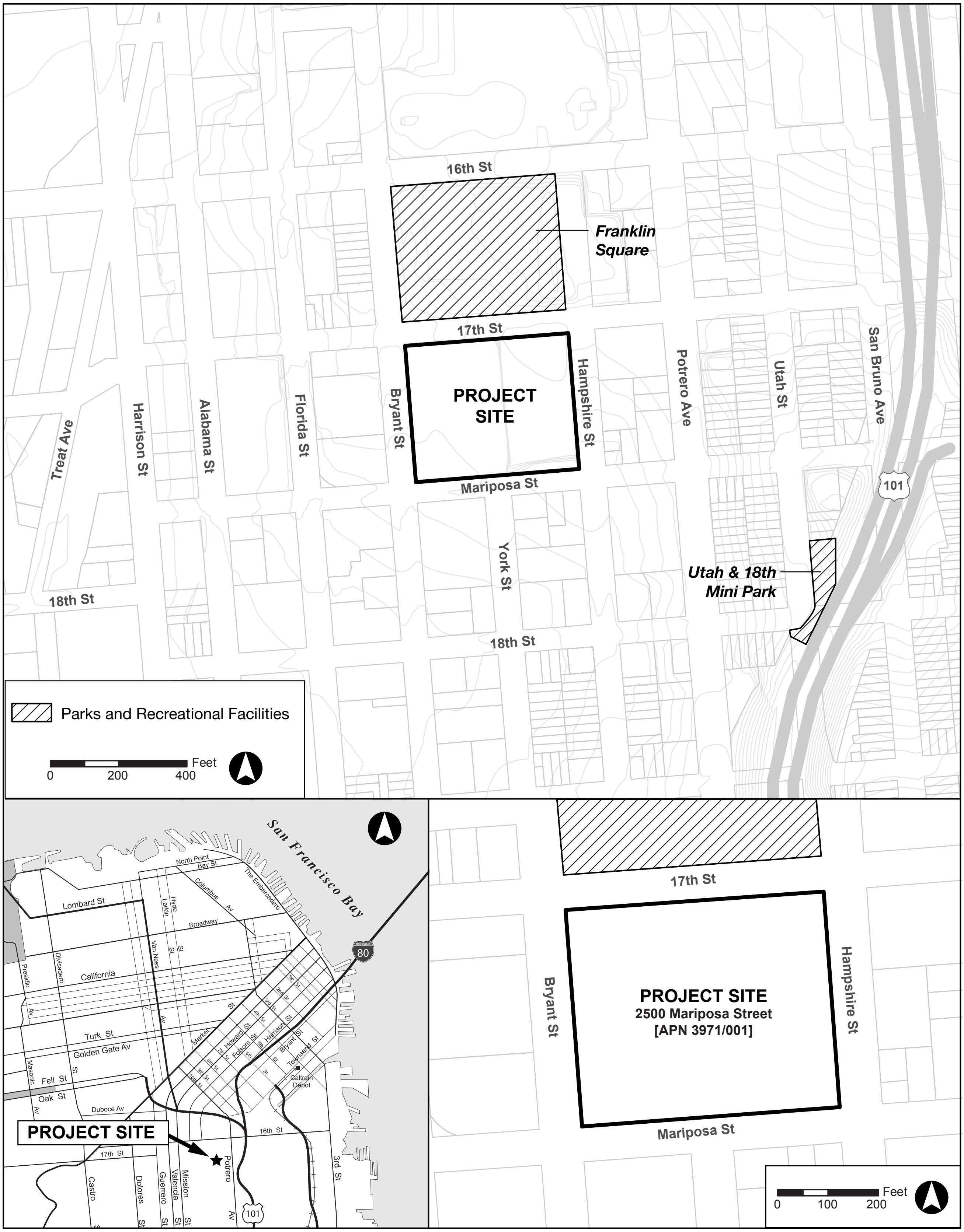
[1] The proposed project or project variants and each of the selected alternatives would be designed and constructed to meet the United States Green Building Council and Leadership in Energy and Environmental Design requirements at the Gold level.

[2] Trolley buses (or trolley coaches) along with buses (or motor coaches) are part of the SFMTA's rubber-tired bus fleet. These vehicles are different from other buses based on the propulsion system. That is, trolley buses are all-electric vehicles that operate on overhead wires, while buses are outfitted with either diesel or hybrid motors that operate with renewable fuels. San Francisco Municipal Transportation Agency, SFMTA Bus Fleet Management Plan 2017-2030, March 2017, pp. 12-14. This document and all other documents cited herein, unless otherwise noted, will be made available by request for review by emailing CPC.PotreroYardEIR@sfgov.org or calling 628-652-7563.

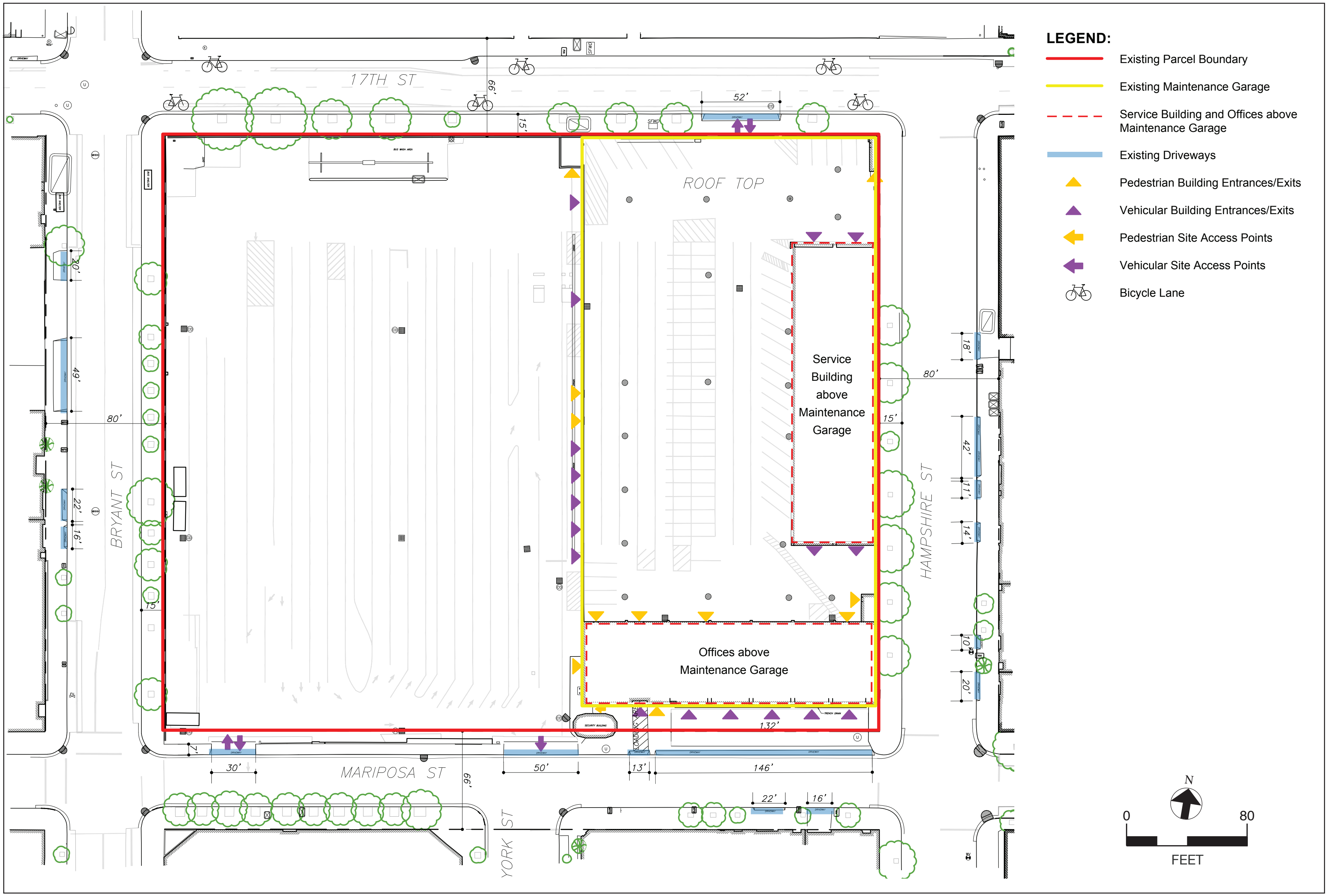


Source: SWCA, 2020

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 2.1: PROJECT LOCATION



Source: Sitelab, 2020 and City & County of San Francisco

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 2.2: EXISTING SITE PLAN

The site slopes up toward the north and east (17th and Hampshire streets) and downhill toward the south and west (Mariposa and Bryant streets). The bus storage yard (or western portion of the site) has a gradual elevation change of approximately 6 feet due to a cut into the natural slope of the site. As a result, along the northern boundary of the site, the elevation of 17th Street is between approximately 14 and 22 feet higher than site grade with the high point at the corner of 17th and Hampshire streets. The elevation change along the other boundaries of the site is smaller or at the same grade as the bus storage yard.

EXISTING OPERATIONS

Potrero Yard operates 24 hours per day, 7 days a week, providing overnight bus storage and a location for street operations and bus maintenance activities. Potrero Yard has a design capacity for 138 buses that are 40 and 60 feet long. Transit service demands for Muni routes operating out of Potrero Yard requires 158 buses to be stored and maintained at Potrero Yard, with buses parked in circulation aisles and maintenance bays.[3] The buses operate on six Muni routes – 5 Fulton, 5 Fulton Rapid, 6 Haight/Parnassus, 14 Mission, 22 Fillmore, and 30 Stockton – and carry over 102,000 Muni customers each day.[4] In general, the peak period for buses leaving Potrero Yard to access their routes is between 4 a.m. and 7 a.m., with the majority leaving between 5 a.m. and 6 a.m. Buses generally return to Potrero Yard in the evening between 7 p.m. and 9 p.m. Owl routes 5, 14, and 22 also emanate from Potrero Yard, with buses leaving before midnight and returning before 6 a.m. to provide owl service.[5] Bus travel to and from Potrero Yard is considered non-revenue bus travel time (i.e., buses are not in service picking up and dropping off passengers; they are traveling to or from Potrero Yard and a terminus point where revenue service begins or ends). Potrero Yard has approximately 400 employees, including approximately 295 bus operators.[6]

EXISTING MAINTENANCE AND OPERATIONS BUILDING

The maintenance and operations building was originally constructed in 1915 as single-story, reinforced-concrete building and served as a streetcar maintenance garage with at-grade access from Mariposa Street. In 1924, the portions of the existing building along Mariposa and Hampshire streets were expanded to two stories (referred to throughout the Environmental Impact Report [EIR)]as the office wing and the shops wing). Between 1948 and 1949, the building was converted from a streetcar barn to a trolley coach facility. The maintenance and operations building covers less than 50 percent of the site. The rectangular building (215 by 370 feet) has a concrete perimeter foundation, a flat roof, and two double-height sections along its south (Mariposa Street) and east (Hampshire Street) sides. The building encompasses approximately 109,000 gross square feet. Due

[3] SFMTA, Short Range Transit Plan, Fiscal Year 2017-Fiscal Year 2030, June 6, 2017, Table 7: SFMTA Administrative, Operations, Maintenance, Fueling, Vehicle Storage and Staging Facilities, p. 19.
[4] SFMTA, Automatic Passenger Counts Data, 2019.
[5] SFMTA, Muni's late-night transit service is called the Owl network, *https://www.sfmta.com/getting-around/muni/routes-stops/muni-owl-service-late-night-transportation*, accessed March 26, 2021.
[6] SFMTA, Data Request Response, January 31, 2020, p. 2.

to the elevation change, the building's height varies, ranging from approximately 45 feet tall along the Mariposa Street frontage near Hampshire Street (the office wing), to approximately 10.5 feet tall along the Hampshire Street frontage near 17th Street.

Due to the change in grade between the north and south sides of the property, the first floor is below grade on 17th Street and fully at grade on Mariposa Street. Concrete retaining walls line the northern side of the site along 17th Street toward Bryant Street and a portion of the western side of the yard along Bryant Street toward 17th Street. The roof of the maintenance building is at grade along 17th Street west of Hampshire Street and is used as a parking deck. The second floor has additional maintenance shops (the shops wing) along the Hampshire Street side and offices along the Mariposa Street side (the office wing).

The building's first floor is accessed from the bus yard at its northernmost entry/exit bay near 17th Street and from Mariposa Street near Hampshire Street. It consists of a 10-lane maintenance space with 24 bays, including "heavy" and "running" repair bays,[7] shallow maintenance pits, machine and tire shops, maintenance staff rooms, storage rooms, and offices. Muni maintenance staff members use the maintenance pits to repair trolley buses; however, the maintenance pits are too shallow for most mechanics to stand upright. The ceiling is too low to lift a trolley bus high enough for mechanics to work on it from below. Consequently, a few heavy repair bays are now used for storage due to vertical clearance needs to accommodate modern trolley buses. As a result, many "heavy" repairs must be made outside in the bus yard. The second floor, accessed from 17th Street, consists of two maintenance bays with tire and light-duty body repair shops (the shops wing) and the office wing for the operations department which includes offices, training facilities, a dispatch office, men's and women's toilet rooms, a locker room, and a common room for the use of operators on break or between shifts. All the maintenance-related spaces on the first and second floors have indoor overhead catenary systems[8] attached to the ceilings to power the trolley buses.

Based on findings in the San Francisco Planning Department's (planning department's) Showplace Square Survey,[9] and as confirmed in the Historic Resource Evaluation for the Potrero Trolley Coach Division Facility, 2500 Mariposa Street,[10] the planning department determined that the

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[7] Running repair bays serve as preventative maintenance and inspection for buses that are still powered. Heavy repair bays typically are used for more intensive bus maintenance activities that could require lifts and other mechanical systems for engine overhauls or major body repairs.

[8] Overhead catenary systems are located within Muni trolley bus maintenance facilities, outdoor bus yards, and along trolley bus routes throughout the City. These systems consist of overhead primary and bypass wires and related infrastructure (e.g., support poles up to 30-feet in height [if outdoors], conduit, and duct banks).

[9] San Francisco Planning Department, Showplace Square/Northeast Mission Historic Resource Survey, *https://sfgov.org/sfplanningarchive/showplace-squarenortheast-mission-historic-resource-survey*, accessed November 11, 2020.

[10] VerPlanck Historic Preservation Consulting, Historic Resource Evaluation, Potrero Trolley Coach Division Facility, 2500 Mariposa Street, San Francisco, California, October 2, 2017, Section III, Regulatory Framework, p. 4. (See **EIR Appendix D-1**.)

maintenance and operations building is a moderately intact example of a municipal car barn and assigned the building a status code of "3CS".[11] This means that it is already listed in the California Register of Historical Resources and considered a historical resource for purposes of the California Environmental Quality Act (CEQA). The planning department's determination is based on the building's association with the early days of the San Francisco Municipal Railway (Muni), and in particular the expansion of Muni service south of Market Street (Criterion 1-Events) and as an example of a type (municipal car barn), period (World War I), method of construction (reinforced concrete), and the "work of a master," City Engineer Michael M. O'Shaughnessy (Criterion 3-Architecture/Design/Construction). The project site is not located within any known or potential historic district.[12]

EXISTING BUS STORAGE YARD AND OTHER PAVED AREAS

The site has several paved areas and curb cuts. The existing electrified bus storage yard on the western portion of the site (approximately 112,450 square feet) is the largest of the paved areas. The bus storage yard is paved with asphalt, with painted and numbered parking lanes in the center of the yard. Overhead catenary lines mounted on steel poles provide power for off-duty electric buses stored and serviced on the yard. Several workstations are located around its perimeter, including a bus wash rack on the north side, an outdoor running repair station on the west side, and a fare collection shop and a defunct vacuum station on the east side. An entry control booth, built in 1990, is located west of a 25-foot-deep setback on the southeast portion of the site along Mariposa Street adjacent to the bus storage yard's main entrance.

Ingress to the bus storage yard is provided by a 50-foot-wide curb cut and gated driveway on Mariposa Street immediately west of the entry control booth; egress is provided by a 30-foot-wide curb cut and gated driveway on Mariposa Street near Bryant Street.

Other paved areas and curb cuts on the project site are as follows:

- A second-floor parking deck on top of the maintenance and operations building on the northeast portion of the site near 17th and Hampshire streets. The second-floor parking deck is accessed via a 52-foot-wide curb cut and gated driveway on 17th Street near Hampshire Street. The second-floor parking deck is electrified with overhead catenary wires mounted on steel poles.
- A 25-foot-deep strip of asphalt in front of five openings on the south elevation of the maintenance and operations building along Mariposa Street.[13] This strip of asphalt is in

[11] San Francisco Planning Department, Historic Resource Evaluation Response, 2500 Mariposa Street, Part I: Historic Resource Evaluation, September 25, 2020, pp. 3-4. (See **EIR Appendix D-2**.)

[12] VerPlanck Historic Preservation Consulting, Historic Resource Evaluation, Potrero Trolley Coach Division Facility, 2500 Mariposa Street, San Francisco, California, October 2, 2017, Section VI, Determination of Eligibility, p. 65. (See **EIR Appendix D-1**.)

[13] The 25-foot-deep setback at the southeast corner of site along Mariposa Street was originally required to allow streetcars, which cannot make 90 degree turns, sufficient clearance to turn off Mariposa Street into the building.

front of a continuous, approximately 146-foot-wide curb cut used by buses entering and exiting the building.

- A 13-foot-wide curb cut, used to access a parts storeroom receiving area located immediately west of the main pedestrian entrance and east of the entry control booth via Mariposa Street.

The bus storage yard and second-floor parking deck provide space for the following:

- 158 buses (sixty-five 40-foot and ninety-three 60-foot buses, requiring bus parking in circulation aisles and maintenance bays)
- 56 non-revenue vehicles[14] and employee vehicles, which are parked in striped parking spaces on the northeast side of the second-floor parking deck[15]
- 10 additional non-revenue vehicles, which are parked throughout the bus storage yard but not in marked spaces

In addition, one off-street loading space on the bus storage yard is located outside the parts storeroom receiving area east of the entry control gate on Mariposa Street. Off-street loading also occurs outside the maintenance bays on the second-floor parking deck.

Along 17th and Bryant streets and a portion of the Mariposa Street frontage, the bus storage yard is enclosed within 10-foot-high steel fencing topped with outward curving balusters.

EXISTING SITE ACCESS AND CIRCULATION

The project site is well served by public transit. Muni operates numerous surface buses within one block of the project site along Bryant Street, 16th Street, and Potrero Avenue, including the 9 San Bruno, 9R San Bruno Rapid, 22 Fillmore, 27 Bryant, 33 Ashbury/18th Street, and 55 16th Street routes.[16] Six Muni bus routes operate out of the Potrero Yard: the 5 Fulton, 5 Fulton Rapid, 6 Haight/Parnassus, 14 Mission, 22 Fillmore, and 30 Stockton routes, though with the exception of the 22 Fillmore on 16th Street, these routes do not pick up or drop off passengers in the vicinity of the site. Regional transit providers include BART, Golden Gate Transit, and San Mateo County Transit District (SamTrans). BART operates heavy rail regional trains, with the closest station (the 16th and Mission BART station) approximately 0.5 mile west of the site. Golden Gate Transit

[14] Non-revenue means the SFMTA does not use the vehicles to collect fares from passengers. Non-revenue vehicles include, but are not limited to, cars, minivans, pick-up trucks, cargo vans, super-duty trucks, and tanker trucks. SFMTA, Short Range Transit Plan, Fiscal Year 2017-Fiscal Year 2030, June 6, 2017, p. 81.

[15] Fifty-two striped parking spaces are currently being used for bus parking.

[16] The SFMTA reduced service to core routes only during the Shelter in Place order associated with the 2019-2021 COVID-19 pandemic. The SFMTA is gradually adding back service in 2021 and anticipates returning to full service by 2022. SFMTA, "Muni Plans to Reach 98% of San Francisco this August | SFMTA" May 25, 2021. *https://www.sfmta.com/blog/muni-plans-reach-98-san-francisco-august.* , access June 16, 2021.

operates surface buses along Mission and Eighth streets within 0.8 mile of the project site.[17] SamTrans operates four surface bus routes in San Francisco, including a commuter express bus route and a late night or owl route. SamTrans buses operate along Mission, Ninth, and Tenth streets, and along Potrero Avenue with drop-offs only in the northbound direction and pick-ups only in the southbound direction. The closest stops are located on Potrero Avenue and 24th Street (southbound only) and on Mission Street at Seventh, Eighth, and Ninth streets.[18]

Potrero Yard is not accessible to unaccompanied members of the public. Employees access the maintenance and operations building primarily from the entrance on Mariposa Street immediately east of the entry control booth. Bus, non-revenue vehicles, and staff vehicles can access Potrero Yard from Mariposa Street via the 44-foot-wide gate just west of the entry control booth and the five bus bays near Hampshire Street, accessed via the 50- and 146-foot-wide curb cuts, respectively; and from the second-floor parking deck, accessed via a 52-foot-wide curb cut and gated driveway on 17th Street west of Hampshire Street.

The streets adjacent to the project site, described below, are identified as mixed-use streets in the San Francisco Better Streets Plan (Better Streets Plan), which consists of illustrative typologies, standards, and guidelines for the design of the City's pedestrian environment, with the central focus of enhancing the livability of City streets:[19]

- 17th Street is an east-west street and is 66 feet wide with two travel lanes, striped bicycle lanes on both sides, and on-street parallel parking on the north side starting approximately 230 feet east of the Bryant Street intersection. Along this segment of 17th Street between Hampshire and Bryant streets, the bikeway is a signed class III facility with a striped lane in both directions and elements of a class IV facility (i.e., a separated bike lane and flexible posts) on the north and south sides near Bryant Street. The 17th Street bikeway continues east of Hampshire Street as a class II facility and west of Bryant Street as a mixed class II/class IV facility
- Hampshire Street is 80 feet wide with two travel lanes and perpendicular vehicle parking on both sides of the street.

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17 Golden Gate Transit, San Francisco System Map, *https://www.goldengate.org/assets/1/31/04_san_francisco3.21.pdf?6628*, and *https://www.goldengate.org/assets/1/31/map__sfcc3.21.pdf?6627*, accessed March 30, 2021.

18 SamTrans, Schedules and Maps and Map of Downtown San Francisco, *https://www.samtrans.com/schedulesandmaps/timetables.html* and *http://www.samtrans.com/Assets/SamTrans/SCHEDULESandMAPS/System+Map/SamTrans+Downtown+SF+Map+PDF+01-2020.pdf*, accessed March 30, 2021.

19 City and County of San Francisco, San Francisco Better Streets Plan, Policies and Guidelines for the Pedestrian Realm, December 7, 2010, *https://sfplanning.org/resource/better-streets-plan*, accessed March 30, 2021.

- Mariposa Street is 66 feet wide with two travel lanes and on-street parallel parking on the north side of the street between the two gated entry and exit points to the bus storage yard and on the south side between Bryant and York streets and York and Hampshire streets.[20]
- York Street terminates at Mariposa Street.
- Bryant Street is 80 feet wide with two north-south travel lanes, on-street parallel parking on both sides of the street, and Muni bus stops. The northbound (inbound towards Russian Hill) Muni bus stops are placed at the southeast corner of Bryant and Mariposa streets (south of the project site) and the southeast corner of Bryant and 17th streets (adjacent to the project site). The southbound (outbound towards the Mission) Muni bus stops are placed at the southwest corner of Bryant and 17th streets and the northwest corner of Bryant and Mariposa streets, both across the street from the project site.[21]

There are no on-street loading spaces adjacent to the project site.

The sidewalks adjacent to the project site along 17th, Hampshire, and Bryant streets are each 15 feet wide and meet the Better Streets Plan recommended sidewalk width. The Mariposa Street sidewalk is 7 feet wide and does not meet the minimum sidewalk width of the Better Streets Plan.[22] The existing bus storage yard encroaches on the Mariposa Street sidewalk right-of-way. Sidewalk elements include 27 street trees on the adjacent sidewalks: nine on 17th Street, seven on Hampshire Street, and 11 on Bryant Street. There are no street trees along the Mariposa Street frontage (see **Figure 2.2**, p. 2.5). Other sidewalk elements include the network of poles and overhead wires that serve the various Muni trolley buses maintained and stored at Potrero Yard. A Bay Area bicycle-share station with 19 bicycle docks is located at the northeast corner of Bryant and 17th streets, adjacent to the sidewalk.

EXISTING ZONING AND GENERAL PLAN DESIGNATION FOR THE PROJECT SITE

The project site is located within a Public Use (P) Zoning District, a public-use district that includes land owned by a government agency with some form of public use, including open space.[23] The project site is also within a 65-X Height and Bulk District, which means that the maximum allowable height on the site is 65 feet.[24, 25] An X designation for building bulk, such as that

[20] The existing facility encroaches on the Mariposa Street sidewalk right-of-way reducing the width of the sidewalk to 7 feet. Thus, the right-of-way is 58 feet – a 36-foot-wide roadway including parking lanes, and 7- and 15-foot-wide sidewalks on the north and south sides, respectively.
[21] There are class II striped bike lanes on each side of Bryant Street north of 17th Street.
[22] For this segment of Mariposa Street, the minimum and recommended sidewalk widths in the Better Streets Plan are 12 feet and 15 feet, respectively.
[23] San Francisco Planning Code, Article 2: Use Districts, Section 211.
[24] The maximum building height allowed on the project site is 65 feet. Bulk controls reduce the size of a building's floorplates as the building increases in height. Pursuant to the San Francisco Planning Code, Article 2.5: Height and Bulk Districts, Section 270(a), there are no bulk limits in an "X" Bulk District.
[25] San Francisco Planning Department, San Francisco Property Information Map, Step 1: 2500 Mariposa Street, and Step 2: Zoning Information, *http://propertymap.sfplanning.org*, accessed March 30, 2021.

applicable to the site, permits structures to cover the entire lot, without setbacks, up to the permitted height limit (subject to floor area ratio[26] and other controls). The entire project site is within the Mission Alcohol Beverage Special Use District and Fringe Financial Services Restricted Use District, which include zoning controls to address specific land use issues related to the sale of alcoholic beverages and establishment of new fringe financial services, respectively.[27] It is also within the area covered by the Mission District Streetscape Plan and the Mission Area Plan of the San Francisco General Plan.[28]

PROJECT VICINITY

Existing Setting

Zoning designations surrounding the project site include an additional Public (P) zone to the north (open space), along with a predominance of production, distribution, and repair (PDR) zoning to the south, east, and west, with Urban Mixed Use (UMU) to the northwest and beyond the PDR zones, and pockets of residential zones (Two-Family [RH-2] and Three-Family [RH-3]) to the northwest, south, and southeast. See **Initial Study Figure 1: Existing Zoning Districts** in **EIR Appendix B**, p. 6. Although P and PDR zoning districts do not have basic floor area ratio limits, the adjacent UMU-zoned parcels have basic floor area ratio limits of either 4.0 to 1 or 5.0 to 1, for non-residential mixed uses.[29] Most of the adjacent parcels have a 68-X height and bulk designation. However, a 58-X designated parcel is located to the east and northeast of the project site, and the Franklin Square open space parcel (P) to the immediate north has no designation. The parcel associated with the Potrero Center retail complex, two blocks north of the project site, has an 85-X designation. Height and bulk designations generally decrease to 58-X to the west and to 40-X to the east and south. See **Initial Study Figure 2: Existing Height and Bulk Districts** in **EIR Appendix B**, p. 7.

The entire project site and surrounding area is located within the Mission Area Plan and the Northeast Mission Industrial Zone, an area roughly north of 20th Street and east of South Van Ness Avenue in the Mission District. The Northeast Mission Industrial Zone includes larger traditional industrial facilities and PDR uses, including construction supply businesses, food processing and catering, graphic design, printing, photographic services, and communications uses such as radio broadcasting. These PDR businesses are in proximity to commercial, cultural, institutional, and

[26] Floor area ratio (sometimes called FAR) is the ratio of the sum of the gross floor area of all buildings on a lot to the area of the lot.
[27] San Francisco Planning Code, Article 2: Use Districts, Sections 249.35 and 249.60.
[28] San Francisco Planning Department, San Francisco General Plan, Eastern Neighborhoods Planning Areas, *http://generalplan.sfplanning.org/images/eastern_neighborhoods_map.pdf*, accessed March 30, 2021.
[29] San Francisco Planning Code, Article 1.2: Dimensions, Areas and Open Spaces, Section 124: Basic Floor Area Ratio.

public and quasi-public uses, as well as live/work lofts and residential uses in enclaves of small-lot Victorian and Edwardian-era homes mixed with the non-residential uses.[30]

The project site's immediate vicinity is characterized by a mix of industrial, commercial, and residential one- to three-story buildings with a diverse range of building types and architectural styles, and Franklin Square. Industrial and commercial land uses, including smaller-scale food services, are interspersed with residential land uses throughout the surrounding blocks to the south, east, and west across Mariposa, Hampshire, and Bryant streets, respectively. A cluster of commercial and retail uses is located to the north in or along the Potrero Center retail complex. Public and institutional uses include the San Francisco SPCA Mission Pet Adoption Center, a soup kitchen, a youth and family services center, a public video production training studio, and a U.S. Post Office. Other businesses in the project vicinity include a United Parcel Service retail center, gas stations and auto repair shops, Oberlin Dance Collective (a dance studio), and Mission Cliffs (a climbing gym).

Franklin Square occupies the lot to the north of the project site, across 17th Street. The park is under the jurisdiction of the San Francisco Recreation and Park Commission. It includes a turf soccer field at the center of the park and picnic areas, a children's playground, and landscaping along the perimeter.

West of the project site across Bryant Street, the area is developed primarily with residential uses in three-story buildings ranging from 40 to 48 feet tall. There is also a two-story commercial building with a surface parking lot and storage area.

The areas to the south and east of the project site, on the south side of Mariposa Street and on the east side of Hampshire Street, are characterized by a mix of commercial, industrial, retail, and residential spaces in one- to three-story buildings. Uses include KQED (public radio/television); other media production land uses (including television, music, and photography); PDR land uses including stone supply, custom upholstery, and large format printing; and retail (a corner café/restaurant). In addition to Franklin Square, nearby park and recreational uses include Utah and 18th Street Mini-Park (to the southeast) and In Chan Kaajal Park (to the west near 17th and Folsom streets).

Approved projects in the area that were recently completed include 2000-2070 Bryant Street (i.e., within a 0.25-mile radius). This project is bounded by 18th Street to the north, Bryant Street to the east, an existing building to the south, and Florida Street to the west. It required the demolition of six existing buildings (collectively 68,690 square feet) and the construction of a six-story, 68-foot-

30 San Francisco Planning Department, Eastern Neighborhoods Rezoning and Area Plans Final EIR, August 7, 2008, pp. 44-45, *https://archives.sfplanning.org/documents/3995-EN_Final-EIR_Part-3_Land-Use_Plans.pdf*, accessed March 30, 2021.

tall, mixed-use building (approximately 221,035 square feet) with 274 residential units and 5,100 square feet of ground-floor retail.

Transit Service

The project site is located adjacent to and nearby several Muni bus transit lines. The following six surface bus routes are located within one block of the project site along Bryant Street, 16th Street, and Potrero Avenue: 9 San Bruno, 9R San Bruno Rapid, 22 Fillmore, 27 Bryant, 33 Ashbury/18th Street, and 55 16th Street.

The 27 Bryant bus route travels along Bryant Street adjacent to the project site, with northbound and southbound bus stops located at 17th Street and at Mariposa Street. The northbound 27 Bryant bus stop at 17th Street is adjacent to the project site and has a transit shelter. The northbound 27 Bryant bus stop located at Mariposa Street is not adjacent to the project site; it is located on the southeast corner of Mariposa Street. The two southbound 27 Bryant bus stops are west of the project site across Bryant Street between Mariposa and 17th streets.

The 22 Fillmore and the 55 16th Street bus routes travel along 16th Street, with eastbound and westbound bus stops located at Bryant Street and at Potrero Avenue.

The 33 Ashbury/18th Street bus route travels along 16th Street and Potrero Avenue, with eastbound and westbound bus stops located on 16th Street at Bryant Street and at Potrero Avenue, and on Potrero Avenue at Mariposa Street.

The 9 San Bruno and the 9R San Bruno Rapid bus routes run along Potrero Avenue. The nearest northbound and southbound bus stops for this route are located on Potrero Avenue at Mariposa Street and at 16th Street.

Additionally, four Muni routes (8 San Bruno, 8AX San Bruno Express, 8BX San Bruno Express, and 14X Mission Express) travel on U.S. 101, approximately 900 feet east of the project site, but do not stop.

D. PROPOSED PROJECT

The SFMTA proposes to replace the Potrero Yard at 2500 Mariposa Street. The project would accommodate the expansion of the SFMTA's transit vehicle fleet and the modernization of bus maintenance, operation, and administrative services. The project would also accommodate the expansion and consolidation of training operations, currently sited elsewhere, in one location. In addition, the proposed project includes joint development in conjunction with a housing developer consisting of a mix of uses, such as residential uses within and atop the replacement transit facility and ground-floor commercial uses along Bryant Street.

In addition, the proposed project includes four variants that consider modifications to limited features or aspects of the project (see “Project Variants,” p. 2.56-2.58).

PROJECT BACKGROUND

The proposed project is part of the SFMTA’s 20-year Building Progress Program to expand and modernize its facilities to meet growing transportation demands and changing technologies.[31, 32] In addition to the Potrero Yard, the SFMTA operates five other bus yards, sometimes referred to as “divisions”: Presidio Yard (949 Presidio Avenue), Flynn Division (1940 Harrison Street), Woods Yard (1095 Indiana Street), Islais Creek Division (1301 Cesar Chavez Street), and Kirkland Yard (2301 Stockton Street and 151 Beach Street).[33]

The SFMTA is increasing its transit fleet to meet growing transportation demands (see **Table 2.1: SFMTA Transit Fleet Plan and Facility Planning Capacity**, p. 2.16). The 2014 Transit Fleet Management Plan along with the 2017 Rubber Tire Update and 2017 Plan for Historic Street Car Service constitutes the SFMTA’s transit fleet plan.[34] Without expanding or adding a bus facility by 2025, the SFMTA will have 89 more rubber-tired buses than the planning capacity for its six current facilities; by 2030, that number will increase to 144.[35] In addition, its oldest transit facilities – the Potrero, Presidio, and Kirkland yards – were not built for the buses they currently store and are not equipped with adequate bus maintenance infrastructure or equipment, including bus lifts. The Potrero and Presidio yards were built for streetcars and modified for buses within their existing footprints; consequently, bus storage and maintenance at these facilities is constrained. They also do not meet the needs of new bus types or technologies such as battery-electric bus infrastructure. SFMTA therefore undertook a planning process for expanded and modern transit facilities.[36]

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[31] SFTMA, Building Progress Public Outreach Boards, January 24, 2018, p. 5.
[32] SFMTA, 2017 SFMTA Facilities Framework, January 20, 2017, p. 8.
[33] SFMTA, 2017 SFMTA Facilities Framework, January 20, 2017, p. 14.
[34] SFMTA, 2017 SFMTA Facilities Framework Addendum, October 6, 2017, Appendix 1: Transit Fleet Data, p. 15.
[35] SFMTA, 2017 SFMTA Facilities Framework Addendum, October 6, 2017, Appendix 1: Transit Fleet Data, p. 17. Planning capacity includes all marked bus storage spaces plus parking lanes/tracks and half of the maintenance bays.
[36] SFMTA, 2017 SFMTA Facilities Framework, January 20, 2017, p. 8.

Table 2.1: SFMTA Transit Fleet Plan and Facility Planning Capacity

	2020					2025					2030					2035					2040				
Bus NOTE A	**30′**	**40′**	**60′**	**T**	**M**	**30′**	**40′**	**60′**	**T**	**M**	**30′**	**40′**	**60′**	**T**	**M**	**30′**	**40′**	**60′**	**T**	**M**	**30′**	**40′**	**60′**	**T**	**M**
Fleet Plan	30	357	224	**611**		30	365	269	**664**		30	365	342	**737**		30	365	324	**719**		30	365	324	**719**	
Flynn			126		14			128		14			128		14			109		14			109		14
Islais		40	98		19		40	98		19			129		19		81	72		16		81	72		19
Kirkland		115			3		123			3		135			3							81			9
Woods	30	202			26	30	202			26	30	228			26	30	228			26	30	203			26
Marin or Other								43		4		2	28		4		56			4					
Potrero													57		4			150		18			145		18
Facility Capacity	30	357	224	**611**	**62**	30	365	269	**664**	**66**	30	365	342	**737**	**70**	30	365	331	**726**	**78**	30	365	326	**721**	**86**
Trolley NOTE A		**40′**	**60′**	**T**	**M**		**40′**	**60′**	**T**	**M**		**40′**	**60′**	**T**	**M**		**40′**	**60′**	**T**	**M**		**40′**	**60′**	**T**	**M**
Fleet Plan		185	93	**278**			185	93	**278**			185	93	**278**			185	93	**278**			185	93	**278**	
Potrero		20	93		22							63	93		18			56		6			61		6
Presidio		165			14		165			14							185	40		20		185	32		20
MME Expansion							20	93		12		122			12					12					12
Facility Capacity		185	93	**278**	**26**		185	93	**278**	**26**		185	93	**278**	**30**		185	96	**281**	**38**		**185**	**93**	**278**	**38**

Notes: T = Total; M = Maintenance Bay; shaded band indicates facility/site not available for use

NOTE A Bus and trolley lengths denoted with symbol indicating feet, i.e., 30-foot-long, 40-foot-long, and 60-foot-long

Source: SFMTA, 2017 SFMTA Facilities Framework Addendum, October 6, 2017, Appendix 1: Transit Fleet Data, Fleet Plan and Facility Capacity Table 1 - Existing Facilities and Fleet Plan and Facility Capacity Table 3 - Scenario 2A, pp. 17 and 19, respectively.

In 2015, the SFMTA began a facility condition assessment to identify deficiencies and repair costs as a basis for budgeting and prioritizing improvements, as well as a means of identifying major space planning opportunities and ways to improve processes for facility planning and management.[37] SFMTA staff held internal staff workshops with front-line transit operations and maintenance staff and management in late 2015, early 2016, mid-2016, and late-2016. SFMTA staff presented a Facilities Framework to the SFMTA Executive Team in December 2016. The SFMTA Executive Team provided direction to study three development scenarios: Scenarios 1A and 1B, which propose smaller rebuilt facilities because they assume an additional new site, and Scenario 2A, which optimizes use of the SFMTA's existing sites, including replacing Potrero Yard.[38]

The transit fleet plan maps out a systematic approach to the ongoing management and planning for rehabilitation and replacement of the SFMTA's fleet of transit vehicles through 2040. The objectives of the transit fleet plan include the following: to accommodate the transit service expansion identified in the SFMTA's Transit Effectiveness Project (currently being implemented as Muni Forward), and to provide information necessary to plan for the SFMTA's storage and maintenance facility needs to accommodate that service expansion. As noted above, this internal effort brought multiple SFMTA divisions (as well as other City agencies) together to determine how to accommodate transit fleet growth, consolidate operations to improve service, replace and/or seismically upgrade critical transit facilities to accommodate changing bus vehicle technologies and maintenance needs, improve employee working conditions, and meet other objectives such as the potential for developing a mix of uses in addition to transit facility replacements, upgrades, and expansions at opportunity sites such as the Potrero, Presidio, and Kirkland yards.

In November and December 2017 and January and December 2018, the SFMTA held public meetings to discuss the critical need to modernize SFMTA facilities such as Muni yards, maintenance shops, and paratransit facilities.

The SFMTA held public workshops on the redevelopment of the Potrero Yard in December 2018 and in February, August, and October 2019. The SFMTA also conducted two years of internal design and planning work and coordinated with the Potrero Yard Neighborhood Working Group.[39]

Based on those efforts, the SFMTA decided to study only Scenario 2A further. This scenario proposes rebuilding the three oldest facilities – the Potrero, Presidio, and Kirkland yards – and

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[37] SFMTA, 2017 SFMTA Facilities Framework, January 20, 2017, p. 6.
[38] SFMTA, 2017 SFMTA Facilities Framework, January 20, 2017, p. 10.
[39] The Potrero Yard Neighborhood Working Group has approximately 15 members selected by the SFMTA in consultation with the Supervisors of Districts 9 and 10. Each seat represents a specific interest in elements of the project, *https://www.sfmta.com/reports/potrero-yard-neighborhood-working-group-application-form*, accessed May 10, 2021.

considers the potential for additional joint development on these sites. The SFMTA is proposing to proceed with Potrero Yard first, as described herein.

The City, acting by and through the SFMTA, will select a master developer (or a development consortium) to redevelop the 4.4-acre site through a developer selection process consisting of a request for qualifications (released August 2020) and a subsequent request for proposals (spring 2021) from the qualified candidates. The SFMTA anticipates selecting a developer in September or October 2021 and contracting with a developer by November 2021. The planning department will evaluate whether any future changes from the project sponsor team to the project description presented herein would necessitate additional environmental review.[40]

In addition, the development consortium selected to provide the final project design and deliver the public and private components of proposed project will include, as part of the agreement with the City, the implementation of San Francisco Public Works Standard Construction Measures (described below under "Project Construction," p. 2.48).[41] Further, the SFMTA will ensure that requirements of various City ordinances and regulations related to the City's efforts to reduce greenhouse gas emissions (i.e., the compliance process for best practices such as clean construction, resource conservation, and transportation demand management as well as sustainable construction, building management/operations, and materials purchasing practices among others) are followed, as applicable, for the joint development. See the discussion of Leadership in Energy and Environmental Design (LEED) strategies under "Proposed Sustainability Program," p. 2.48.

The project's characteristics as they would appear if decision-makers approve the proposed project are described below and summarized in **Table 2.2: Summary of Existing and Proposed Project Characteristics**, pp. 2.22-2.23. However, as with most large development projects, aspects of the proposed project's conceptual design may change and will become more detailed as a result of the CEQA process, technical design modifications, planning and building department application submittal requirements, and input from the planning department, the community, the selected project developer, and other stakeholders. For example, the project's massing, presented in **Figure 2.4: Proposed Massing – South (Mariposa Street) Elevation** through **Figure 2.7: Proposed Massing – East (Hampshire Street) Elevation** and rendered as photo simulations in **Figure 2.8: Proposed View Looking South From Franklin Square** through **Figure 2.11: Proposed View Looking North From Bernal Heights** on pp. 2.25-2.32 may be

[40] Refer to CEQA Guidelines sections 15088.5 "Recirculation of an EIR prior to certification" and 15162 "Subsequent EIRs and Negative Declarations" for more details regarding the criteria applicable to the department's evaluation of refinements to the project description. Such subsequent environmental review may include revisions to the draft EIR, a subsequent EIR or addendum or similar documentation.

[41] San Francisco Municipal Transportation Agency, Memorandum from Jeff Tumlin, Director of Transportation, through Sarah Jones, SFMTA Planning Director and Andrea Contreras, SFMTA Environmental Review Team Lead; to Boris Deunert, San Francisco Public Works Regulatory Affairs Manager, SFMTA Commitment to Public Works Regulatory Affairs QA/QC Implementation Process and Standard Construction Measures, June 15, 2021.

further refined from the maximum envelope analyzed as part of the CEQA analysis to a more refined architectural expression in response to project-specific urban design guidelines to be developed in coordination with the planning department as part of the SFMTA's developer selection process and through the planning department's design review process.

The amount of floor space dedicated to internal ramps and bus circulation (463,000 gross square feet) for the 40- and 60-foot-long trolley buses is the result of rigorous site optimization efforts for maximizing a three-level replacement transit facility on a 4.4-acre site to best accommodate the bus storage and maintenance space needs for the projected transit fleet growth. SFMTA transit fleet projections and facility capacity studies indicate the potential need for the future Potrero Yard to accommodate more buses (216) and maintenance bays (24) than can fit on site with the current three-level design built out to the property lines and set back five feet along the 17th Street frontage.

The planning department will evaluate whether any future changes from the project sponsor team to the project description presented herein would necessitate additional environmental review, because, for example, the proposed change would result in new or more substantial significant impacts. Information presented in this document, e.g., existing Muni services and operations at Potrero Yard described above under "Existing Operations" on p. 2.6, is from data collected prior to the onset of the COVID-19 pandemic and before any subsequent changes in public or private business and enterprise practices. Data collected for the proposed project's impact analyses and the changes in practice during the COVID-19 pandemic are discussed in the relevant sections of the EIR and initial study, e.g., **EIR Section 3.C, Transportation and Circulation** and **EIR Section 3.D, Noise and Vibration**.

PROJECT CHARACTERISTICS

The proposed project would demolish the existing bus storage yard and the maintenance and operations building and would replace them with a new, approximately 75- to 150-foot-tall,[42] up to 1,300,000-gross-square-foot structure. The proposed structure would cover the entire lot, except for a 5-foot setback from 17th Street (see **Figure 2.3: Proposed Site Plan**). The characteristics of the proposed development are summarized below in **Table 2.2**, pp. 2.22-2.23.

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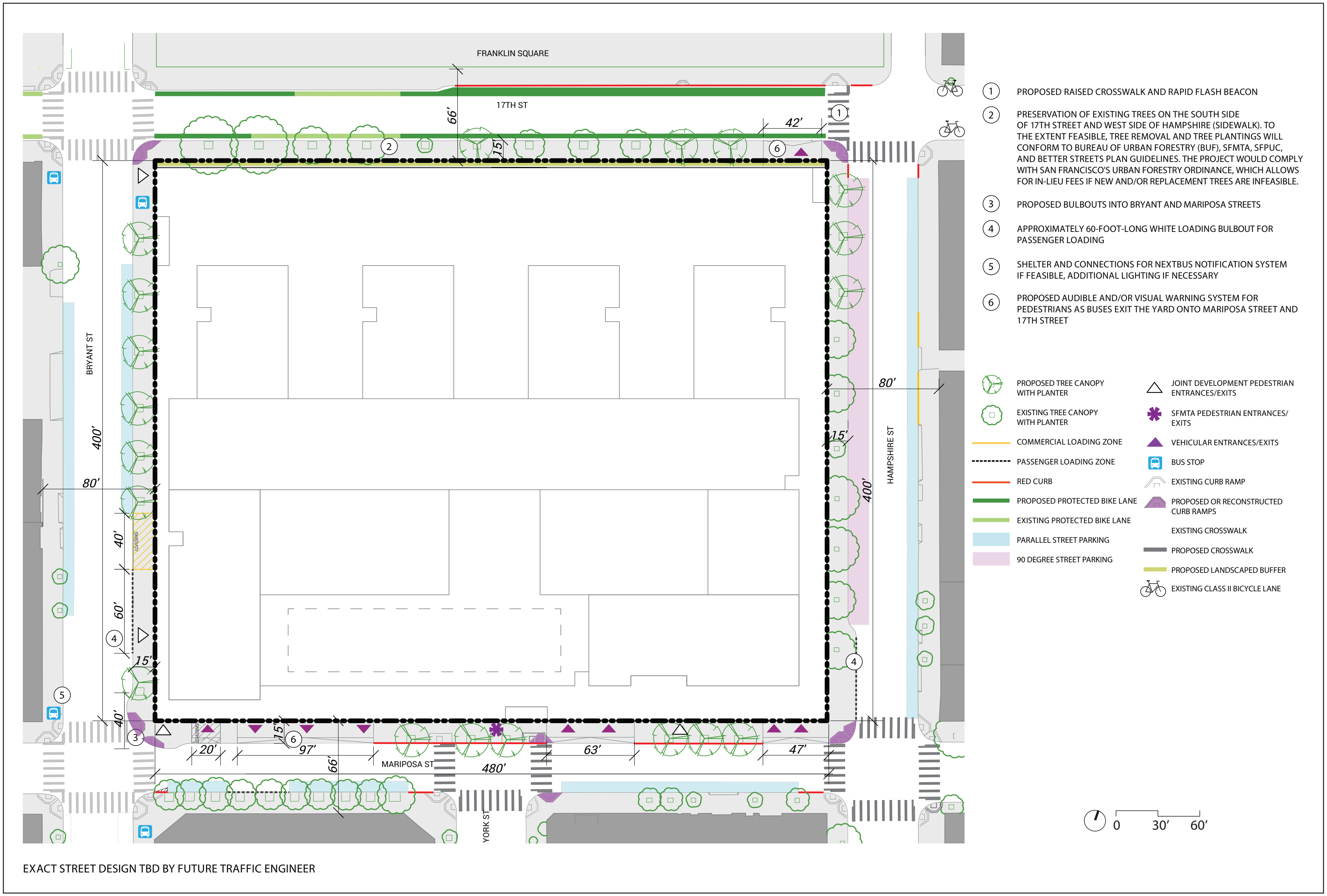
[42] Maximum building height would be measured from grade at the midpoint of the property boundary along each elevation pursuant to section 260 of the planning code.



Source: SFMTA and Sitelab, 2020

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FIGURE 2.3: PROPOSED SITE PLAN

As shown in **Table 2.2**, the proposed structure would contain an approximately 723,000-gross-square-foot replacement transit facility and up to 577,000 gross square feet of joint development uses. The replacement transit facility would have three transit levels and a portion of the joint development, with integrated residential and commercial uses proposed along the Mariposa Street and Bryant street frontages (for a total of six joint development floors within the three-level replacement transit facility). Much of the residential portion of the joint development program would be developed within the three to seven floors proposed to rise above the replacement transit facility, i.e., on joint development floors 7 through 13. The tallest portion of the additional residential development atop the replacement transit facility would be closest to Mariposa Street on the site's south side. Useable open space (see **Table 2.2**) would be developed on the rooftop of the replacement transit facility, e.g., where the structure is set back from the property lines.

The three new transit levels in the replacement transit facility would be designed to include adequate space for circulation (ramps, drive aisles, and vertical circulation), parking for 213 buses, 18 maintenance bays and maintenance support areas, operations, an SFMTA operator training center, storage (parts and battery-electric infrastructure), administrative uses/common areas (e.g., offices, conference rooms, break rooms), and joint development uses.[43] A total of 310 vehicle spaces would be provided: 63 spaces for the 40-foot-long buses, 150 spaces for the articulated 60-foot-long buses, and 97 parking spaces for large and standard non-revenue vehicles. The project is not proposing any off-street accessory vehicular parking for the entirety of the project, including the proposed joint development. (See **Table 2.2** for the parking breakdown and the approximate floor areas for the replacement transit facility.) Ramps would provide one-way internal driveways within the replacement transit facility so that buses can access the work bays, bus wash bays, and parking spaces on the three new transit levels.

The proposed joint development uses within the replacement transit facility (ground-floor commercial and residential) and proposed residential uses on the up to seven floors atop the replacement transit facility would include space for up to 575 residential units.[44, 45] Up to 33,000 gross square feet of ground-floor commercial use would also be developed along Bryant Street. (See **Table 2.2** for the breakdown of units by unit type and for approximate floor areas for the residential and commercial uses.)

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[43] HATCH, HDR, Sitelab, VerPlanck, and CHS, Potrero Yard: Bus Facility Design Criteria Document, June 2019, Section 3.3 (Potrero Facility Scenario 2), p. 27.

[44] Joint development floors within the replacement transit facility would include residential units on floors 2 through 6, with commercial uses and residential lobbies at the ground floor along Mariposa and Bryant streets, as currently shown on **Figure 2.13** through **Figure 2.18**, pp. 2.37-2.42. Each of the floors would include a mix of the proposed joint development and transit facility uses.

[45] Current financial model assumes that residential units proposed for development within the replacement transit facility would be below market rate units while those developed atop the replacement transit facility would be a combination of market rate and below market rate units.

Table 2.2: Summary of Existing and Proposed Project Characteristics

Building Characteristics	Demolished	New [NOTE A]
Paved Bus Storage Yard	**112,450 sq. ft.**	–
Total Building Floor Area	**109,000 gsf [NOTE B]**	**1,300,000 gsf**
Ramps and Circulation		463,000 gsf
Service/Storage (Basement)		127,000 gsf
Service/Storage (Non-Basement)		59,000 gsf
Administration and Common Area		52,000 gsf
Shared Basement Circulation (Ramps and Drives)	–	22,000 gsf
Transit Facility Subtotal	**221,450 gsf [NOTE C]**	**723,000 gsf**
Residential (Units)	–	394,000 gsf
Residential (Circulation, Common Area, Property Management, Service, Storage)	–	150,000 gsf
Residential Development Subtotal	–	**544,000 gsf**
Commercial Use	–	33,000 gsf
Commercial Development Subtotal	–	**33,000 gsf**
Height	**10.5 – 44 feet**	**75 – 150 feet [NOTE D]**
Levels or Floors	**1 to 2**	**3 to 13**
Residential Units	**0**	**575**
Two- to Three-Bedroom	–	228
One-Bedroom	–	206
Studio	–	141
Vehicle Parking Spaces	**214**	**310**
Buses (40 foot / 60 foot)	158 (65/93)	213 (63/150)
Non-Revenue Vehicles (large / standard)	56	97 (8/89)
SFMTA Staff	–	0
Residential	–	0 [NOTE E]
Maintenance Repair Bays	**24**	**18**
Loading Supply (On-Street Zones/Off-Street Spaces)	**0 curb feet (0/1)**	**160 curb feet (3/2)**
Commercial (On-Street/Off-Street)	0 curb feet (0/1)	40 curb feet (1/2)
Passenger (On-Street/Off-Street)	–	120 curb feet (2/0) [NOTE F]
Bicycle Parking Spaces [NOTE G]	**5**	**773**
Class 1	0	736
Class 2	5	37
Useable Open Space – Atop Replacement Transit Facility	–	**91,000 sq. ft.**
At-Grade Open Space – Green Buffer along 17th Street	–	**2,400 sq. ft.**

Notes: gsf = gross square feet; sq. ft. = square feet

NOTE A Numbers rounded to closest 1,000 gsf or sq. ft. and correspond to the current conceptual design of the proposed project. The values presented are the expected maximum size for each component to provide a conservative analysis of impacts. The floor areas of the final design may result in variances from the values presented.

NOTE B Includes space for bus circulation, service, storage, administrative offices, and common areas.

NOTE C Includes the paved bus storage yard.

NOTE D The replacement transit facility would have three levels and be approximately 75 feet tall, as measured from grade at the midpoint of the property boundary along each elevation pursuant to San Francisco Planning Code (planning code) section 260.

NOTE E Up to 12 car-share spaces may be provided at the basement level.

NOTE F Two separate 60-foot-long zones.

NOTE G Class 1 bicycle parking facilities are spaces in secure, weather-protected facilities intended for use as long-term, overnight, and workday bicycle storage by unit residents, non-residential occupants, and employees. Class 2 spaces are bicycle racks located in publicly accessible and highly visible locations intended for transient or short-term use by visitors, guests, and patrons to the building or use. Class 2 bicycle racks allow the bicycle frame and one wheel to be locked to the rack (with one U-shaped lock) and provide support to bicycles without damage to the wheels, frame, or components (planning code section 155.1).

Source: SFMTA, 2020.

Circulation space for the proposed transit, residential, and commercial uses would be provided at the basement level and each of the six joint development floors within the replacement transit facility. Residential levels within the replacement transit facility would be accessed via vertical circulation access points that preserve the security of the SFMTA facility and that are safe and functional for the joint development. Access to the residential levels atop the replacement transit facility would be provided via separate residential circulation elevators and stairs. A secure access system would be installed to restrict access to various floors to authorized individuals (e.g., residents only at the residential floors and SFMTA employees only at SFMTA floors).

The proposed project would also include changes within the Mariposa Street, 17th Street, Bryant Street, and Hampshire Street rights-of-way, as discussed below under "Proposed Changes in Street Rights-of Way" beginning on p. 2.44.

During construction, the bus parking, operations, and maintenance support functions would temporarily relocate to the Muni Metro East Light Rail Vehicle Facility (601 25th Street) and the 1399 Marin Facility.[46] Alternatively, the existing Potrero Yard transit fleet of 158 buses (sixty-five 40-foot-long buses and ninety-three 60-foot-long buses) may also be parked and maintained at other SFMTA facilities. The existing Presidio, Kirkland, and Woods yards could accommodate the 40-foot-long buses and the existing Flynn and Islais Creek divisions and the 1399 Marin Facility could accommodate the 60-foot long buses.[47] The SFMTA estimates that the replacement transit facility would have a total employment population of approximately 829 full-time equivalent persons, including 383 operators – an increase from 400 employees under existing conditions.[48] Potrero Yard would continue to operate as a 24/7 facility. On average, approximately 100 SFMTA

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[46] The 180,000-square-foot Muni Metro East Light Rail Vehicle Facility is located along the Central Waterfront on Illinois and 25th streets in the Dogpatch/Bayview neighborhood, a block from the T Third Street Line. The 1399 Marin facility at Marin and Indiana streets, also located in the Dogpatch/Bayview neighborhood and in close proximity to the T Third Street Line, is currently used for receiving new transit vehicles and testing them before they are introduced into the overall transit fleet.

[47] SFMTA, Muni Metro East Memo, February 26, 2021 and SFMTA e-mail communication with the planning department, March 15, 2021.

[48] HATCH, HDR, Sitelab, VerPlanck, and CHS, Potrero Yard: 3-Level Bus Facility Design Criteria Document, June 2019, Section 2.1 (Staff Summary), p. 11.

staff would be on site at any given time, with a peak of 181 SFMTA staff from noon to 3 p.m. and 60 to 80 staff from 6 p.m. to 3 a.m.[49]

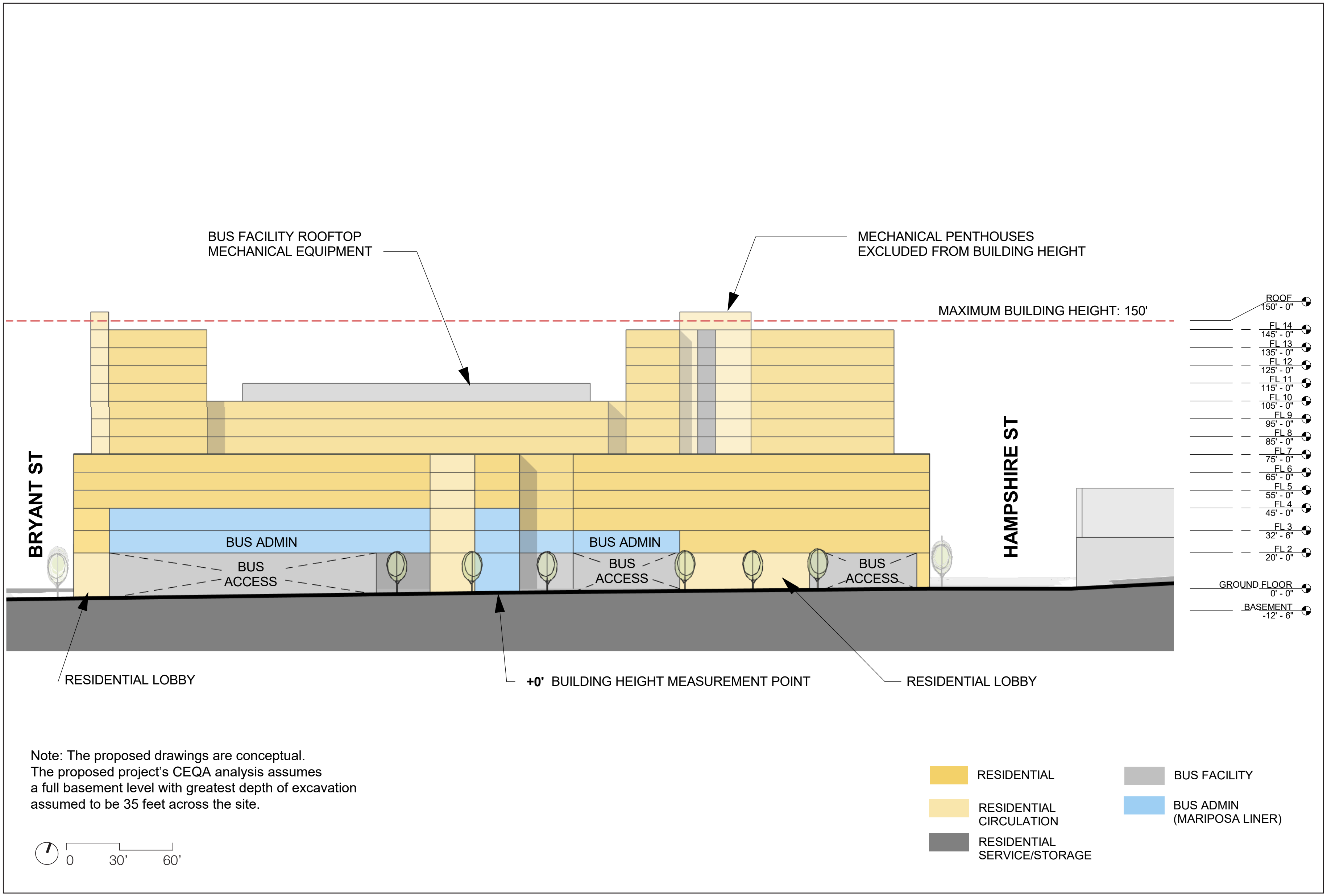
PROPOSED BUILDING FORM AND DESIGN

The proposed new structure would occupy the site up to the property lines, except along the 17th Street frontage, due to the 5-foot setback. The project includes a replacement transit facility at approximately 75 feet in height as measured to the top of the roof from grade at the midpoint of the property boundary along each elevation. The three- to seven-story residential structures atop the replacement transit facility would be approximately 30 to 70 feet tall as measured to the top of the roof (exclusive of any mechanical penthouses that would be centrally located on rooftops). The tallest portion of the new structure would be located away from the 17th Street property line, toward the southern portion of the site. Thus, the proposed overall heights would range from approximately 75 feet for the replacement transit facility to a maximum of up to 150 feet, inclusive of the approximately 75-foot-tall replacement transit facility. The proposed structure, including balconies, terraces, and other features, as well as any rooftop additions or elements that feature unbroken glazed segments, would be designed to be compliant with the bird-safe features described in San Francisco Planning Code (planning code) section 139, as applicable.

The proposed upper-floor setbacks above the replacement transit facility show residential structures set back approximately 70 feet from the north property line (17th Street), approximately 20 to 30 feet from the east property line (Hampshire Street), approximately 15 to 25 feet from the south property line (Mariposa Street), and approximately 10 to 30 feet from the west property line (Bryant Street).[50] (See **Figure 2.4: Proposed Massing – South (Mariposa Street) Elevation, Figure 2.5: Proposed Massing – West (Bryant Street) Elevation, Figure 2.6: Proposed Massing – North (17th Street) Elevation**, and **Figure 2.7: Proposed Massing – East (Hampshire Street) Elevation**.)

Visual simulations of the proposed project from various publicly accessible viewpoints along the perimeter of the project site are shown on **Figure 2.8: Proposed View Looking South from Franklin Square**; **Figure 2.9: Proposed View Looking North Along York Street**; **Figure 2.10: Proposed View Looking West Along Mariposa Street**; and **Figure 2.11: Proposed View Looking North from Bernal Heights**.

[49] SFMTA, Data Request Response, January 31, 2020, p. 2.
[50] Conceptual designs take advantage of the site's slope to limit shadows on Franklin Square.



Source: Sitelab Urban Studio, 2019

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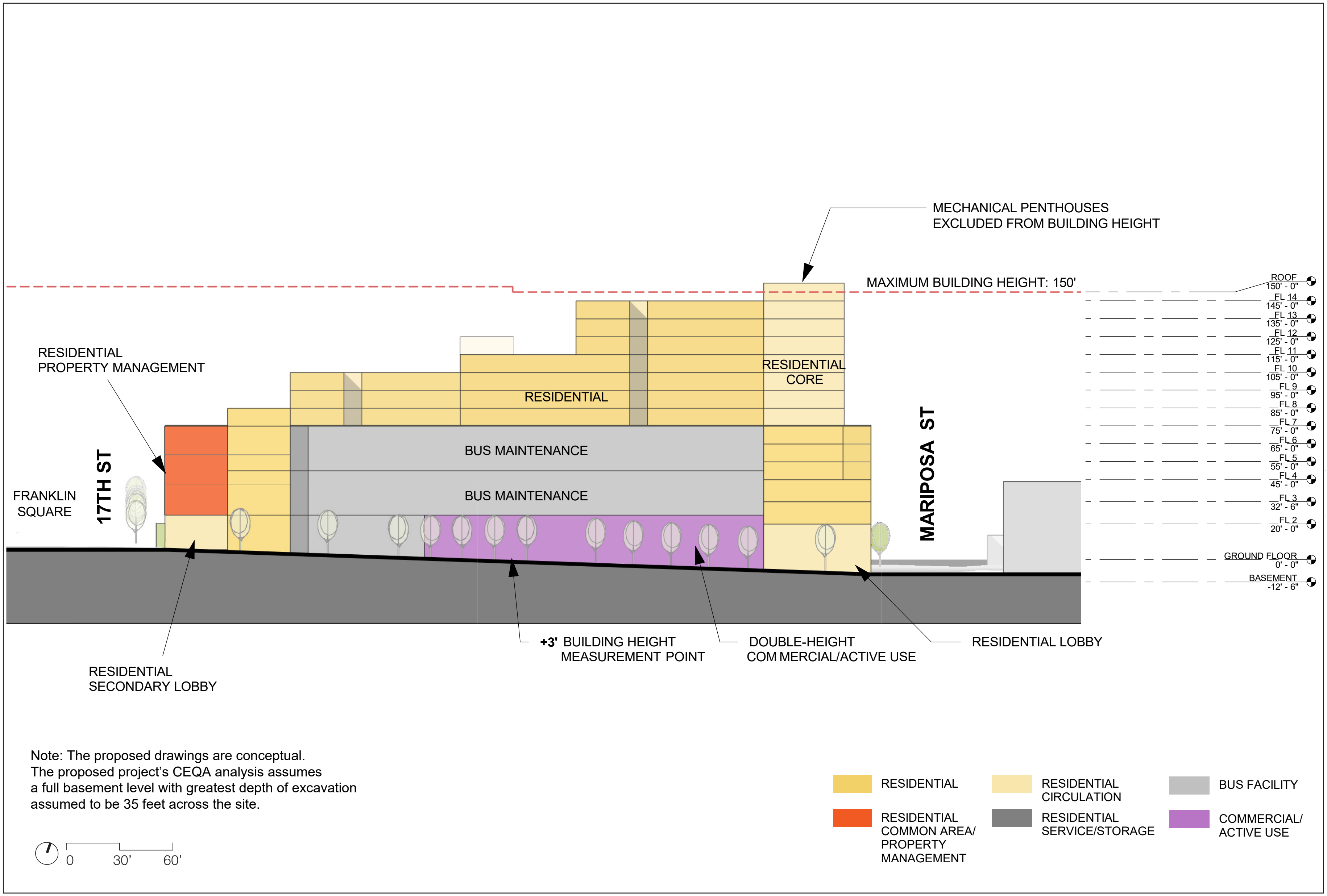
FIGURE 2.4: PROPOSED MASSING - SOUTH (MARIPOSA STREET) ELEVATION



Source: Sitelab Urban Studio, 2019

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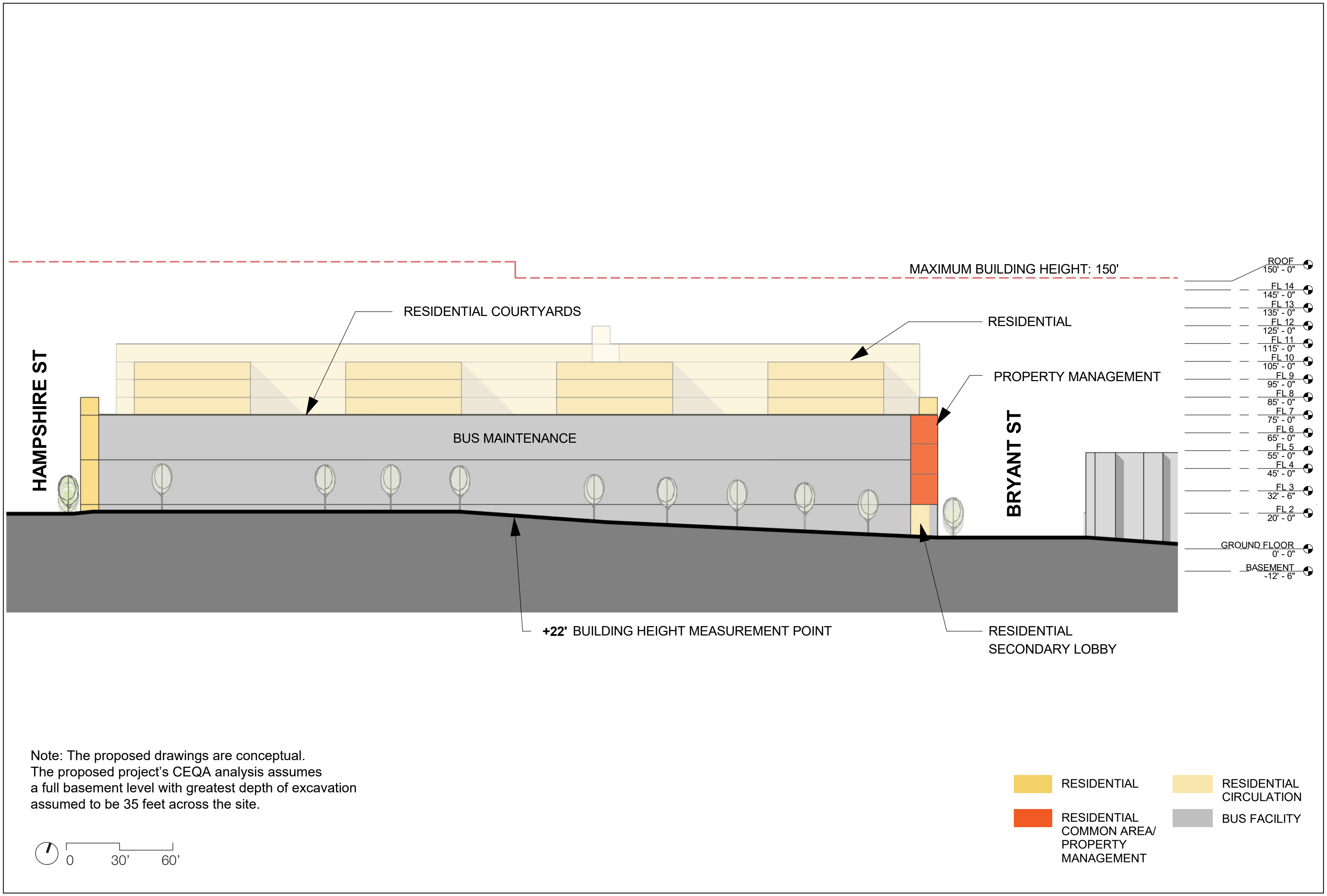
FIGURE 2.5: PROPOSED MASSING - WEST (BRYANT STREET) ELEVATION



Source: Sitelab Urban Studio, 2019

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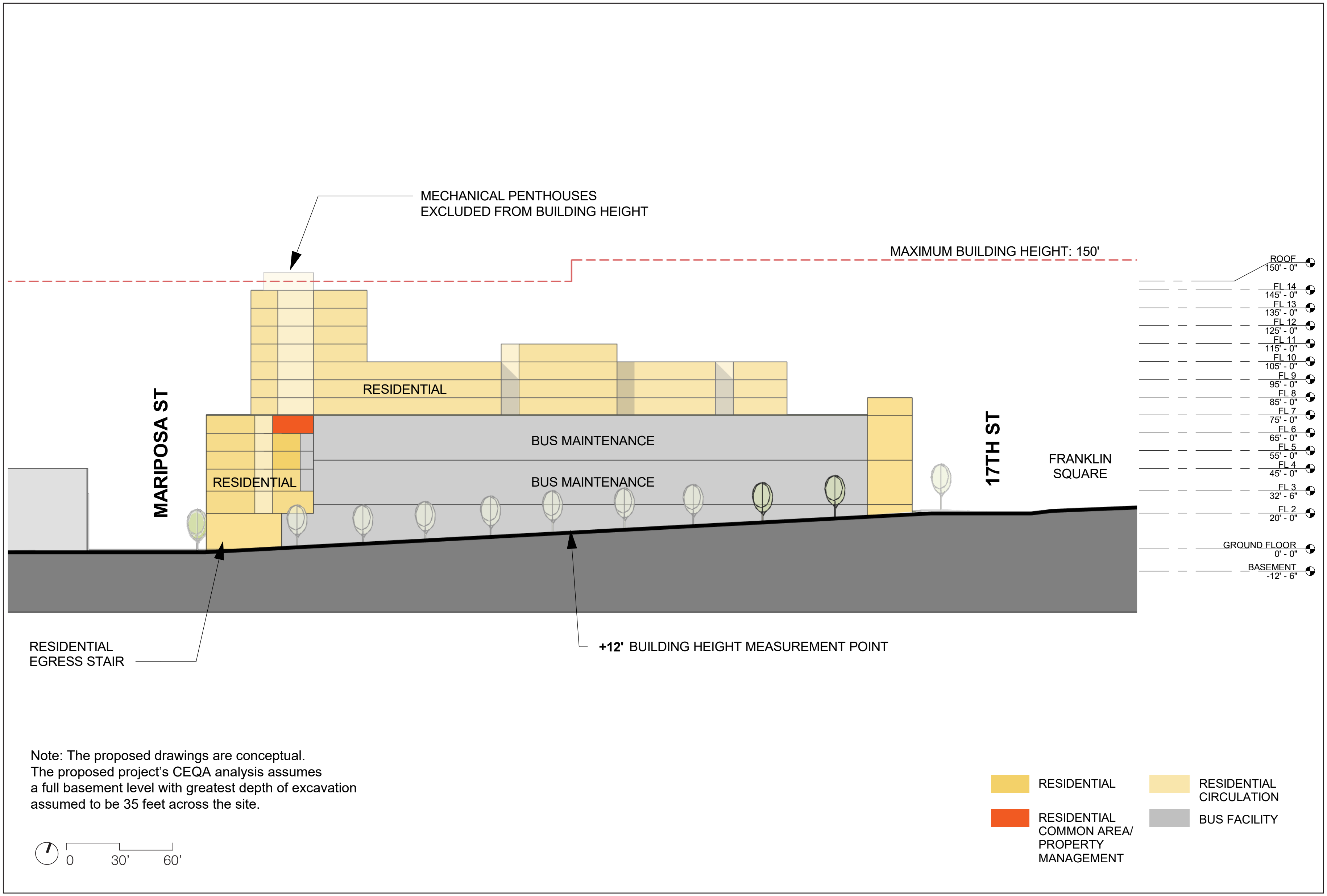
FIGURE 2.6: PROPOSED MASSING - NORTH (17TH STREET) ELEVATION



Source: Sitelab Urban Studio, 2019

POTRERO YARD MODERNIZATION PROJECT

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FIGURE 2.7: PROPOSED MASSING - EAST (HAMPSHIRE STREET) ELEVATION

Source: Prevision Design March 2020

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FIGURE 2.8: PROPOSED VIEW LOOKING SOUTH FROM FRANKLIN SQUARE

Source: Prevision Design March 2020

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FIGURE 2.9: PROPOSED VIEW LOOKING NORTH ALONG YORK STREET

Source: Prevision Design March 2020

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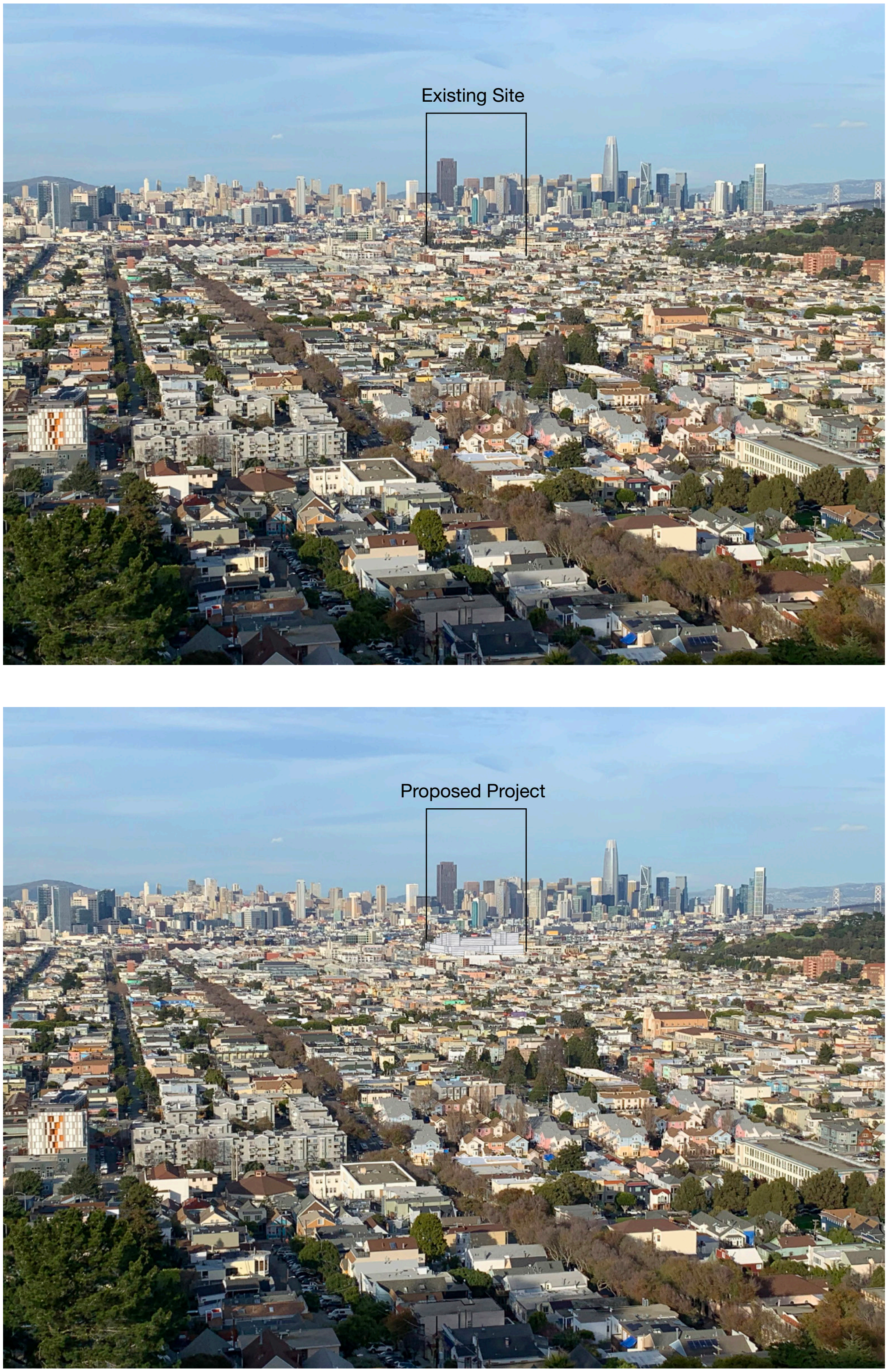
FIGURE 2.10: PROPOSED VIEW LOOKING WEST ALONG MARIPOSA STREET



Source: Prevision Design March 2020

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FIGURE 2.11: PROPOSED VIEW LOOKING NORTH FROM BERNAL HEIGHTS

The proposed uses are described below by level and floor and illustrated in **Figure 2.12** through **Figure 2.19**, on pp. 2.36-2.43.

PROPOSED BASEMENT LEVEL

The below-grade basement level would provide space for service functions for both the SFMTA and the joint development uses. The basement-level space for the SFMTA would include a loading dock, parts staging/storage area, battery electric storage, and work areas. Joint development space at the basement level would include a loading dock, storage, and service/delivery space. Other basement-level space would include stairways, elevators, separate class 1 bicycle parking facilities for the residential, commercial and SFMTA uses, and trash, recycling, and composting.[51] (See **Figure 2.12: Proposed Basement Level Plan**.) In addition to these uses at the basement level, the proposed project could occupy the site's full dimensions to accommodate additional battery electric storage and infrastructure space for future expansion.

PROPOSED TRANSIT LEVEL 1 (JOINT DEVELOPMENT FIRST FLOOR)

Transit Level 1 (or the ground level) would include heavy and running repair bays and would serve as a drive-through bus maintenance operation level. It would be below grade along 17th Street and at grade along Mariposa Street (see **Figure 2.13: Proposed Transit Level 1/Joint Development Floor 1**). The ground level would have stacked parking/storage for 40- and 60-foot-long buses, with a maximum capacity of 38 spaces for 40-foot-long buses (28 spaces if the buses are 60 feet long), and maintenance and support areas. Ramps and drive aisles would provide internal circulation.

Transit Level 1 may also provide support space and services for SFMTA transit operators, maintenance staff, and administrative staff, as well as space for storage and training.[52] Joint development space would be limited and may include ground-floor retail and residential lobbies.

PROPOSED MEZZANINE LEVEL (JOINT DEVELOPMENT SECOND FLOOR)

The mezzanine level would be developed along Mariposa and 17th streets (see **Figure 2.14: Proposed Mezzanine Level/Joint Development Floor 2**). The mezzanine level may include a bus

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[51] HDR, SFMTA Potrero Scenario 2 (3-Level), Sheets A-101 (Basement Overall Plan) to A-101I (Basement - Area I), February 20, 2019, and Sitelab Urban Studio, Potrero Yard Planning Application, Sheet 10, November 20, 2019.

[52] HDR, SFMTA Potrero Scenario 2 (3-Level), Sheets A-102 (1st Floor Overall Plan) to A-102I (1st Floor - Area I), February 20, 2019, and Sitelab Urban Studio, Potrero Yard Planning Application, Sheet 11, November 20, 2019.

operations office and support areas, with some square footage assigned to joint development space.[53]

PROPOSED TRANSIT LEVEL 2 (JOINT DEVELOPMENT THIRD FLOOR)

Transit Level 2 would be at grade along 17th Street and would include ramps along the north property line (see **Figure 2.15: Proposed Transit Level 2/Joint Development Floor 3**). This level would provide drive aisles for circulation, stacked bus parking for 40- and 60-foot-long buses (90 spaces for 60-foot-long buses, 126 spaces if the buses are 40 feet long), a bus wash bay with a dedicated water reclamation equipment area, and electric charging infrastructure. A proposed emergency bus exit at the corner of 17th and Hampshire streets would provide access to 17th Street and replace the existing 52-foot-wide curb cut and driveway with a 42-foot-wide curb cut and driveway. Approximately 24 parking spaces and five electric vehicle charging stations would be dedicated for standard non-revenue vehicles. This level may also include SFMTA operations offices, conference rooms, training rooms, break rooms, restrooms, and lockers.[54] Joint development space may also be assigned on Transit Level 2.

PROPOSED TRANSIT LEVEL 3 (JOINT DEVELOPMENT FOURTH AND FIFTH FLOORS)

Transit Level 3 would provide drive aisles and stacked bus coach parking for 40- and 60-foot-long buses (85 spaces for 60-foot-long buses, 120 spaces if the buses are 40 feet long) with dedicated zones for electric charging infrastructure (see **Figure 2.16: Proposed Transit Level 3/Joint Development Floor 4**). Ramps between Transit Level 2 and Transit Level 3 are proposed along the north property line. Approximately 70 parking spaces and five electric vehicle charging stations would be dedicated for large and standard non-revenue vehicles. This level may also provide a bus wash bay with a dedicated water reclamation equipment area; a transit operations, equipment storage, and component rebuild assembly room; and associated storage, support, and supervisory areas.[55]

Transit Level 3 would also encompass the fourth and fifth joint development floors, with potential for residential units and circulation space along Mariposa Street (see **Figure 2.16** and **Figure 2.17: Proposed Joint Development Floor 5**).

[53] HDR, SFMTA Potrero Scenario 2 (3-Level), Sheets A-103 (Training and Operations – 2nd Floor – Overall Plan) to A-103I (2nd Floor - Area I), February 20, 2019, and Sitelab Urban Studio, Potrero Yard Planning Application, Sheet 12, November 20, 2019.

[54] HDR, SFMTA Potrero Scenario 2 (3-Level), Sheets A-104 (Bus Level 2 – 3rd Floor – Overall Plan) to A-104I (3rd Floor - Area I), February 20, 2019, and Sitelab Urban Studio, Potrero Yard Planning Application, Sheet 13, November 20, 2019.

[55] HDR, SFMTA Potrero Scenario 2 (3-Level), Sheets A-105 (Bus Level 3 – 4th Floor – Overall Plan) to A-105I (4th Floor - Area I) and Sheets A-106 (5th Floor – Overall Plan) to A-106I (5th Floor – Area I), February 20, 2019, and Sitelab Urban Studio, Potrero Yard Planning Application, Sheet 14, November 20, 2019.

PROPOSED JOINT DEVELOPMENT SIXTH FLOOR

The sixth joint development floor would include residential units and circulation space and may include residential common areas/property management offices along the corners of Mariposa and Hampshire streets and Bryant and 17th streets (see **Figure 2.18: Proposed Joint Development Floor 6**).[56]

PROPOSED JOINT DEVELOPMENT FLOORS 7 TO 13

The joint development above the replacement transit facility would include residential units, residential service/storage areas, and circulation space (see **Figure 2.19: Proposed Joint Development Floors 7-13**). Residential structures would rise from three to seven stories above the replacement transit facility.[57] Up to 91,000 square feet of residential common open space could be developed on top of the replacement transit facility.

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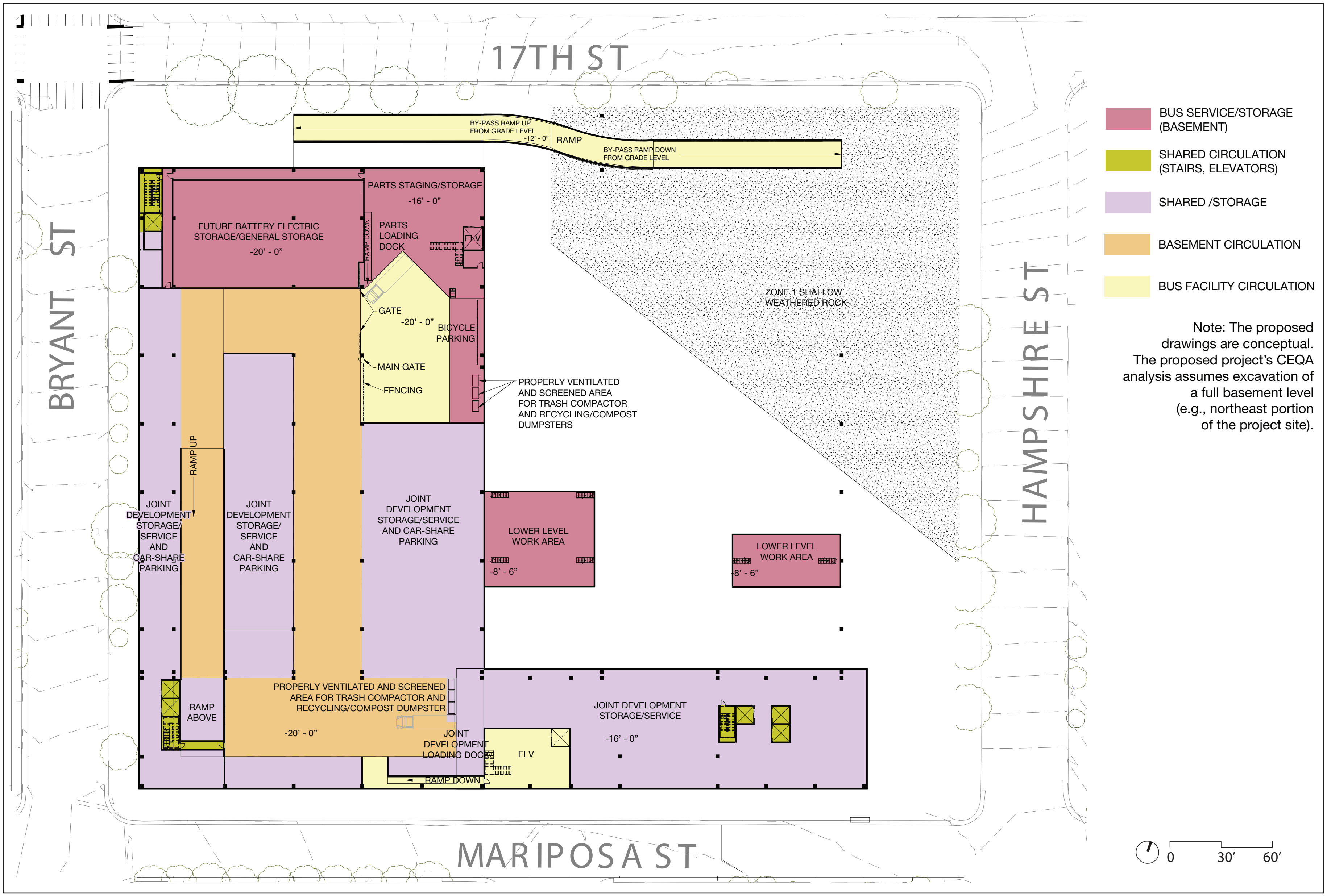
[56] Sitelab Urban Studio, Potrero Yard Planning Application, Sheet 08, November 20, 2019.
[57] Sitelab Urban Studio, Potrero Yard Planning Application, Sheet 09, November 20, 2019.



Source: HDR/Sitelab Urban Studio, 2019

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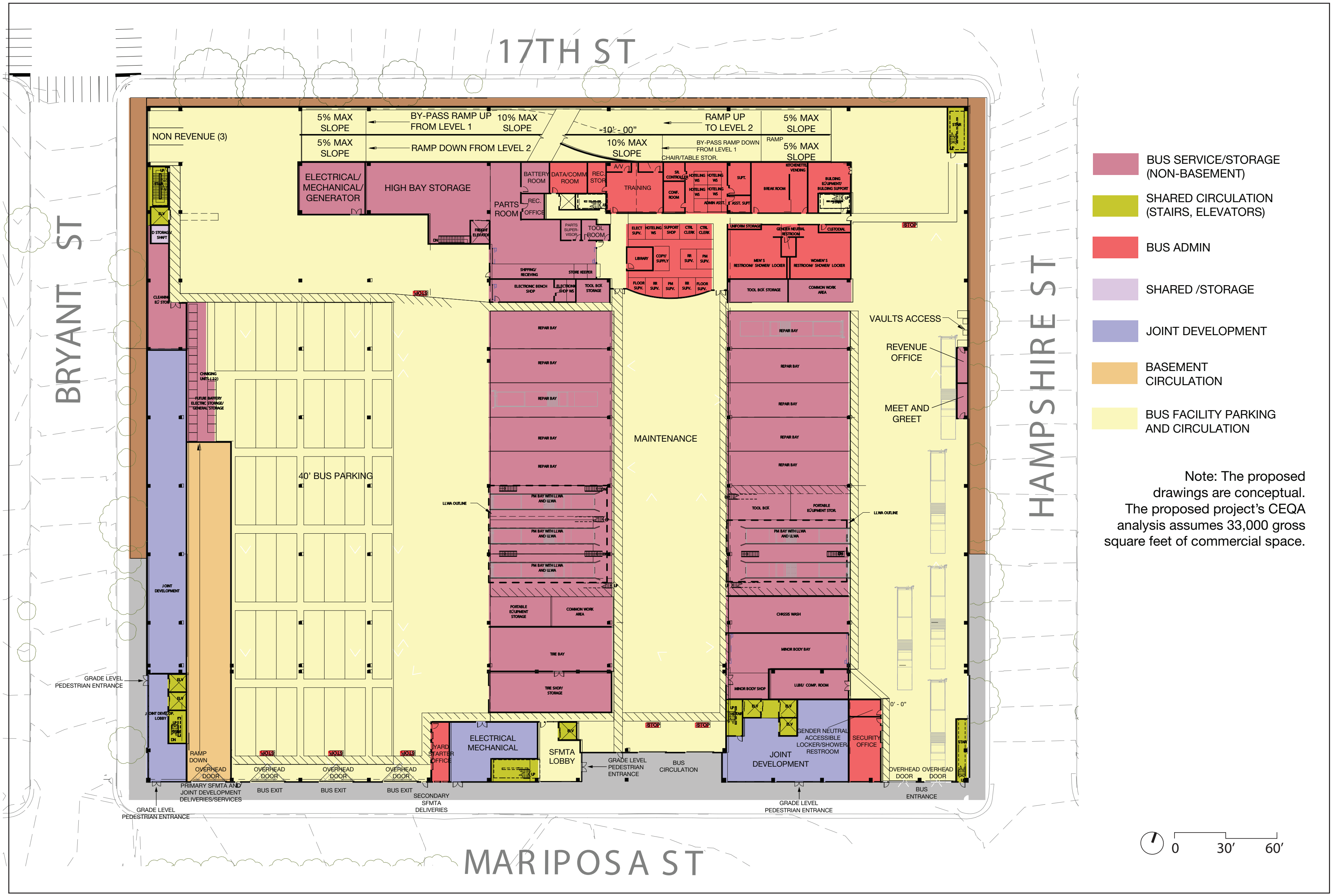
FIGURE 2.12: PROPOSED BASEMENT LEVEL



Source: HDR/Sitelab Urban Studio, 2019

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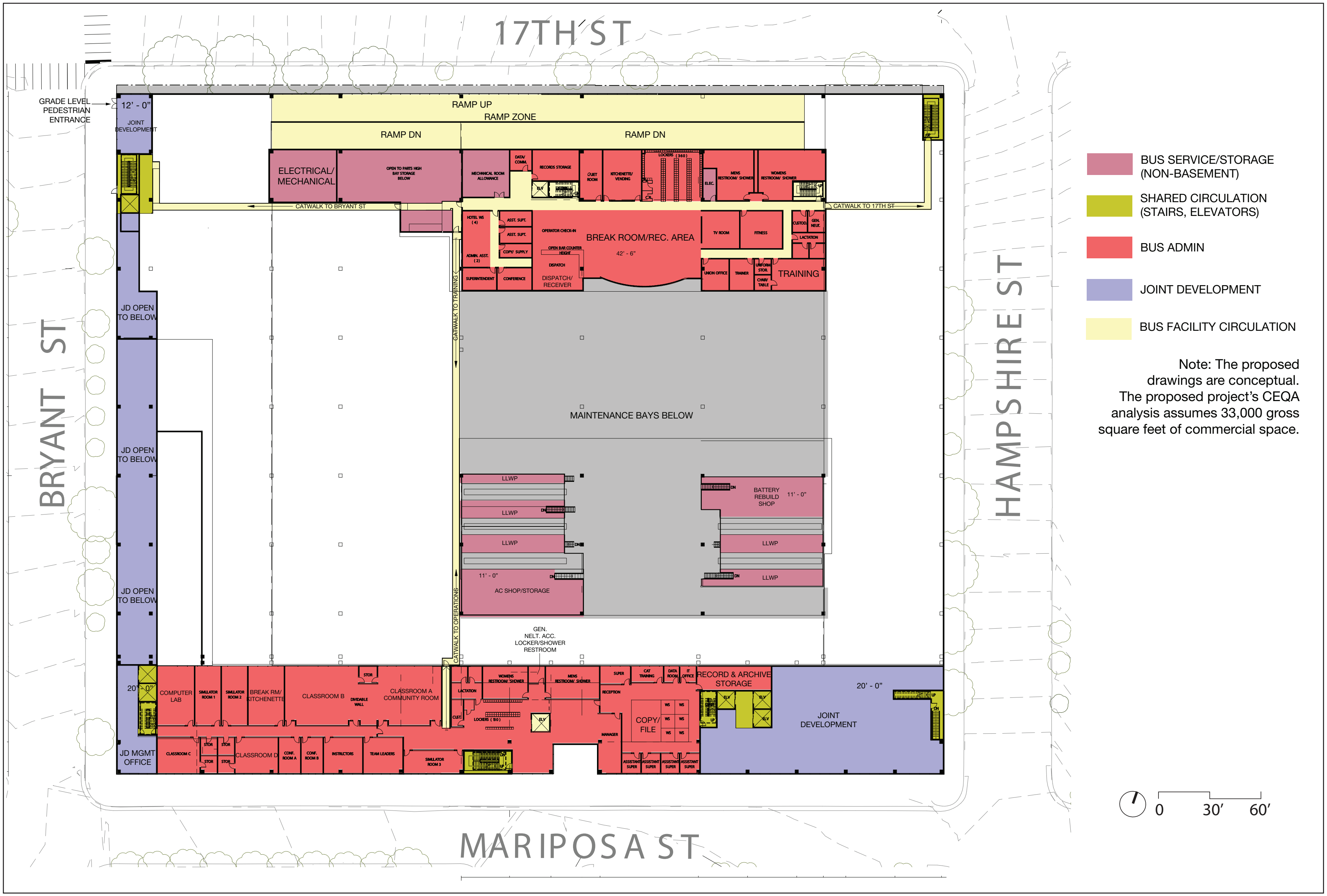
FIGURE 2.13: PROPOSED TRANSIT LEVEL 1/ JOINT DEVELOPMENT FLOOR 1



Source: HDR/Sitelab Urban Studio, 2019

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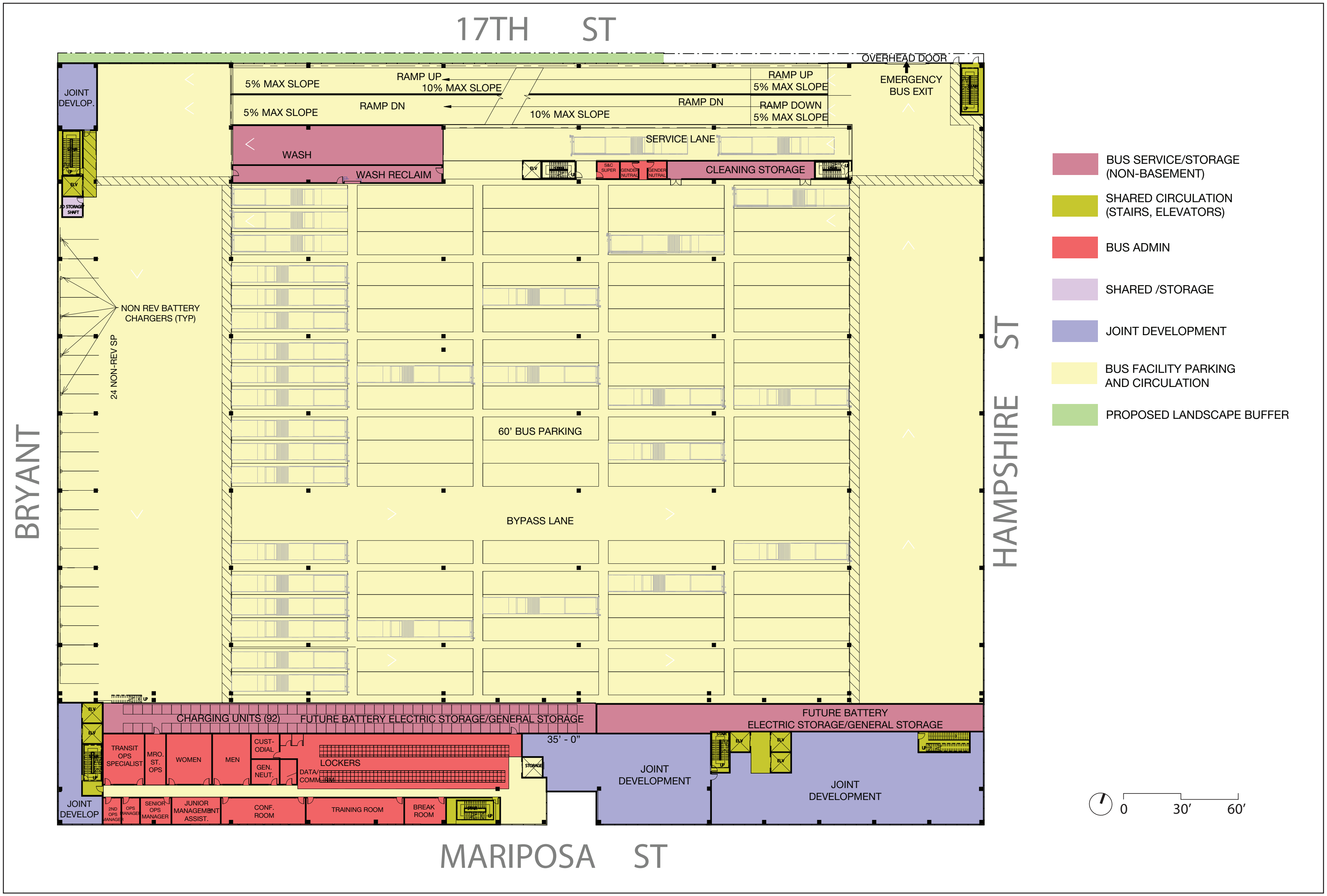
FIGURE 2.14: PROPOSED MEZZANINE LEVEL/ JOINT DEVELOPMENT FLOOR 2



Source: HDR/Sitelab Urban Studio, 2019

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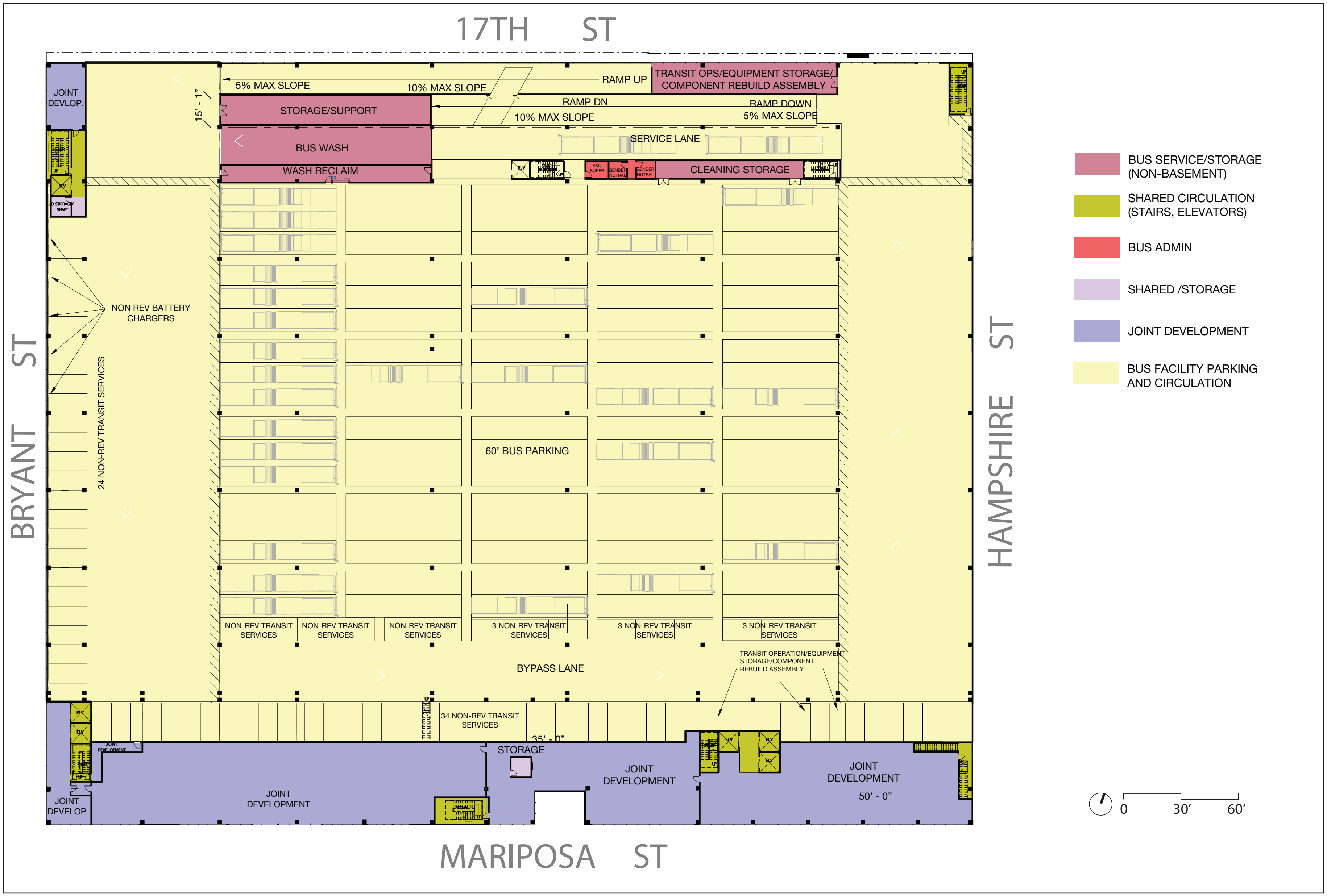
FIGURE 2.15: PROPOSED TRANSIT LEVEL 2/ JOINT DEVELOPMENT FLOOR 3



Source: HDR/Sitelab Urban Studio, 2019

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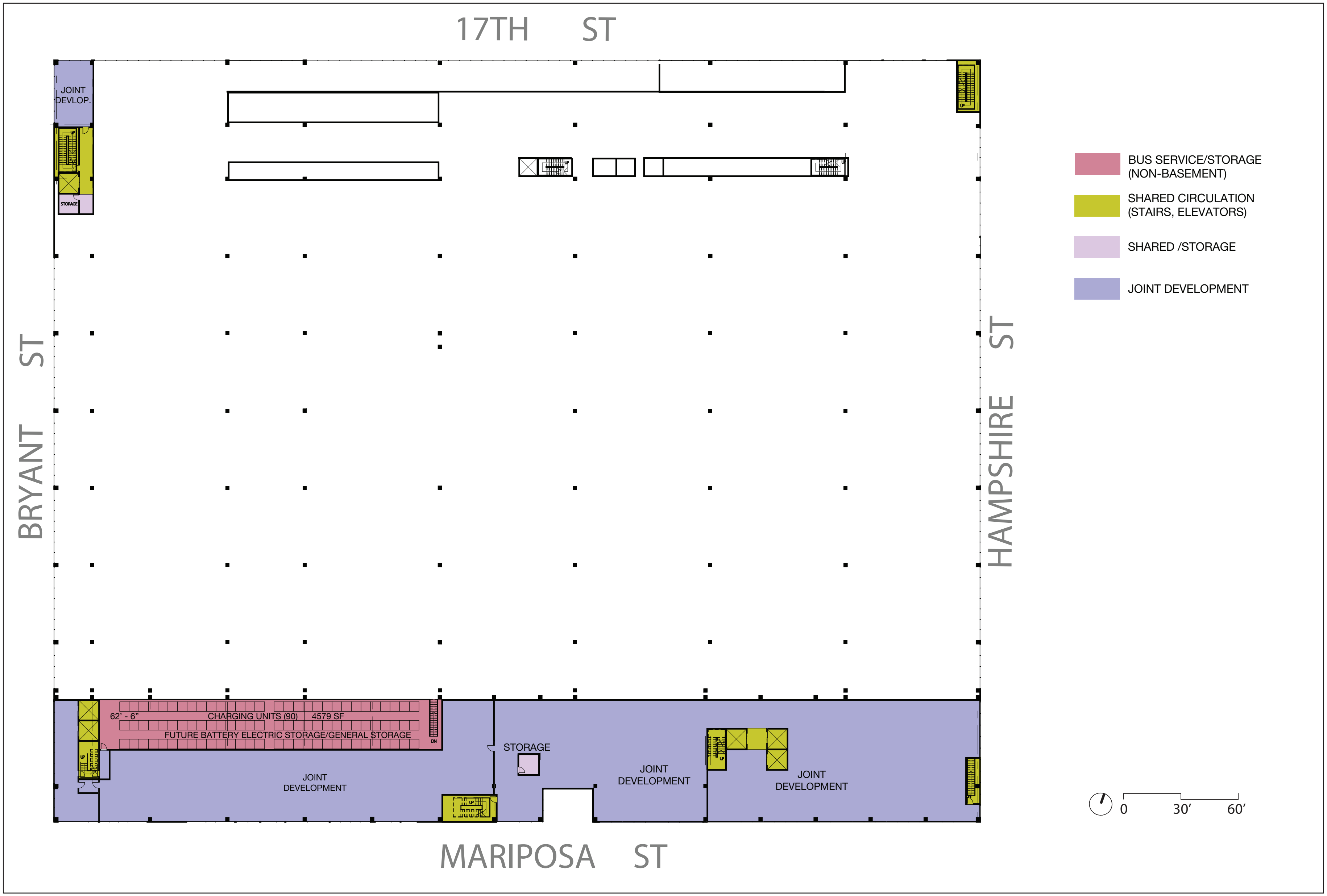
FIGURE 2.16: PROPOSED TRANSIT LEVEL 3/ JOINT DEVELOPMENT FLOOR 4



Source: HDR/Sitelab Urban Studio, 2019

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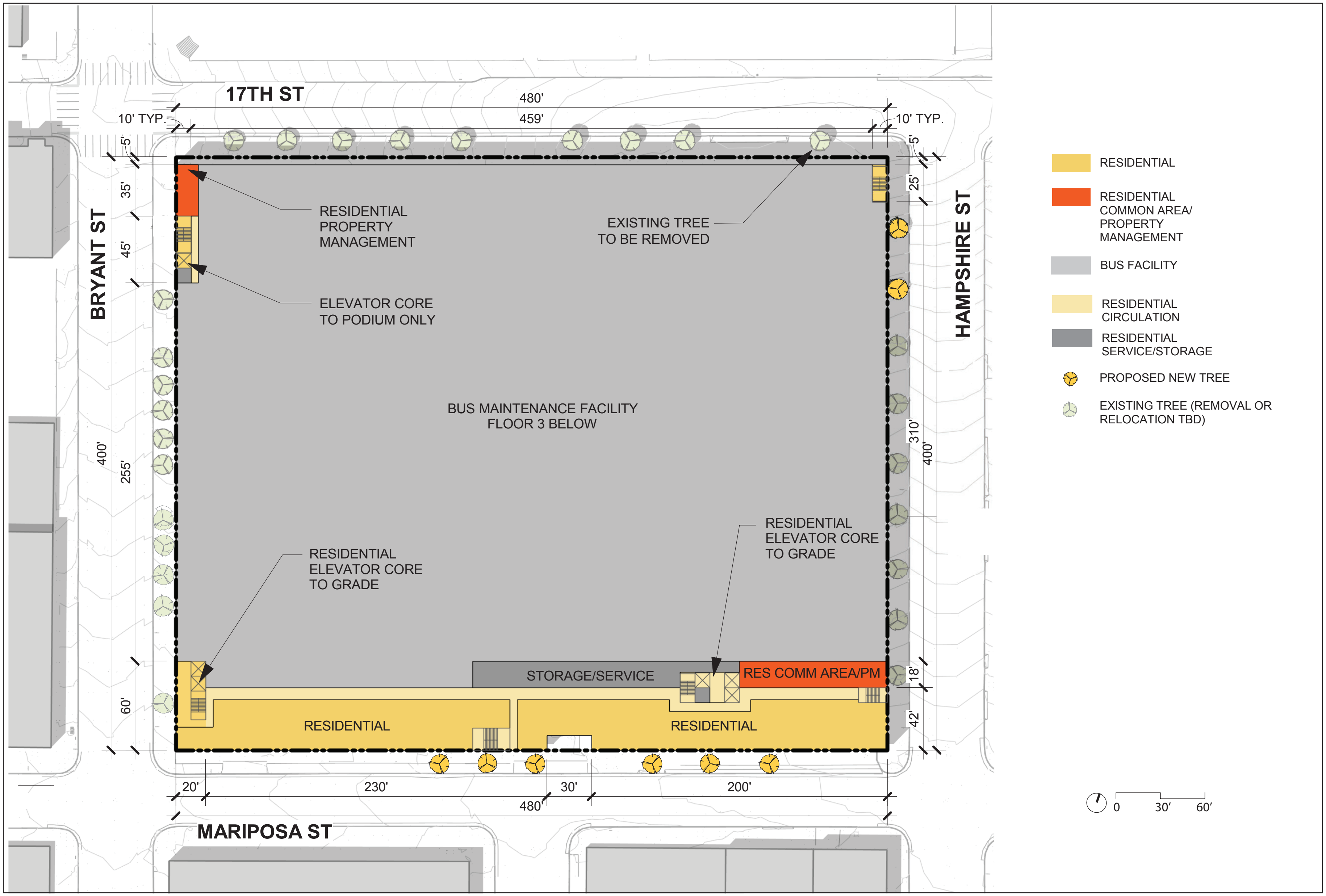
FIGURE 2.17: PROPOSED JOINT DEVELOPMENT FLOOR 5



Source: Sitelab Urban Studio, 2019

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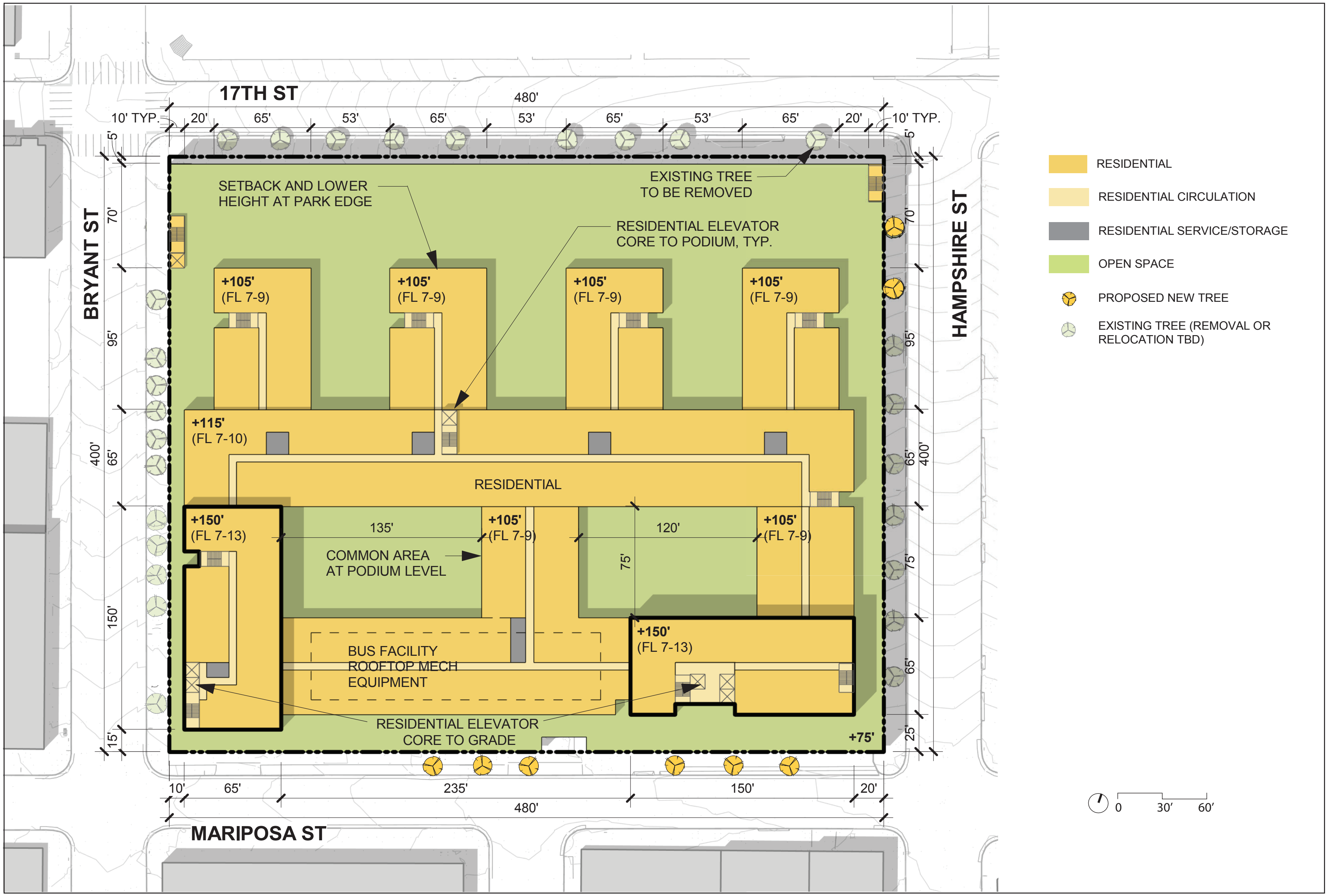
FIGURE 2.18: PROPOSED JOINT DEVELOPMENT FLOOR 6



Source: Sitelab Urban Studio, 2019

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FIGURE 2.19: PROPOSED JOINT DEVELOPMENT FLOORS 7-13

PROPOSED CHANGES IN STREET RIGHTS-OF-WAY

The proposed project includes changes within the Mariposa Street, 17th Street, Bryant Street, and Hampshire Street rights-of-way (see **Figure 2.3**, p. 2.20). To the extent feasible, all proposed changes would conform to the guidelines in the Better Streets Plan and the Mission District Streetscape Plan,[58] as well as the requirements of the SFMTA, the San Francisco Public Utilities Commission, and the Bureau of Urban Forestry. Many of these changes would require further engineering, public input, and review to confirm feasibility and desirability.

The project proposes to retain existing mature street trees along 17th and Hampshire streets, plant new street trees, install street lighting, install pedestrian bulbouts and pedestrian ramps, attach overhead catenary system cables to the proposed building, and remove catenary poles from the sidewalk. The proposed project would also move overhead utilities underground if and where it is feasible. Details of the proposed changes to the pedestrian network, bicycle network, bus stops, and parking and loading are discussed below.

PEDESTRIAN NETWORK

The existing bus storage yard (south fence) encroaches on the Mariposa Street sidewalk, narrowing the existing sidewalk width along the western half of the Mariposa site frontage to 7 feet. The footprint of the replacement transit facility would be moved back to the property line, which would enable the project to effectively widen the Mariposa Street sidewalk to 15 feet as recommended in the Better Streets Plan. The proposed project would maintain all other sidewalks at 15 feet wide.

The proposed project would also construct the following pedestrian network improvements, including all necessary striping and lighting, pending further feasibility analysis:

- bulbouts at the northeast corner of Bryant and Mariposa streets projecting into both Bryant and Mariposa streets southwest of the project site
- bulbout at the northwest corner of Hampshire and Mariposa streets projecting into Hampshire Street southeast of the project site
- curb ramps for pedestrian crossings adjacent to the project site and a curb ramp on the southeastern side of the Mariposa/York street intersection facing Mariposa Street
- continental-style crosswalks at all approaches at the intersections of Hampshire/17th streets, Hampshire/Mariposa streets, and Mariposa/York streets
- a raised crosswalk and a rectangular rapid flash beacon for the pedestrian crossing of 17th Street at Hampshire Street

[58] San Francisco Planning Department, Mission District Streetscape Plan, available at *https://archives.sfplanning.org/CDG/CDG_mission_streetscape.htm*, accessed March 30, 2021.

BICYCLE NETWORK

The project would convert the existing striped and partially protected bicycle lanes into green protected, widened bikeways in both directions on the segment of 17th Street between Bryant and Hampshire streets. This change would require the elimination of parallel parking on the north side of 17th Street. If this is not feasible, the SFMTA would upgrade the existing class IV cycle track on the south side of 17th Street near Bryant Street by raising the bike lane to sidewalk level, applying green paint, and installing "safe hit posts," thereby improving portions of the existing class IV bicycle facility.

BUS STOPS

The proposed project would not change existing bus operations in the vicinity of the project site, i.e., remove or relocate bus stops. The northbound and southbound Muni bus stops for the 27 Bryant route on the southeast (adjacent to the project site) and southwest corners of Bryant and 17th streets would remain. The existing northbound and southbound Muni bus stops on the southeast and northwest corners of Bryant and Mariposa streets, respectively, would potentially include new shelters, transit notification systems, and additional street lighting, as necessary.

PARKING AND LOADING

The proposed project would maintain perpendicular on-street parking on the west side of Hampshire Street adjacent to the project site but would eliminate several spaces to accommodate a pedestrian bulbout and accompanying passenger loading zone at Hampshire Street immediately north of Mariposa Street. Parking on the east side of Hampshire Street (across from the project site) would be converted to parallel parking, eliminating several spaces. Parking would also be eliminated and prohibited on the east and west sides of Hampshire Street within 10 feet of the intersection of 17th and Hampshire streets. Other changes include the following:

- eliminating parallel parking on the north side of 17th Street between Bryant and Hampshire streets starting approximately 230 feet east of the intersection of Bryant and 17th streets to gain more width for protected bike lanes
- removing parking spaces along the north side of Mariposa Street and restriping as a no parking zone
- installing audible and/or visual warning systems to alert pedestrians and/or bicyclists as buses, non-revenue vehicles, and other SFMTA vehicles exit onto Mariposa and 17th streets

The primary off-street loading areas for the SFMTA and for the proposed residential use would be located in the proposed basement level, accessed via a 20-foot-wide ramp on Mariposa Street east of Bryant Street. A secondary off-street loading area for the SFMTA would be located on the ground floor. In addition, limited curb areas would be restriped for on-street passenger and commercial loading, with two accessible 60-foot-long passenger loading zones proposed along

Bryant and Hampshire streets, immediately north of Mariposa Street; and a 40-foot-long commercial loading zone proposed along Bryant Street, immediately north of the proposed passenger loading zone (see **Figure 2.3**, p. 2.20).

ACCESS AND SITE CIRCULATION

Primary vehicular access to and from the site would be from Mariposa Street, as follows (see **Figure 2.3**, p. 2.20):

- The four bus entry bays between York and Hampshire streets would be accessed via two separate curb cuts, an approximately 47-foot-wide curb cut near Hampshire Street and an approximately 63-foot-wide curb cut near York Street.
- The three bus exit bays between Bryant and York streets would be exited via an approximately 97-foot-wide curb cut.
- The existing 30-foot-wide curb cut on Mariposa Street (near Bryant Street) would be reduced to an approximately 20-foot-wide curb cut that would accommodate loading and delivery and other joint development and transit facility space needs.

The existing 52-foot-wide curb cut and driveway on 17th Street would be relocated east closer to Hampshire Street and reduced in width to 42 feet. It would function as an emergency exit for buses and non-revenue vehicles.

Work bays on Transit Level 1 would be accessed via drive aisles associated with the two westernmost entry bays from Mariposa Street. Buses and non-revenue vehicles would use the ramps at the north side of the building to access work bays and parking spaces on Transit Levels 2 and 3 as well as parking spaces on Transit Level 1 via an at-grade level bypass ramp (see **Figure 2.12: Proposed Basement Level** and **Figure 2.13: Proposed Transit Level 1/Joint Development Floor 1**, pp. 2.36 and 2.37). The ramps and drive aisles would route all buses and non-revenue vehicles south toward the Mariposa Street exits.

The proposed basement level would accommodate building services and battery electric infrastructure for the SFMTA and the joint development components providing tenant storage; dumpsters for refuse, recycling, and compost; parking for bicycles (class 1) and car-share vehicles (12); and two loading docks. Internal circulation on this level would accommodate service delivery vehicles for the proposed transit, residential, and commercial uses, as well as refuse collection trucks.

SFMTA staff would access the replacement transit facility through a ground-floor lobby on Mariposa Street. The residential component of the proposed project along the southern and western perimeter of the replacement transit facility, as well as the residential development atop the replacement transit facility, would be accessed through ground-floor lobbies, shown on Mariposa and Bryant streets (see **Figure 2.13** and **Figure 2.14: Proposed Mezzanine Level/Joint**

Development Floor 2, pp. 2.37 and 2.38). Shared elevators and stairs would be located at the northwest, southwest, and southeast corners of the proposed building.[59]

PROPOSED LANDSCAPING AND OPEN SPACE

LANDSCAPING

The proposed project would include a 5-foot-wide planting strip along the length of the 17th Street frontage (up to 2,140 square feet). No additional at-grade landscaping is proposed as part of the project; however, common open space serving the residents (and possibly SFMTA employees) could be developed on top of the replacement transit facility.

Construction of the proposed project would require the removal, retention, and/or replacement of the 27 existing street trees along 17th, Bryant, and Hampshire streets. The project sponsor team would plant new street trees on the adjacent sidewalks, including new trees to replace any removed, in compliance with the planning code, the San Francisco Public Works Code (public works code), and the Better Streets Plan.[60] Specific streetscape changes related to retaining and planting street trees would include the following:

- On 17th Street, the existing mature trees would be retained, except for those that would conflict with the proposed location for the emergency bus exit, and new street trees would be planted.
- On Bryant and Hampshire streets, trees located in the middle of the sidewalk may be replaced with new street trees.
- On Mariposa Street, approximately six trees would be planted in locations that would not conflict with bus driveways.

OPEN SPACE

Common and private open space is proposed for the residential uses in accordance with the requirements set forth in section 135 of the planning code. Up to 91,000 square feet of common open space is proposed as part of the project. During review of the proposed project's detailed design, the SFMTA would determine the feasibility of designating onsite open space for SFMTA staff and/or public use. The overall final design and allocation of common open space for the proposed project may be modified throughout the planning entitlement process.

PROPOSED STORMWATER MANAGEMENT

The project site is served by the San Francisco Public Utilities Commission's combined sewer system, and the entire site is covered with impervious surfaces. Implementation of the proposed

[59] HDR, SFMTA Potrero Scenario 2 (3-Level), Sheet A-102 (1st Floor Overall Plan), June 14, 2019.
[60] See planning code sections 138.1 and 428 and public works code sections 805(a) and 806(d) for specific requirements related to tree planting and allowable waivers due to site constraints.

project would disturb more than 5,000 square feet of impervious ground surface. Thus, the City's Stormwater Management Requirements and Design Guidelines are applicable, requiring Preliminary and Final Stormwater Control Plans to be submitted to the San Francisco Public Utilities Commission for review.[61] The proposed project would cover the entire lot (except for a 5-foot-wide landscaping strip along 17th Street) and would incorporate best management practices to ensure proper onsite retention and management of stormwater to meet the requirements of the stormwater management ordinance. The project's detailed final design will address these requirements and incorporate measures to reduce the stormwater runoff rate and volume, such as site-wide stormwater retention and rainwater capture and treatment systems, to provide a non-potable water supply for the replacement transit facility's bus wash bays, toilet and urinal flushing, and landscaping.

PROPOSED SUSTAINABILITY PROGRAM

It is anticipated that the proposed building (including the transit facility and joint development components) would be designed to meet United States Green Building Council and LEED requirements. The proposed sustainability strategies would comply with state, regional, and local green building requirements as set forth in the California Green Building Standards Code, the San Francisco Green Building Code, and chapter 7 of the environment code to obtain LEED Gold certification. The sustainable design building systems could include, but would not be limited to, development of electrical infrastructure capable of supplying electricity for electric vehicle charging of the fleet, and other strategies or mechanisms, such as daylight harvesting through the use of a network of occupancy and vacancy sensors;[62] the use of solar photovoltaic panels on rooftops to produce onsite power; green roofs to minimize heat island effects;[63] and the use of Title 24-compliant components for plumbing and other building systems such as heating, ventilation, and air conditioning.[64]

PROJECT CONSTRUCTION

The general approach to construction of the proposed project would be shaped by the construction operations and applicable safety regulations, such as the California Manual on Uniform Traffic

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[61] San Francisco Public Utilities Commission, *https://sfwater.org/index.aspx?page=1006*, accessed March 30, 2021.

[62] A building control system that reduces demand for artificial light in building interiors when daylight is available thus reducing energy demand.

[63] The combined effect of heat generated from use of mechanical equipment and heat trapping/reflectivity characteristics of impermeable surfaces on rooftops and other land, such as paved roadways and parking lots, that increases ambient temperatures in urbanized areas and increases energy demand for building cooling.

[64] HATCH, HDR, Sitelab, VerPlanck, and CHS, Potrero Yard: 3-Level Bus Facility Design Criteria Document, June 2019, Section 4.4 (Sustainability), Section 4.12 (Electrical), Section 5.3 (Exterior Enclosure), Section 5.8 (Plumbing), and Section 5.10 (HVAC), pp. 36-38, 46, 48-50, 71, 84, 88, 95, and 103-104.

Control Devices and the City's Regulations for Working in San Francisco Streets, eighth edition (also known as the "Blue Book") and applicable public works orders such as public works order 200369 related to standard paving materials in the public rights-of-way.[65] Traffic, transit, pedestrian, and bicycle flow around a construction zone would be guided by the California Manual on Uniform Traffic Control Devices and the Blue Book, as dictated by the general contractor, with concurrence and approval by the City traffic engineer. Traffic speeds would likely be reduced adjacent to a construction zone and loading spaces would be relocated away from active construction zones.

Construction protocols outlined in the Blue Book and public works orders include the following key topics:

- General job site safety and housekeeping by contractors
- Safe path of travel for all modes
- Parking and commercial/passenger loading restrictions (permitted/non-permitted)
- Dust controls
- Construction staging and storage of materials and equipment
- Night noise permits, noise levels (day and night)
- General traffic and transit flow
- Holiday moratoria

If the project is approved, the project sponsor team would prepare construction-level plans and documents, which would include a detailed approach to project construction logistics. Project construction would follow a typical phased approach, as discussed below under "Construction Duration." The construction plan would address issues related to circulation (transit, vehicle, pedestrian, and bicyclist), safety, construction staging, parking, and other activities in the area during the construction period and include detailed traffic control and detour plans.

Additionally, all construction contracts for the proposed project require the inclusion of public works' Standard Construction Measures (SCMs) in bid packages for the purposes of protecting human health and safety as well as environmental resources. The SCMs incorporated as part of the proposed project, as shown in **Table 2.3: San Francisco Public Works Standard Construction Measures**, are related to the following environmental resource areas or related topics: seismic and geotechnical considerations, air quality, water quality, traffic, noise, hazardous materials, biological resources (bird protection, tree conservation, environmentally sensitive areas), visual and aesthetic considerations (construction staging), and cultural resources (archeological resources and historic architectural resources).

[65] San Francisco Public Works, Public Works Orders, *https://sfpublicworks.org/services/permits/public-works-orders*, accessed April 5, 2021.

Table 2.3: San Francisco Public Works Standard Construction Measures

Public Works' Standard Construction Measure #1, Seismic and Geotechnical Studies The project manager shall ensure that projects that may potentially be affected by existing soil, slope and/or geologic conditions at the project site will be screened for liquefaction, subsidence, landslide, fault displacement, and other geological hazards at the project site, and will be engineered and designed as necessary to minimize risks to safety and reliability due to such hazards. As necessary, geotechnical investigations will be performed.
Public Works' Standard Construction Measure #2, Air Quality All projects will comply with the Construction Dust Control Ordinance (see Attachment A **[Public Works' Standard Construction Measures for Public Works Projects, June 26, 2017]**). Major construction projects that are estimated to require 20 or more days of cumulative work within the Air Pollutant Exposure Zone must comply with the additional clean construction requirements of the Clean Construction Ordinance (see Attachment B **[Public Works Standard Construction Measures for Public Works Projects, June 26, 2017]**).
Public Works' Standard Construction Measure #3, Water Quality All projects will implement erosion and sedimentation controls to be tailored to the project site, such as fiber rolls and/or gravel bags around stormdrain inlets, installation of silt fences, and other such measures sufficient-to prevent discharges of sediment and other pollutants to storm drains and all surface waterways, such as San Francisco Bay, the Pacific Ocean, water supply reservoirs, wetlands, swales, and streams. As required based on project location and size, a Stormwater Control Plan (in most areas of San Francisco) or a Stormwater Pollution Prevention Plan (SWPPP) (in certain areas of San Francisco) will be prepared. If uncontaminated groundwater is encountered during excavation activities, it will be discharged in compliance with applicable water quality standards and discharge permit requirements. Groundwater contamination is addressed in item 6 below.
Public Works' Standard Construction Measure #4, Traffic All projects will implement traffic control measures sufficient to maintain traffic and pedestrian circulation on streets affected by construction of the project. The measures will also, at a minimum, be consistent with the requirements of San Francisco Municipal Transportation Agency (SFMTA)'s Blue Book. Traffic control measures may include, but not be limited to, flaggers and/or construction warning sign age of work ahead; scheduling truck trips during non-peak hours to the extent feasible; maintaining access to driveways, private roads, and off-street commercial loading facilities by using steel trench plates or other such method; and coordination with local emergency responders to maintain emergency access. Any temporary rerouting of transit vehicles or relocation of transit facilities would be coordinated with SFMTA Muni Operations.
Public Works' Standard Construction Measure #5, Noise All projects will comply with local noise ordinances regulating construction noise. Public Works shall undertake measures to minimize noise disruption to nearby neighbors and sensitive receptors during construction. These efforts could include using best available noise control technologies on equipment (i.e., mufflers, ducts, and acoustically attenuating shields), locating stationary noise sources (i.e., pumps and generators) away from sensitive receptors, erecting temporary noise barriers, and other such measures. During nighttime construction activities, the following shall apply: impact tools and vibratory pile drivers shall have intake exhaust mufflers and/or acoustically attenuating shields or shrouds recommended by the manufacturers and approved by the Director of Public Works; the construction contractor shall avoid using water blasters; arid the use of vehicles that are legally required to be equipped with backing warning alarms will be reduced to the extent feasible; and administrative controls as defined in the California Code of Regulations, Title 8 Sec. 1592 will be used for worker protection for backing movements by other vehicles. Hours of vibration-intensive activities, such as vibratory pile driving, shall be restricted to between 7:00 a.m. and 8:00 p.m.

Public Works' Standard Construction Measure #6, Hazardous Materials Projects that involve excavation of 50 cubic yards of soil in the Maher Z will comply with the Maher Ordinance (see Attachment C **[Public Works' Standard Construction Measures for Public Works Projects, June 26, 2017]**. Projects on sites that are not currently located in the Maher Zone but have the potential to contain hazardous materials in soil and/or groundwater will be referred to the Department of Public Health as newly identified Maher sites.
Public Works' Standard Construction Measure #7, Biological Resources Projects will comply with all local, State, and federal requirements for surveys, analysis, and protection of biological resources (e.g., Migratory Bird Treaty Act, Federal and State Endangered Species Acts, etc.). All project sites and the immediately surrounding area will be screened to determine whether biological resources may be affected by construction. If biological resources are present, a qualified biologist will carry out a survey of the project site to note the presence of general biological resources and to identify whether habitat for special-status species and/or migratory birds is present. If necessary, measures will be implemented to protect biological resources, such as installing wildlife exclusion fencing, establishing work buffer zones, installing bird deterrents, monitoring by a qualified biologist and other such measures. If, tree removal is required, Public Works will comply with any applicable tree protection ordinance.
Public Works' Standard Construction Measure #8, Visual and Aesthetic Considerations, Project Site All project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from public view, and on currently paved or previously disturbed areas, where possible. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon project completion, project sites on City-owned lands will be returned to their general pre-project condition, including re-grading of the site and re-vegetation or re-paving of disturbed areas to the extent this is consistent with Public Works Bureau of Urban Forestry Policy and San Francisco Code. Project sites on non-City land will be restored to their general pre-project condition so that the owner may return them to their prior use, unless otherwise arranged with the property owner.
Public Works' Standard Construction Measure #9, Cultural Resources All projects that will alter a building or structure, produce vibrations, or include soil disturbance[1] will be screened to assess whether cultural resources are or may be present and could be affected, as detailed below. *Archeological Resources.* No archeological review is required for a project that will not entail soil disturbance. Projects involving soil disturbance will initially be screened by Public Works Regulatory Affairs staff to identify whether there is demonstrable evidence of prior soil disturbance at the project site to the maximum vertical and horizontal extent of the current project's planned disturbance. Public Works will complete the Public Works Preliminary Archeological Checklist (PAC), Part I only (see Attachment D **[Public Works' Standard Construction Measures for Public Works Projects, June 26, 2017]**). For projects where prior complete soil disturbance has occurred throughout areas of planned work, Public Works will provide evidence of the previous disturbance in the environmental application to be reviewed by Environmental Planning (EP) Archeological staff. 1. For projects that are on previously undisturbed sites or where the depth/extent of prior soil disturbance cannot be documented, or where the planned project-related soil disturbance will extend beyond the depth/extent of prior soil disturbance, additional screening will be carried out as detailed below and shown on the flow chart titled "Public Works Standard Construction Measure #9 Archeological Assessment Process" (see Attachment E **[Public Works' Standard Construction Measures for Public Works Projects, June 26, 2017]**). The EP Archeologist will complete the Preliminary Archeological Checklist, Part II (PAC) for the project, which will include recommendations for one of three Standard Archeological Measures (I - Discovery, II - Monitoring, or III - Testing/Data Recovery) to be implemented by Public Works to protect and/or treat significant archeological resources identified as being present within the site and potentially affected by the project (see Attachments F, G and H **[Public Works' Standard**

Construction Measures for Public Works Projects, June 26, 2017]). Additional research and documentation, such an Archeological Research Design and Treatment Plan (ARDTP), Archeological Sensitivity Study (ASA), or an archeological field survey, may also be requested by the EP Archeologist. These documents should be completed by a qualified consultant from the EP Archeological Resources Consultant Pool and should by scoped, reviewed, and approved by the EP Archeologist.

2. Public Works shall implement the PAC recommendations prior to and/or during project construction consistent with Standard Archeological Measures I, II, and III, and shall consult with the EP Archeologist in selecting a qualified archeological consultant from the EP Archeological Resources Consultant Pool, as needed, to implement these measures.
3. Soil-disturbing activities in archeologically sensitive areas, as identified through the above screening, will not begin until required preconstruction archeological measures of the PAC (e.g., preparation of an Archeological Monitoring Plan, Archeological Treatment Plan, and/or an Archeological Research Design and Data Recovery Plan) have been implemented.

Public Works, the EP Archeologist and the ERO will revisit the PAC process outlined above one year after these measures are finalized.

Historic (Built Environment) Resources. Public Works will consult with CCSF Planning Department Preservation staff to determine if projects that would modify an existing building, structure, or landscape feature require preservation review and if a Historic Resource Evaluation (HRE) will be required. The HRE will be prepared by a qualified architectural historian and will be scoped with CCSF Planning Department Preservation staff. Where the potential for the project to have adverse effects on an historical resource is identified by CCSF Planning Department Preservation staff, the CCSF Planning Department Preservation Planner will consult with Public Works to determine if the project can be conducted as planned or if the project design can be revised to avoid the significant impact. If these options are not feasible, the project will need to undergo further environmental review with the CCSF Planning Department and mitigation may be required. If so, the project would not qualify for a Categorical Exemption from CEQA review.

Within historic districts established by ordinance, and/or mapped by the San Francisco Planning Department as eligible for or on the California Register of Historic Resources and/or the National Register of Historic Places, all distinctive sidewalk elements such as brick surfacing, brick gutters, granite curbs, cobblestones and non-standard sidewalk scoring, and streetscape elements that may include, but are not limited to, streetlights, sidewalk lights, sidewalk elevators and chutes, benches, and utility plates, that appear to be 45 years or older will be treated as potentially character-defining features of their respective historic districts. For those locations, historic materials will be protected in place (preferred method), salvaged and re-installed, or replaced in kind to match the existing color, texture, material, and character of the existing condition.

Where construction will take place in proximity to a building or structure identified as a significant historical resource but would not otherwise directly affect it, Public Works will implement protective measures, such as but not limited to, the erection of temporary construction barriers to ensure that inadvertent impacts to such buildings or structures are avoided. These measures shall require the development of a Construction Best Practices for Historical Resources Plan and a plan outlining the Construction Monitoring for Historical Resources Program to be reviewed and approved by CCSF Planning Department Preservation staff.

If a project includes or is directly adjacent to historic buildings or structures susceptible to vibration (such as but not limited to unreinforced masonry, earthen construction, lathe and plaster, or fragile architectural ornamentation) as determined in consultation with CCSF Planning Department Preservation staff, Public Works will determine if vibrations associated with proposed construction activities has the potential to cause damage to such buildings or structures. Generally, vibration below 0.12 inches per second peak particle velocity does not have the potential to damage sensitive buildings or structures. A vibration study may be necessary to determine if such vibration levels will occur. If Public Works determines in consultation with CCSF Planning Department Preservation staff that vibration damage may occur, Public Works will engage a qualified historic architect or historic preservation professional to document and photograph the preconstruction condition of the building and prepare a plan for monitoring the building during construction. The monitoring plan will be

submitted to and approved by CCSF Planning Department Preservation Planner prior to the beginning of construction and will be implemented during construction. The monitoring plan will identify how often monitoring will occur, who will undertake the monitoring, reporting requirements on vibration levels, reporting requirements on damage to adjacent historical resources during construction, reporting procedures to follow if such damage occurs, and the scope of the preconstruction survey and post-construction conditions assessment. If any damage to a historic building or structure occurs, Public Works will modify activities to minimize further vibration. If any damage occurs, the building will be repaired following the Secretary of the Interior's Standards for the Treatment of Historic Properties under the guidance of a qualified historic architect or historic preservation professional in consultation with CCSF Department Preservation Planner.

Note:

[1] Soil is defined as native earthen deposits or introduced earthen fill. Soil does not include materials that were previously introduced as part of the roadway pavement section including asphalt concrete wearing surface, roadway base, and subbase.

Source: San Francisco Public Works Standard Construction Measures for Public Works Projects, June 26, 2017 (see **EIR Appendix C**).

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EIR Appendix C, San Francisco Public Works' Standard Construction Measures for Public Works Projects and Draft Construction Contract Procedures, contains a copy of the SCMs and other measures. In addition to these SCMs, the proposed project would also be subject to other pertinent City regulations governing construction in the public right-of-way. One such regulation is public works code section 2.4.20, which requires contractors to prepare a parking plan when conducting major excavation activities (i.e., excavation expected to last more than 30 days, which is assumed for the proposed project). The plan would be subject to review and approval by public works.

CONSTRUCTION DURATION

The SFMTA estimates that construction of the proposed project would take three to four years to complete, with construction beginning in 2023 and building occupancy by the end of 2026 As explained above, during construction, the bus parking, operations, and maintenance support functions would temporarily relocate to other SFMTA facilities. The three- to four-year construction period would include some overlapping phases of demolition, excavation, foundation work, and building construction. As shown in **Table 2.4: Construction Duration by Phase**, site preparation and demolition would last approximately two months. Excavation, shoring, grading, and installation of piles for the foundation system would last approximately six months. Completion of the foundation system and basement construction would last approximately two months. Building construction would last approximately 26 months, with paving and architectural coating estimated to take a month each.

Table 2.4: Construction Duration by Phase

Construction Phase	Duration (months)
Site Preparation and Demolition NOTE A	2
Excavation, Shoring, Grading, and Pile Installation NOTE A	6
Foundation and Basement Construction NOTE A	2
Building Construction	26
Paving	1
Architectural Coatings	1
Total Duration	**38**

Note:
NOTE A Site preparation, demolition, excavation, shoring, grading, and pile installation and completion of the foundation and below-grade portion of structure can be reasonably assumed to include schedule overlaps that would allow an expedited 36-month construction schedule.
Source: SFMTA 2020.

Construction-related activities would typically occur Monday through Saturday, between 7 a.m. and 8 p.m. as allowed in San Francisco, with most work occurring between Monday through Friday. Nighttime construction is anticipated for certain activities such as major concrete pours; however, construction on Sundays and major legal holidays is not anticipated.

CONSTRUCTION STAGING

Construction staging would occur on-site and on the surrounding sidewalks. There would be no pedestrian access to the sidewalks surrounding the site for most or all of the construction period. The existing bus stop at the southeast corner of Bryant and 17th streets would be relocated or removed. On Mariposa Street between Bryant and Hampshire streets, the parking lanes on the north side and the westbound travel lane would be closed during the first 12 months of construction to provide for additional space for staging. Westbound vehicles on Mariposa Street would be detoured to 17th and/or 18th streets, which are both two-way streets. Hampshire Street between 17th and Mariposa streets would be partially closed on a temporary, as-needed basis to provide additional space for laydown and staging.

DEMOLITION, EXCAVATION, AND FOUNDATION

Site preparation would begin with demolition and clearing of the existing building, vehicle service pits, foundations, control booth, and paved areas on the east side of the project site. On the west side the paved areas of the bus storage yard, obsolete utilities, overhead catenary system support poles and cables, bus wash station infrastructure, surround retaining walls and fencing, and any other at-grade elements, including the adjacent sidewalks, would be demolished. All demolition debris would be removed from the site.

Construction of the proposed building would require excavation to a depth of approximately 35 feet below ground surface for the basement level, with slightly greater excavation for vehicle maintenance pits (i.e., lower-level work areas) and elevator pits. Assuming full demolition and excavation to a depth of 35 feet across the whole site, approximately 248,900 cubic yards of soils would need to be removed from the site.

Based on information in the preliminary geotechnical investigation (geotechnical report) for the proposed project, dewatering and pre-treatment prior to release to the combined sewer system would be required given anticipated excavation depths beneath the groundwater table.[66] Below-grade excavation would require the replacement of some or all of the retaining walls along the north, east, and west sides of the site, and temporary shoring would be needed to support the planned cuts for the final basement configuration. The proposed foundation system would consist of a shallow foundation of spread footings at column locations or a structural mat slab bearing on bedrock along the northeast portion of the site with a deeper foundation bearing on pile groups to support development in other areas of the site.[67] The project would include a deep foundation

[66] ARUP/RYCG, SFMTA Potrero Yard Facility Rebuild Geotechnical Engineering Report, November 11, 2019, p. 22.

[67] ARUP/RYCG, SFMTA Potrero Yard Facility Rebuild Geotechnical Engineering Report, November 11, 2019, pp. 27-39.

system supported by driven steel H-piles; however, non-displacement auger cast in place piles are also identified as an option in the geotechnical report.

ESTIMATED CONSTRUCTION COSTS

In July 2019, construction costs for the replacement transit facility and joint development (including the residential and commercial components) were estimated at approximately $495 million in 2019 dollars.

E. PROJECT VARIANTS

The SFMTA is considering four proposed variations on features of the proposed project: an Emergency Exit Relocation Variant, a Joint Development Lobby Relocation Variant, an Active 17th Street Variant, and an Employee and Family Support Variant. The first three project variants are the same as the proposed project except for the specific variations to the project described below. The last variant is also similar to the proposed project but would require site program revisions.

Each variant could be selected by the project sponsor team and decision-makers, and any variant or combination of variants could be included in the proposed project as part of an approval action. These variants do not require modifications to the proposed building envelope of the programmed development under the proposed project. Therefore, the physical environmental effects of the project variants would be the same as, or similar to, those of the proposed project. See the relevant environmental topic sections in **EIR Chapter 3, Environmental Setting and Impacts**, and **Section E** of the initial study (**EIR Appendix B**) for an analysis of the impacts of the proposed project and its project variants and a discussion of the mitigation measures identified to address those impacts. Where the environmental impacts of a project variant would be different from those identified for the proposed project, the impacts of the proposed project and project variant(s) are described and analyzed separately.

EMERGENCY EXIT RELOCATION VARIANT

Under this project variant, the proposed emergency exit and 42-foot-wide curb cut on 17th Street west of Hampshire Street that would replace the existing 52-foot-wide curb cut and driveway would be relocated to Hampshire Street south of 17th Street (see **Figure 2.3** and **Figure 2.15**, pp. 2.20 and 2.39, respectively). The relocated emergency exit would introduce a new curb cut on Hampshire Street and would result in the loss of up to five of the existing 43 perpendicular parking spaces adjacent to the project site. Turning movements necessary for trolley buses that would use this exit would also result in the loss of two of the existing 26 parking spaces on the east side of Hampshire Street south of 17th Street to provide adequate right-of-way so that the buses could exit and turn right or left on Hampshire Street. Additional street trees would be planted on 17th Street because the curb cut and driveway would be removed, and fewer trees would be retained and/or replaced on Hampshire Street. The Emergency Exit Relocation Variant would not result in any changes to the development program.

JOINT DEVELOPMENT LOBBY RELOCATION VARIANT

Under this project variant, the joint development lobby proposed on Mariposa Street between York and Hampshire streets would be relocated to Hampshire Street north of Mariposa Street to improve the pedestrian environment for future residents by limiting crossings of multiple bus driveways and curb cuts on Mariposa Street. (See **Figure 2.3** and **Figure 2.13**, pp. 2.20 and 2.37, respectively.) The proposed entrances/exits for the trolley buses and the SFMTA lobby on Mariposa Street east of York Street, as well as internal bus circulation aisles, maintenance bays, and storage, would be reprogrammed to allow for siting the joint development lobby adjacent to the proposed passenger loading zone on Hampshire Street. The Joint Development Lobby Relocation Variant would not result in any changes to the development program.

ACTIVE 17TH STREET VARIANT

Under this project variant, the proposed location of active ground-floor uses would be modified to include those uses along the 17th Street frontage. (See **Figure 2.3** and **Figure 2.12** through **Figure 2.16**, p. 2.20 and pp. 2.36-2.40, respectively.) The ground-floor commercial use proposed along Bryant Street would be relocated to 17th Street, and the internal ramps on the north portion of the site would be shifted to a more southerly location. The Active 17th Street Variant would not result in any changes to the development program.

EMPLOYEE AND FAMILY SUPPORT VARIANT

Under this project variant, the proposed mix of non-transit uses would be modified to include a childcare or related use in a portion of the space identified in the proposed project for the ground-floor commercial use along Bryant Street. (See **Figure 2.3** and **Figure 2.13**, pp. 2.20 and 2.37, respectively.) Under this variant, the proposed 33,000-gross-square-foot ground-floor commercial use would be reduced by 9,000 gross square feet to accommodate a new use. Thus, unlike the other project variants, the Employee and Family Support Variant would result in changes to the development program.

The proposed 9,000-gross-square-foot childcare use would serve up to 100 children and include 25 future employees. The proposed use would be limited to children of SFMTA employees and future residents or building tenant(s) (i.e., the commercial use in remaining 24,000-gross-square-foot ground-floor space). On-street curb regulations for Bryant Street under the proposed project would include (from north to south) a Muni bus stop (existing), nine vehicle parking spaces, a 40-foot-long commercial vehicle loading zone, and a 60-foot-long passenger loading zone (see

Figure 2.3). Thus, without reconfiguring the proposed commercial and passenger loading zones, under this variant up to nine on street parking spaces would be converted to passenger loading for the childcare use. Open space needs would be met onsite as part of the programmed open space on the rooftop of the 75-foot-tall transit facility podium, at Franklin Square directly across from the project site, or a combination thereof. The proposed raised crosswalk and rectangular rapid flash beacon for the pedestrian crossing of 17th Street at Hampshire Street would facilitate safe use of Franklin Square and elevators would allow access to the rooftop open space.

F. ANTICIPATED PROJECT APPROVALS

Implementation of the proposed project or its variants would require changes to the existing development controls for the project site through planning code and zoning map amendments, including changes to accommodate the newly proposed mix of land uses and the proposed building's height/bulk. The following is a preliminary list of anticipated approval actions for the proposed project or its variants and is subject to change. These approvals may be considered by City decision-makers in conjunction with the required environmental review, but they may not be granted until the required environmental review has been completed and certified.

ACTIONS BY THE SAN FRANCISCO PLANNING COMMISSION

- Adoption of Findings of Consistency with the general plan and priority policies of planning code section 101.1
- Recommendation to the San Francisco Board of Supervisors (board of supervisors) to amend the general plan, including but not limited to the Mission Area Plan and the Urban Design Element
- Recommendation to the board of supervisors to amend the planning code and zoning maps by 1) establishing a Special Use District (SUD) to accommodate residential and commercial uses and to designate the boundaries of the SUD; (2) maintaining the underlying zoning from P (Public); and (3) changing the height and bulk designation from 65X to a designation that accommodates heights to a maximum 150 feet
- Approval either through a Conditional Use authorization under planning code section 303, Large Project authorization under planning code section 329, or similar project authorization pursuant to the SUD

ACTIONS BY THE BOARD OF SUPERVISORS

- Adoption of Findings of Consistency with the general plan and priority policies of planning code section 101.1
- Approval of amendments to the general plan, planning code, and zoning maps
- Approval of a Project Agreement and ancillary sub-agreements, as needed, with the selected Principal Project Company, binding the SFMTA and the Principal Project Company into a commercial and financial obligation for the construction and maintenance of the project, and operation of the Housing and Commercial Component

- Approval of a Lease Agreement (or other similar disposition agreement) for the Principal Project Company to operate the Housing and Commercial Component
- Approval of a resolution approving and authorizing the Director of the Mayor's Office of Housing & Community Development to execute a loan agreement, or other similar funding agreement, to finance a portion of the construction of affordable, multifamily rental housing.

ACTIONS BY OTHER CITY DEPARTMENTS

- San Francisco Municipal Transportation Agency
  - Recommendation to the board of supervisors of a Project Agreement, and ancillary sub-agreements, as needed, with the selected Principal Project Company, binding the SFMTA and the Principal Project Company into a commercial and financial obligation for the construction and maintenance of the project
  - Recommendation to the board of supervisors of a Lease Agreement (or other similar disposition agreement) for the Principal Project Company to operate the Housing and Commercial Component
  - Approval of request for on-street passenger (white) loading zones on Bryant and Hampshire streets
  - Approval of a special traffic permit from the Streets Division if sidewalk(s) are used for construction staging and pedestrian walkways are constructed in the curb lane(s)
  - Approval of construction within the public right-of-way (e.g., bulbouts and sidewalk extensions) to ensure consistency with the Better Streets Plan
  - Approval of the placement of bicycle racks on the perimeter sidewalks
  - Other actions and approvals related to its jurisdictional authority
- San Francisco Mayor's Office of Housing and Community Development
  - Recommendation to the board of supervisors of a resolution approving and authorizing the Director of the Mayor's Office of Housing & Community Development to execute a loan agreement, or other similar funding agreement, to finance a portion of the construction of affordable, multifamily rental housing.
- San Francisco Public Works
  - Public hearing and approval of permits to remove and replace street trees on 17th, Hampshire, and Bryant streets
  - Approval of a street space permit from the Bureau of Street Use and Mapping if sidewalk(s) are used for construction staging and pedestrian walkways are constructed in the curb lane(s)
  - Recommendation to the board of supervisors to approve legislation for sidewalk widening
  - Other actions and approvals related to its jurisdictional authority
- San Francisco Department of Building Inspection
  - Approval of demolition, excavation, grading, and building permits

- Approval of a construction permit for non-potable water system
- Approval of a permit for nighttime construction if any night construction work is proposed that would result in noise greater than 5 dBA above ambient noise levels, as applicable.
- Approval of plumbing plans for non-potable water reuse system per the Non-potable Water Ordinance
- Other actions and approvals related to its jurisdictional authority

- San Francisco Public Utilities Commission
  - Approval of an Erosion and Sediment Control Plan, in accordance with article 4.1 of the public works code
  - Approval of any changes to sewer laterals (connections to the City sewer system)
  - Approval of any changes to existing publicly owned fire hydrants, water service laterals, water meters, and/or water mains
  - Approval of the size and location of new fire, standard, and/or irrigation water service laterals
  - Approval of post-construction stormwater design guidelines including a Stormwater Control Plan, in accordance with City's 2016 Stormwater Management Requirements and Design Guidelines
  - Approval of Landscape Plan per the Water Efficient Irrigation Ordinance
  - Approval of the use of dewatering wells per article 12B of the health code (joint approval by the health department)
  - Approval of documentation for non-potable water reuse system per the Non-potable Water Ordinance
  - Other actions and approvals related to its jurisdictional authority
- San Francisco Recreation and Park Commission
  - Review and comment to the San Francisco Planning Commission about the shading or shadowing that the project will cause per planning code section 295 (Sunlight Ordinance)
  - Actions and approvals related to its jurisdictional authority
- San Francisco Department of Public Health
  - Approval of a site mitigation plan per San Francisco Health Code article 22A (Maher Ordinance)
  - Approval of a construction dust control plan per San Francisco Health Code article 22B (Construction Dust Control Ordinance)
  - Approval of the use of dewatering wells per article 12B of the health code (joint approval by the San Francisco Public Utilities Commission)
  - Review and approval of design and engineering plans for the non-potable water reuse system and testing prior to issuance of Permit to Operate
  - Other actions and approvals related to its jurisdictional authority

- San Francisco Arts Commission
  - Recommendation of the Visual Arts Committee and approval by the Arts Commission of public art installation as required by San Francisco Administrative Code Section 3.19 (Art Enrichment Ordinance)
  - Multi-phase approval of the project design by the Civic Design Review Committee at the project's schematic design, design development, and construction document phases.

ACTIONS BY OTHER GOVERNMENT AGENCIES

- Bay Area Air Quality Management District
  - Approval of any necessary air quality permits for installation, operation, and testing (e.g., Authority to Construct/Permit to Operate) for individual air pollution sources, such as boilers and emergency standby diesel generator
  - Approval of the Asbestos Dust Mitigation Plan for construction and grading operations per California Code of Regulations Title 17, section 93105

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3. ENVIRONMENTAL SETTING AND IMPACTS

A. IMPACT OVERVIEW

EIR Chapter 3, Environmental Setting and Impacts, addresses the physical environmental effects of the proposed project and project variants. This introduction to **EIR Chapter 3** presents the general format of the environmental analysis in each environmental topic section. It provides a general description of the approach to the project's analysis of environmental impacts, including cumulative projects that are considered in the cumulative impact analyses. This chapter also describes the existing environmental conditions of the project area.

This Environmental Impact Report (EIR), including the initial study (**EIR Appendix B**), analyzes the physical environmental impacts associated with implementation of the proposed project or project variants. The analysis includes consideration of environmental impacts associated with both construction and operation of the proposed project or project variants, as appropriate for the particular resource topic. As described in **EIR Chapter 2, Project Description**, pp. 2.56-2.58, the project variants are minor modifications to the project as proposed: the Emergency Exit Relocation Variant, which would relocate the bus emergency exit from 17th Street to Hampshire Street; the Joint Development Lobby Relocation Variant, which would relocate a ground-floor joint development lobby from Mariposa Street to Hampshire Street; the Active 17th Street Variant, which would relocate internal bus ramps from the north side to south side of the site to allow joint development uses along 17th Street; and the Employee and Family Support Variant, which would reprogram ground-floor commercial use to include a childcare use. Thus, for particular resource topics, such as noise and vibration, the project variants would not result in different effects than those with the proposed project. Therefore, the four variants are not analyzed separately. For topics where a separate analysis is necessary, such as Transportation and Circulation, the project variant analyses follow the proposed project analysis and, where applicable, the variants' analysis is consolidated.

SCOPE OF ANALYSIS

INITIAL STUDY

The San Francisco Planning Department (planning department) distributed a Notice of Preparation (NOP) of an EIR and Notice of Public Scoping Meeting on August 19, 2020, announcing its intent to prepare an EIR, including an initial study, and to solicit comments from the public about the scope of this EIR (the NOP is presented as **EIR Appendix A**). The initial study (**EIR Appendix B**) determined that project-specific and cumulative impacts in certain resource topic areas would not require additional analysis in the EIR because the proposed project or project variants would have no impact, less-than-significant impacts, or less-than-significant impacts with mitigation included (see p. 3.A.5 for definitions of the levels of significance). These topic areas are:

- Land Use and Planning (all topics)
- Population and Housing (all topics)
- Cultural Resources (archaeological resources and human remains)
- Tribal Cultural Resources (all topics)
- Noise (aviation-related topics)
- Greenhouse Gas Emissions (all topics)
- Recreation (all topics)
- Utilities and Service Systems (all topics)
- Public Services (all topics)
- Biological Resources (all topics)
- Geology and Soils (all topics)
- Hydrology and Water Quality (all topics)
- Hazards and Hazardous Materials (all topics)
- Mineral Resources (all topics)
- Energy (all topics)
- Agricultural and Forest Resources (all topics)
- Wildfire (all topics)

Please refer to the initial study in **EIR Appendix B** for a discussion and the impact analysis of the proposed project or project variants with respect to these resource topics.

EIR TOPICS

As determined and guided by findings of the initial study (**EIR Appendix B**), the proposed project or project variants could result in potentially significant impacts in the following topic areas:

- Cultural Resources (historic architectural resources only)
- Transportation and Circulation (all topics)
- Noise (all topics except aviation-related ones)
- Air Quality (all topics)
- Wind
- Shadow

These topics are analyzed in this chapter. Comments on the NOP submitted by mail and email and made at the public scoping meeting are briefly discussed in **EIR Chapter 1, Introduction**, pp. 1.3-1.5. The NOP comments related to the proposed project's physical environmental impacts were considered in preparing this analysis and are addressed under the relevant environmental topics in this chapter and in **Section E** of the initial study.

Automobile Delay and Vehicle Miles Traveled

Public resources code section 21099(b)(1) required that the State Office of Planning and Research (OPR) develop revisions to the California Environmental Quality Act (CEQA) Guidelines establishing criteria for determining the significance of transportation impacts of projects that promote the "reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Section 21099(b)(2) states that upon certification of the revised CEQA Guidelines for determining transportation impacts pursuant to section 21099(b)(1), automobile delay, as described solely by level of service (LOS) or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA. Effective July 1, 2020, the new CEQA Guidelines section 15064.3 establishes vehicle miles traveled (VMT) as the most appropriate measure of transportation impacts, declares automobile delay as not constituting a significant environmental impact (except for roadway capacity projects), and creates a presumption of no significant transportation impacts for land use projects within one-half mile of an existing major transit stop or land use projects that reduce VMT below existing conditions.

FORMAT OF THE ENVIRONMENTAL ANALYSIS

Each environmental topic considered in this chapter comprises three main subsections: Introduction, Environmental Setting, Regulatory Framework, and Impacts and Mitigation Measures.

- **Introduction**. The "Introduction" subsection includes a brief description of the types of impacts that are analyzed as well as a summary of the impacts that were scoped out in the initial study (e.g., impacts that were determined to result in a less-than-significant impact or no impact).
- **Environmental Setting**. The "Environmental Setting" subsection describes the existing conditions at the project site and in the project site vicinity. As provided in the CEQA Guidelines section 15125(a), existing conditions are generally defined as the physical environmental conditions that exist at the time an NOP is published, or if no NOP is published, at the time the environmental analysis is commenced. Thus, the existing conditions for the proposed project are those at the time the NOP was published on August 19, 2020. Existing conditions serve as the baseline physical setting for the project site and its surroundings at the beginning of the environmental review process (e.g., existing traffic conditions and noise environment).[1] The analysis of environmental impacts is focused on adverse physical changes that could result from implementation of the

[1] The analysis in this EIR considered the effects of the COVID-19 pandemic on environmental conditions and the subsequent changes in public and private business and enterprise practices. Data collected for the analysis follows department guidance and updates.

proposed project, described in the "Impacts and Mitigation Measures" subsection for each topic.

- **Regulatory Framework**. The "Regulatory Framework" subsection describes the relevant federal, state, and local regulatory requirements that are directly applicable to the environmental topic being analyzed.
- **Impacts and Mitigation Measures**. The "Impacts and Mitigation Measures" subsection describes the physical environmental impacts (i.e., the changes to baseline physical environmental conditions) that could result from implementation of the proposed project, as well as any mitigation measures that could avoid, eliminate, or reduce identified significant impacts. Where applicable, both construction and operational impacts are analyzed as well as project-specific and cumulative impacts. This subsection begins with a listing of the significance criteria used by the planning department to determine whether an impact is significant. "Approach to Analysis" explains the parameters, assumptions, and data used in the analysis. "Project Features" summarizes the particular aspects of the proposed project that are relevant to each topic.

  Under the "Impact Evaluation" discussion, each project-level impact begins with an impact statement that reflects one or more of the applicable significance criteria. Some significance criteria may be combined in a single impact statement, if appropriate. Each impact statement is identified by a subject area abbreviation (e.g., NO for Noise and Vibration) and an impact number (e.g., 1, 2, 3) for a combined alpha-numeric code (e.g., **Impact NO-1**, **Impact NO-2**, etc.).

  CEQA Guidelines section 15126.4 directs preparers of an EIR to describe feasible measures that could minimize significant adverse impacts. Mitigation measures are developed to avoid, minimize, rectify, reduce, or eliminate an impact or compensate for an impact resulting from project implementation. CEQA Guidelines section 15041 grants authority to the lead agency to require feasible changes in any or all activities involved in a project to substantially lessen or avoid significant effects on the environment. Feasible mitigation measures have been included in this chapter for specific environmental impacts where applicable.

  When potentially significant impacts are identified, mitigation measures are presented that would avoid, eliminate, or reduce significant adverse impacts of the project. All mitigation measures will be required as conditions of project approval. Each mitigation measure has the same coding as the impact statement to which it corresponds, with an "M" in front of the code to signify it is a mitigation measure (e.g., **Mitigation Measure M-AQ-1** corresponds to **Impact AQ-1**). If there is more than one mitigation measure for the same impact statement, the mitigation measures are numbered with a lowercase letter suffix (e.g., **Mitigation Measures M-CR-1a** and **M-CR-1b**). When identified mitigation measures do not reduce the impact to a less-than-significant level CEQA requires the development of a range of feasible project alternatives to address the significant and unavoidable impact.

  Improvement measures are recommended actions, agreed to by the project sponsor, which would reduce or avoid impacts found to be less than significant. Identification of improvement measures is not required under CEQA, but they are often presented in San Francisco environmental documents to inform decision-makers of additional actions that could improve the proposed project by reducing the magnitude of less-than-significant effects. Improvement measures are designated with an "I" to signify "improvement measure," the topic code, and a letter (e.g., **Improvement Measures I-TR-A**, **I-TR-B**, etc.).

SIGNIFICANCE DETERMINATIONS

Each impact statement describes the impact that would occur without mitigation. The level of significance of the impact is indicated in parentheses at the end of the impact statement based on the following terms:

- *No Impact (NI)* – No adverse physical changes (or impacts) to the environment are expected.
- *Less than Significant (LTS)* – Impact that would not exceed the defined significance criteria or would be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations.
- *Less than Significant with Mitigation (LTSM)* – Impact that is significant but reduced to a less-than-significant level through implementation of the identified mitigation measure(s).
- *Significant and Unavoidable with Mitigation (SUM)* – Impact that exceeds the defined significance criteria and cannot be reduced to less-than-significant levels through compliance with existing local, state, and federal laws and regulations and/or implementation of all feasible mitigation measures.
- *Significant and Unavoidable (SU)* – Impact that exceeds the defined significance criteria and cannot be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations and for which there are no feasible mitigation measures.

APPROACH TO CUMULATIVE ANALYSIS

The CEQA Guidelines require that an EIR discuss cumulative impacts of a project. CEQA Guidelines section 15355 defines cumulative impacts in the following way:

> "Cumulative Impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

The discussion of cumulative impacts should reflect the severity of impact and their likelihood of occurrence, but the discussion need not provide as much detail as provided for effects attributable to the project alone (CEQA Guidelines section 15130 (b)). It should be guided by the standards of practicality and reasonableness and should focus on the cumulative impacts to which the identified other projects contribute, rather than the attributes of other projects which do not contribute to the cumulative impact.

This EIR, including the initial study, discusses the cumulative impacts analyzed for each environmental resource topic and the proposed project's or project variant's contribution to these cumulative impacts, if any. Two approaches to a cumulative impact analysis are provided in CEQA Guidelines section 15130(b)(1): (a) the analysis can be based on a list of cumulative projects producing closely related impacts that could combine with those of a project; or (b) a summary of projections contained in a general plan or related planning document can be used to determine cumulative impacts. A list-based approach refers to "a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside of the control of the agency" (CEQA Guidelines section 15130(b)(1)(A)). A projections-based approach refers to "a summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions" (CEQA Guidelines section 15130(b)(1)(B)).

The analysis of cumulative impacts by environmental resource topic involves the following steps:

1. determining the cumulative context or geographic scope and location of the cumulative projects relative to the affected resource's setting;
2. assessing the potential for project impacts to combine with those of other projects, including the consideration of the nature of the impacts and the timing and duration of implementation of the proposed and cumulative projects;
3. determining the significance of the cumulative impact; and
4. assessing whether the project's contribution to a significant cumulative effect is considerable.

CEQA does not prescribe the use of one specific approach to analyzing cumulative impacts. The rationale used to determine an appropriate list of projects considered in an individual project's cumulative analysis is explained in the discussion of cumulative impacts for each environmental topic in this EIR.

Cumulative impacts are presented in a separate subsection following each topic's project-level impact analysis. Cumulative impact statements are numbered consecutively with a combined alpha-numeric code that starts with "C" to signify it as a cumulative impact. For example, C-TR-1 refers to the first cumulative impact for Transportation and Circulation.

Projects Included in Cumulative Conditions Scenario

Table 3.A.1: Cumulative Projects presents a list of cumulative projects located within a 0.25-mile radius of the project site. These projects are considered in the various cumulative analyses for environmental resource topics that use a list-based approach to determine, for example, the potential for impacts to combine based on distance from site and construction timelines, as available. These projects are shown in **Figure 3.A.1: Cumulative Projects**, p. 3.A.9.

Table 3.A.1: Cumulative Projects

Project	Residential Units	Office (square feet)	PDR (square feet)	Retail (square feet)	Vehicular Parking (no. of spaces)	Height	Status as of December 2020
2435-2445 16th Street (2014.1201ENV)	53 NOTE A	0	0	3,265	40 (all new)	7 stories/ 68 feet (78 feet with elevator penthouse)	Building permit issued – not under construction as of December 2020
321 Florida Street (2018-016808ENV)	169 NOTE B	0	0	1,591	57 (all new)	10 stories/ 104 feet	Under environmental review
333-335 Potrero Avenue (2017-016447PRJ)	2 existing (0 net new) NOTE C	0	6,246	0	No change	5 stories/ 64 feet (74 feet with elevator penthouse)	Under planning department review – environmental review not yet conducted
1850 Bryant Street (2015-011211ENV)	0	166,728	18,407	2,285 (-11,515 net change)	91 (27 net new) NOTE D	5 stories/ 68 feet	Building permit issued – not under construction as of December 2020
2601 Mariposa Street (2018-013621ENV)	0	40,282	90,136	0	85 (-4 net change) NOTE E	3 stories/ 64 feet (75 feet with addition)	Construction will be completed by end of 2021 prior to project construction
681 Florida Street (2017-014088PRJ)	130 NOTE F	0	9,140 (-9,860 net new) NOTE G	0	0	9 stories/ 87 feet (96 feet with elevator penthouse)	Building permit issued – under construction
2750 19th Street (2014.0999ENV)	60	0	10,000		26	6 stories/ 68 feet (78 feet with rooftop equipment)	Building permit issued – not under construction as of December 2020
2747 19th Street (2019-020627ENV)	1	10,795 (3,230 net new) NOTE H	0	0	10 (-2 net change) NOTE I	4 stories/ 39 feet	Under planning department review – Categorical Exemption issued 12/30/2019
300 Kansas Street (2018-001122ENV)	0	0	137,500 (106,686 net new) NOTE J	0	60 (53 net new) NOTE K	6 stories/ 68 feet	Building permit under review
312 Utah Street (2019-022419ENV)	3	0	0	0	4 (2 existing, 2 net new)	4 stories	Under planning department review

Project	Residential Units	Office (square feet)	PDR (square feet)	Retail (square feet)	Vehicular Parking (no. of spaces)	Height	Status as of December 2020
480 Potrero Avenue (2019-022810PRJ)	1 NOTE M	0	0	0 (-841 net new)	47 (0 net new)	6 stories / 58 feet	Planning department approved – CEQA Class 1 Categorical Exemption issued 10/15/20 – building permit under review
Totals ***(Net New)***	**419** ***(417)***	**217,805** ***(210,240)***	**271,429** ***(221,615)***	**7,141** ***(-7,500)***	**452** ***(199)***	*NA*	*NA*

Notes:

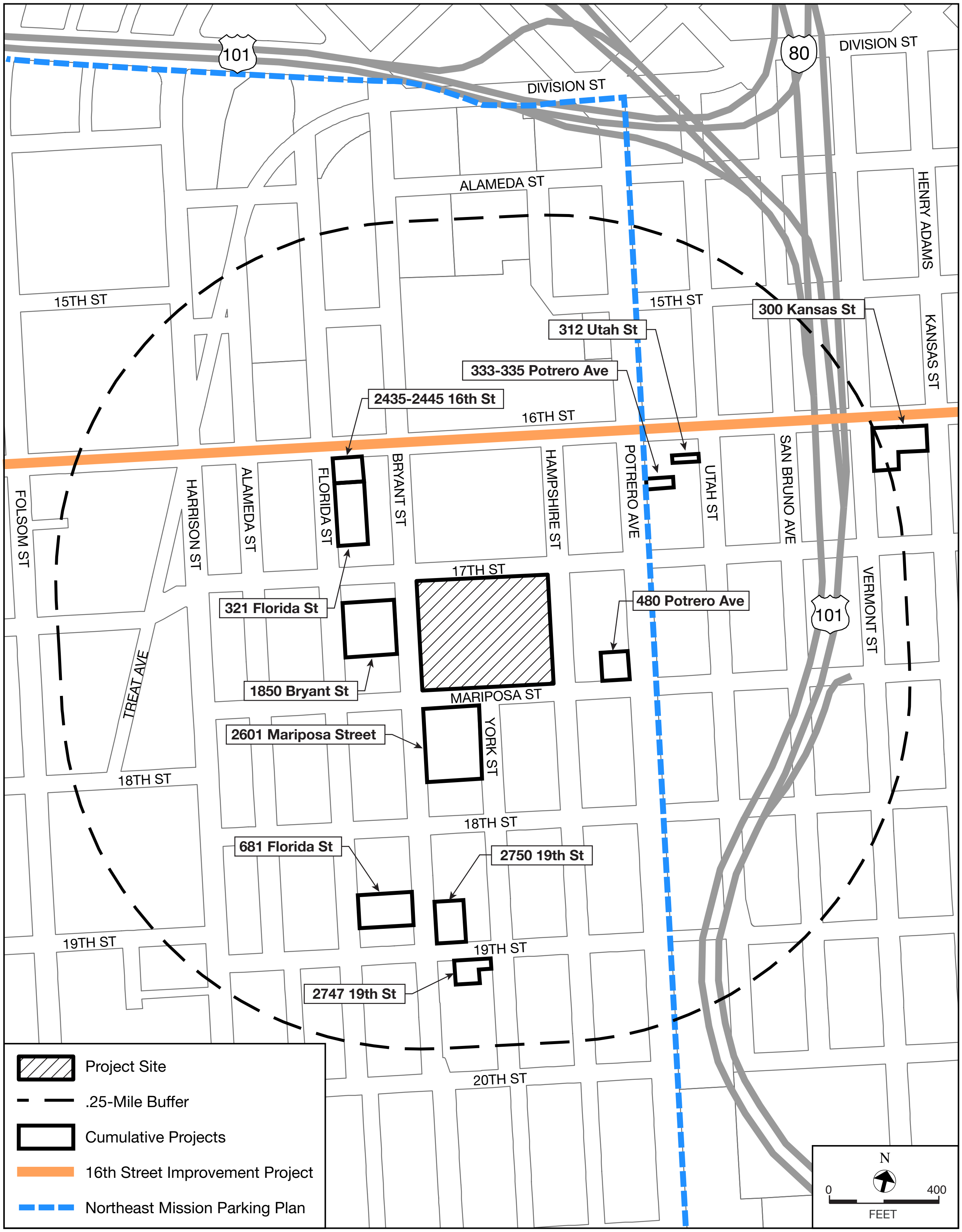
[A] 5 three-bedroom units, 18 two-bedroom units, and 30 one-bedroom units
[B] 68 two-bedroom units, 37 one-bedroom units, and 64 studio units– with 31 affordable units
[C] Expansion of two existing residential units
[D] Project application and approval documents indicate a 27,300-square-foot existing surface lot. For purposes of estimates in this table, equates to approximately 64 existing parking spaces, but 91 spaces provided in project; therefore, about 27 net new spaces.
[E] 89 existing parking spaces, but 85 spaces in project; therefore, -4 net new spaces
[F] 44 studios, 31 one-bedroom units, 38 two-bedroom units, and 17 three-bedroom units – all 130 units are affordable units
[G] Project replaces 19,000 square feet of production, distribution, and repair use
[H] 10,795 square feet of office, with 3,230 net new
[I] 12 existing parking spaces, but 10 spaces in project; therefore, -2 net new spaces
[J] 137,500 square feet of production, distribution, and repair use, with 106,686 square feet net new
[K] 7 parking spaces existing, but 60 spaces in project; therefore, 53 net new spaces
[L] Project involves demolition of one 17,600-square-foot commercial building and conversion of space to UPS trailer staging area. Site improvement work includes grading, paving, storm water treatment, chain link fence and gates, site lighting, and trash enclosure.
[M] Existing ground-floor commercial uses onsite would be converted to one new residential unit

Source: San Francisco Planning Department, Property Information Map Database, December 2020.

In addition to the development projects identified above, the following transportation projects are considered part of the cumulative setting:

1) 16th Street Improvement Project (currently under construction, with completion scheduled for spring 2022, before construction of the proposed project or project variants would begin)
2) SFMTA Northeast Mission Parking Management Plan (currently in the planning phase)

Other active projects in the project vicinity consist of minor modifications to existing buildings and residences, such as window replacements, installation of rooftop solar collection systems, and construction of decks. Given their minor scope, they would not combine with the proposed project or project variants in a way that could result in any cumulative impacts; therefore, they are not included in the cumulative context for any topic in the EIR.



Source: San Francisco Planning Department Property Information Database, 2020

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 3.A.1: CUMULATIVE PROJECTS

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B. HISTORIC ARCHITECTURAL RESOURCES

INTRODUCTION

EIR Section 3.B, Historic Architectural Resources, assesses project impacts on "historical resources," as defined by the California Environmental Quality Act (CEQA) Guidelines section 15064.5.[1] Other cultural resources topics (i.e., archeological resources and human remains) and Tribal Cultural Resources are discussed in sections E.4 and E.5, respectively, of the initial study (see **EIR Appendix B**, pp. 27-38).

CEQA Guidelines section 15064.5(a), in Title 14 of the California Code of Regulations, defines a "historical resource" as follows:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included on any local, state, or federal register, or identified in a qualifying historical resources survey, a lead agency may still determine that any resource is a historical resource for the purposes of CEQA if there is substantial evidence supporting such a determination. A lead agency must consider a resource to be historically

[1] California Code of Regulations, Title 14: Natural Resources, Division 6: Resources Agency, Chapter 3: Guidelines for Implementation of the California Environmental Quality Act, Article 5: Preliminary Review of Projects and Conduct of Initial Study, Section 15064.5: Determining the Significance of Impacts to Archaeological and Historical Resources, *https://govt.westlaw.com/calregs/Document/IA0E0C760D48811DEBC02831C6D6C108E?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)*, accessed November 11, 2020.

significant if it finds that the resource meets the criteria for listing in the California Register of Historical Resources (California Register).

The assessment of a project's impacts on historical resources is a two-step analysis: first, the project site is analyzed to determine if it contains a "historical resource(s)" as defined under CEQA; second, if the site is found to contain historical resources, an analysis is carried out to determine whether the project could cause a substantial adverse change to the resource. A project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment (Public Resources Code section 21084.1).

Issues identified in response to the Notice of Preparation (NOP) of an EIR and Notice of Public Scoping Meeting (**EIR Appendix A**) related to the proposed project's physical environmental impacts were considered in preparing this analysis. The San Francisco Planning Department (planning department) received some comments related to historic preservation (see **EIR Chapter 1, Introduction**, pp. 1.3-1.5).

ENVIRONMENTAL SETTING

This historic architectural resources section is based on the Historic Resource Evaluation (HRE), prepared for the proposed project by an independent historic architectural resource consultant;[2] the planning department's Historic Resource Evaluation Response, 2500 Mariposa Street, Part I: Historic Resource Evaluation (HRER Part I);[3] and the department's Historic Resource Evaluation Response, 2500 Mariposa Street, Part II: Project Evaluation (HRER Part II).[4] The HRE consists of a site and architectural description, relevant historic contexts, and a historic significance evaluation under California Register eligibility criteria. The planning department has reviewed the HRE and concurs with the HRE's analyses and conclusions which are summarized in the HRER Part I.

PROPERTY HISTORY AND DESCRIPTION

History

The San Francisco Municipal Railway (Muni), including the Potrero Trolley Coach Division Facility, was designed by Michael M. O'Shaughnessy, Chief Engineer (chief engineer) for the City and County of San Francisco's Office of the City Engineer between 1912 and 1933. The Potrero Trolley Coach Division Facility was historically known as the Potrero Car Barn. The one-story car

[2] VerPlanck Historic Preservation Consulting, Historic Resource Evaluation, Potrero Trolley Coach Division Facility, 2500 Mariposa Street, San Francisco, California, October 2, 2017. (See **EIR Appendix D-1**.)

[3] San Francisco Planning Department, Historic Resource Evaluation Response, 2500 Mariposa Street, Part I: Historic Resource Evaluation, September 25, 2020. (See **EIR Appendix D-2**.)

[4] San Francisco Planning Department, Historic Resource Evaluation Response, 2500 Mariposa Street, Part II: Project Evaluation, September 25, 2020. (See **EIR Appendix D-3**.)

barn was originally built in 1915. In 1924, the building was enlarged with second-story additions for offices along Mariposa Street (the office wing) and two maintenance shops along Hampshire Street with access from 17th Street (the shops wing). In 1948-1949 the facility was converted into an electric trolley coach transit storage and maintenance facility with a paved bus storage yard occupying the western half of the site, including the vacated York Street right-of-way. This remains the current use.

Description

Site Plan

The approximately 192,000-square-foot (or 4.4-acre) project site occupies the equivalent of roughly two typical city blocks (200 by 400 feet) and is bounded by 17th Street to the north, Hampshire Street to the east, Mariposa Street to the south, and Bryant Street to the west (see **Figure 2.2: Existing Site Plan** in **EIR Chapter 2, Project Description**, p. 2.5). The site slopes up toward the north and east (17th and Hampshire streets) and downhill toward the south and west (Mariposa and Bryant streets).

The site is divided roughly in half. The western half of the site (approximately 112,450 square feet) is occupied by the electrified bus storage yard and is paved with asphalt, with painted and numbered parking lanes in the center of the yard. The yard is enclosed on three sides by 10-foot-high steel fencing topped with outward curving balusters; it is accessed only from the south on Mariposa Street. The eastern half of the site is occupied by the 109,000-gross-square-foot maintenance and operations building. The second floor of this building includes a parking deck accessed from 17th Street with additional maintenance and body shops along the Hampshire Street side and offices along the Mariposa Street side. The elevation between the site and surrounding sidewalks and streets varies, and, due to the elevation changes, reinforced concrete retaining walls run along the western portion of 17th Street and along the northern portion of Bryant Street. Integral retaining walls are in place within the maintenance and operations building along the eastern portion of 17th Street and along Hampshire Street.

MAINTENANCE AND OPERATIONS BUILDING

The maintenance and operations building, which occupies the eastern half of the site, is in the Renaissance Revival-style, a late 19th-Century style of architecture based on Italian classical architecture from the 16th Century used widely throughout the United States for government buildings. Originally built in 1915 as a one-story car barn, the building's first story is at grade along Mariposa Street (but set back 25 feet from the property line) and below grade along 17th Street due to a cut into the natural slope of the site that was made when the streetcar barn was constructed. The building has metal-framed windows of various types, including non-operable fixed-in-place windows; "double-hung" windows that are divided into two panels with six panes on the top and six panes on the bottom, in which one or both panels slide up and down (referred to as "six-over-six double-hung windows"); and industrial-style "awning" windows with a hinged panel that opens outward. With the exception of the second-floor parking deck, all portions of the building are capped by flat roofs. Linear maintenance bays occupy the majority of the first floor of the maintenance and operations building, with north-south heavy and running repair bays separated by a row of large concrete piers. Shops and offices are located along the west, north, and east perimeters of the first floor. The floors are formed of thick concrete and the walls and ceilings are made of poured-in-place, board-formed concrete. The ceilings are divided into coffers by oversized beams that run from east to west across the building. All buses that need maintenance services enter the building from the drive aisle/northernmost bay on the building's west elevation, accessed from the paved bus storage yard, and exit from the bays on the building's south elevation along Mariposa Street that serve as vehicular entrances/exits.

The following sections describe the four exterior elevations or façades of the maintenance and operations building as well as the façades or exteriors of the accessory buildings on the project site, i.e., the control centers on Mariposa Street and on 17th Street near Hampshire Street that regulate all bus access to the paved bus storage yard and second-floor parking deck, respectively.

Primary (Mariposa Street) Façade

The office wing of the maintenance and operations building is set back 25 feet from the Mariposa Street property line. Its primary façade faces Mariposa Street and is largely symmetrical. The first story is divided into seven bays. The piers between each bay are adorned with flat pilasters capped by a classically inspired capital. From west to east, the first bay projects several inches and has been infilled. The frieze above is engraved with "MUNICIPAL RAILWAY AD 1915." Immediately above is a row of dentils. The second bay is infilled with concrete and serves as both a vehicle entrance, via a vehicular door for San Francisco Municipal Transportation Agency (SFMTA) deliveries, and as a pedestrian entrance for SFMTA staff, via an aluminum storefront entrance. Each of the remaining five bays serves as a vehicle entrance that spans the full height and width of the bay. The first story is finished with a simple frieze and cornice. The second story of the Mariposa Street façade was constructed in 1924 as an addition, and like the first story below, it is divided into seven bays. The second story houses the SFMTA's operations department and includes offices, training facilities, a dispatch office, men's and women's toilet rooms, a locker room, and a common room for the use of bus operators on break or between shifts. A projecting band spans the entire façade, forming a sill to groups of three six-over-six double-hung windows. Above the windows in the eastern-most bay is a raised medallion featuring Muni's original logo. The second story is finished with a cornice and has a wooden flagpole located on the east end of the roof behind the parapet of the easternmost bay. Other decorative details along this façade include re-entrant corner details at the east and west ends.

To the south of the westernmost bay on the Mariposa Street façade is a small, free-standing, one-story, 12-sided control center (built in 1990) for regulating access to the bus yard. A row of windows wraps around all sides of the control center.

Secondary (Hampshire Street) Façade

The Hampshire Street façade is asymmetrical. At the far south corner near Mariposa Street the two-story façade features the same frieze and cornice as the Mariposa Street façade (i.e., the office wing). The ground floor contains a pedestrian entrance capped by a classically inspired cable molding and Tuscan architrave. The frieze above is engraved with “OFFICE.” Approximately 10 feet north along Hampshire Street are three multi-light steel fixed windows with an operable sash in the middle. At the second story, the portion of the façade closest to Mariposa Street contains four double-hung metal windows that match those on the primary façade. The remaining portion of the Hampshire Street façade then recedes several inches and has an increase in parapet height by a few feet, followed by a single six-light[5] fixed window and two pairs of six-light fixed windows. As the grade changes moving north, the remainder of the façade, which is largely a blank wall with no windows, continues to match the change in grade approaching 17th Street. This portion features a simplified cornice with a circular dot motif at the top of the parapet and the intermediate sill and cornice from the primary facade. As part of the conversion from a streetcar barn to a trolley coach facility, which was completed in 1948-1949, the northernmost portion of the Hampshire Street façade and shops wing was demolished and replaced by a short wall featuring a control center at 17th and Hampshire streets.

Tertiary (17th Street) Façade

The first story of the 17th Street façade is approximately 20 feet below grade because of the differences in elevation between the site and surrounding sidewalks and streets; thus, the only visible portions are the shops wing added in 1924 and remodeled in 1948-1949 and the rear of the office wing (also added in 1924), which are set back from the 17th Street property line. The north façade of the shops wing is divided into two bays, each with a large vehicular entrance, and corresponding exits on the south. Ornamentation included with the 1924 addition was removed in 1948-1949 when the streetcar facility was converted to an electric trolley coach facility and almost 50 percent of the shops wing was demolished (north and south portions). The north (or rear) façade of the office wing (with its primary façade along Mariposa Street) is also visible from the 17th Street property line across the second-floor parking deck, although distant. It is finished in cement plaster, largely windowless, and entirely utilitarian, featuring a handful of non-historic metal doors and two metal awning windows arranged in an asymmetrical pattern.

[5] Light is a reference to the number of divisions in a window, i.e., the number of smaller panes.

At the northeast corner of the site (17th and Hampshire streets) is a small, one-story, narrow rectangular building that is connected by a wall to the secondary façade along Hampshire Street. For simplicity, the entirety of this small building is described here as part of the tertiary (17th Street) façade. It was built in 1948-1949 as part of the conversion to a trolley coach facility and formerly used as a control center for regulating bus access to the second-floor parking deck and maintenance shops. The small building has metal-framed fixed windows on its north façade that wrap around a few feet onto its east and west façades. The remainder of its east façade has no windows and is part of the northernmost part of the Hampshire Street façade built in 1948-1949 when the facility converted to an electric trolley coach facility. The east wall or façade along Hampshire Street and the former control room are finished in cement stucco and capped by a narrow crown molding. The west façade also features a pedestrian door and a band of clerestory[6] metal-framed windows. The south façade has no windows.

Quaternary (Bryant Street) Façade

The west façade is set back from the Bryant Street property line and is made up of two parts: the west façade of the second-floor maintenance bays (i.e., the shops wing) that sit on the parking deck, and the larger section that adjoins the bus yard. The larger section is further composed of two parts: the one-story maintenance shops to the north and the two-story office wing towards Mariposa Street.

The west façade of the shops wing at the east edge of the parking deck is divided into 11 bays by plain concrete piers, with every other bay accentuated by a multi-light fixed window with an awning sash in the window.

On the ground floor facing the bus yard, the one-story maintenance shops façade is divided into 18 bays but is otherwise asymmetrical. From north to south, the first bay features a large vehicle entrance and an adjoining bay with a multi-light fixed and awning window. The next four bays feature tripartite multi-light fixed and awning windows. The next two bays feature wood accordion doors. The next five bays have metal overhead rolling doors.

The southernmost part of the Bryant Street façade facing the bus yard connects with the office wing that faces Mariposa Street and features the same frieze and cornice. The first floor has been heavily altered and has several infilled windows and a new pedestrian entrance that was added in 1989-1990. The second-floor features four double-hung metal windows that match those on the primary façade.

[6] Clerestory, in this case, means a row of windows designed above the pedestrian viewing level.

HISTORIC AND ARCHITECTURAL CONTEXT

As summarized in the HRE, the project site has been evaluated under the relevant historic and architectural contexts with which it is associated. The Potrero Trolley Coach Division Facility is associated with historic context themes of the early development of Showplace Square; the San Francisco Municipal Railway; and American Car Barns and Bus Yards. It is associated with the architectural context themes of the characteristics of a car barn; the post-Earthquake period of reconstruction; and the work of Michael M. O'Shaughnessy. These themes serve as the framework within which the California Register significance criteria are applied to evaluate the eligibility of the car barn for inclusion in the California Register. An overview of the historic and architectural contexts of the project site, as described in the HRE, is presented below.

Showplace Square

The Potrero Trolley Coach Division Facility is located in the northeastern portion of the Mission District in an area that is known as "Showplace Square." The name dates back to the 1970s and 1980s when wholesale design firms moved into the area's warehouses.

During the 19th Century, much of the area was isolated from the city by Mission Bay and thus remained largely rural. In the 1890s Mission Bay was filled in, enabling development to begin. Development within the area later known as Showplace Square surged after the 1906 Earthquake and fire. Industrialists moving to the area included food processors and canners, cable and belt manufacturers, steel fabricators, wholesale hardware dealers, paint manufacturers, commercial bakers, barrel makers, brewers, mattress makers, and many others. They built large brick warehouses and factories, many of which survive today. Expansion of industry in the area continued until World War II, at which time many companies relocated to South San Francisco, Emeryville, San Leandro, and other industrial suburbs to take advantage of large plots of land, better freeway access, anti-union policies, and lower taxes. These businesses were replaced by wholesale furniture and design firms.

San Francisco Municipal Railway

Muni was incorporated on April 17, 1906. Muni was created to rival the dominant United Railroads of San Francisco, who planned an expansion of the widely unpopular above-ground electrical wires used for street cars. In 1909 this dislike for United Railroads of San Francisco fueled support for two bond measures. The measures funded a streetcar line on Market Street and Geary Street from the Ferry Building out to Ocean Beach. Construction began on the line in June 1911. This became the trunk of Muni's A, B, and C streetcar lines. The project included a new streetcar barn and management offices at Presidio Boulevard and Geary Street. The barn was designed by chief engineer Michael M. O'Shaughnessy in a blend of the Renaissance Revival and Mission Revival styles. Service on the Geary line began on December 28, 1912.

In March 1913 Muni published the Report on the Improvement and Development of the Transportation Facilities of San Francisco, which guided the expansion and construction of the system for the next 15 years. From 1913 to 1915 Muni expanded its system to connect Downtown to the site of the Panama Pacific International Exposition in the Marina District. The new E line, Muni's third, opened on February 10, 1915.

While Muni's early expansion largely resulted from acquisition of other independent railroads, in 1914 it began to build its first all-new lines. These included the D, E, and H lines. During this period Muni also built its second car barn at Mariposa and Hampshire streets (now part of the current project site). Soon Muni had expanded from one line to seven: A, B, C, D, E, F, and H. In 1918, Muni completed construction of the Twin Peaks Tunnel from Castro and Market streets to the then largely rural area west of Twin Peaks. The completion of the tunnel enabled construction of several new lines: K, L, and M. A few years later Muni built a tunnel beneath Buena Vista Park, enabling the N Judah line.

American Car Barns and Bus Yards

Streetcar barns, built to store and maintain streetcars, were traditionally located at either the midpoint or an end of a line and consisted of storage and maintenance areas, offices, and power houses. In the late 19th Century, streetcar barns were typically designed in the American Commercial style and were built of brick. A surviving example is the Cable Car Barn and Powerhouse at Washington and Mason streets (built 1887, rebuilt 1906). While some were built of wood, masonry was preferred for its fire resistance and ability to enable large semi-continuous spans with multiple vehicular entrances. However, after the 1906 Earthquake and fire, concrete construction surged in popularity.

Some of the earliest car barns in the Muni system came through acquisition of the Market Street Railway in 1944. Among the oldest of these were the Haight and McAllister Streets Car Houses (built 1883), the Oak and Broderick Car House (1889), and the Sutro Car House (built 1896). All of these were demolished by Muni between 1945 and 1951. The Turk and Fillmore Car House and Powerhouse (built 1895) still exists and is designated San Francisco landmark number 105.

The first car barn commissioned by Muni, the Geary Car Barn, was built in 1912. It consisted of an eight-bay maintenance and storage facility, a corner office building, and carpentry and machine shops. Muni's second car barn, the Potrero Car Barn (project site), was built in two phases: the first-floor maintenance shops in 1914-1915 and the operations and maintenance shops wings, which were initiated in 1924 and finished in 1925.

After World War II the Lapham Plan[7] and the 1947 Muni bond spearheaded proposed changes that included replacing most of the system's streetcar lines with bus and trolley service. These changes resulted in great demand for bus storage and maintenance facilities. In 1948-1949 Muni converted both the Geary and Potrero car barns to accommodate electric-powered trolley coaches. Simultaneously Muni built two new yards to service gas-powered buses: Ocean Division Bus Yard (built 1948-1949) and Kirkland Bus Yard (built 1950). The Ocean Division was demolished in 1977.

Three more yards have been built since the Kirkland Bus Yard. The Flynn Yard was retrofitted from an existing industrial building. The other two bus yards, Woods (1974-1976) and Islais Creek (2012), were newly constructed. Like the Kirkland Yard, the latter two yards feature asphalt-paved lots for parking and storage, with small freestanding buildings for repairs and maintenance.

Designer: Michael M. O'Shaughnessy (1864-1933)

Michael Maurice O'Shaughnessy was the designer of the Potrero Trolley Coach Division Facility. O'Shaughnessy was born to a farming family in County Limerick, Ireland, in 1864. He studied at the University College in both Cork and Galway before graduating in 1884 from the University of Dublin. In 1885 he emigrated from Ireland to America and arrived in San Francisco on March 30 of that year. In 1886 the Southern Pacific Railroad hired him to work as a surveyor. In 1889 he opened his own practice, concentrating in land surveying and hydraulic engineering. In 1893 he served as the chief engineer of the California Midwinter International Exposition. In 1895 O'Shaughnessy went to work for the Spring Valley Water Company, the private predecessor to the San Francisco Water Department. For a decade or so he consulted on numerous projects for companies and municipalities. He became the chief engineer for the Southern California Mountain Water Company in 1907, overseeing water delivery systems for various communities in San Diego County.

In 1912 San Francisco Mayor James Rolph hired O'Shaughnessy as chief engineer for the City and County of San Francisco. During his time as chief engineer O'Shaughnessy led numerous major public works projects during the City's largest sustained infrastructure expansion. He oversaw the 167-mile-long Hetch Hetchy water delivery system. O'Shaughnessy also designed and constructed Muni, America's first public transit agency. His office was responsible for most associated infrastructure including tunnels, retaining walls, car barns, power houses, and office buildings. O'Shaughnessy believed his work should enhance the beauty of the city. Much of this infrastructure utilized the then popular Renaissance Revival style. In 1930, after 18 years as chief engineer, O'Shaughnessy was forced to retire. He died in 1933.

[7] The transportation-focused Lapham Plan of 1947 was named for San Francisco Mayor Roger Lapham.

HISTORIC RESOURCE EVALUATIONS OF THE PROJECT SITE

Previous Surveys

The 2008-2009 Showplace Square Survey prepared by Kelley & VerPlanck Historical Resources Consulting in conjunction with the planning department[8] as part of the department's long-range planning efforts for the Eastern Neighborhoods Plan assigned the property California Historical Resource status code "3CS."[9] The boundaries of the Showplace Square/Northeast Mission Survey[10] included the industrial parts of the northern Mission and Potrero districts, as well as small parts of the adjoining South of Market and the Mission Bay neighborhoods. It includes the Showplace Square Historic Context Statement, and State of California Department of Parks and Recreation (DPR) 523A (Primary) forms, DPR 523B (Building, Structure, and Object) forms, and DPR 523D (District) forms. The DPR 523A form briefly documented the Potrero Trolley Coach Division Facility, concentrating on the 1915 car barn, and the DPR 523B form provided a brief history of the property, identifying Michael M. O'Shaughnessy as the designer. The evaluation concluded that the Potrero Trolley Coach Division Facility is eligible for listing in the California Register under Criterion 1 (Events) and Criterion 3 (Architecture/Design/Construction), citing four reasons: 1) an example of a type (municipal car barn), 2) period of construction (World War I), 3) method of construction (reinforced concrete), and 4) the work of a master, City and County of San Francisco chief engineer Michael M. O'Shaughnessy (1912-1933).

San Francisco Heritage does not have a file on the Potrero Trolley Coach Division Facility, nor has it surveyed the Potrero District.

Current Historic Resource Evaluation

The HRE prepared for the proposed project determined that the Potrero Trolley Coach Division Facility's maintenance and operations building appears eligible for listing in the California Register under Criterion 1 (Events) "as a facility dating back to the earliest years of San Francisco's Municipal railway, the United States' first publicly owned street railway," and under Criterion 3 (Architecture/Design/Construction) "as a property that embodies the characteristics of a type (car barn), period of construction (post-quake reconstruction), as well as being the work of a master (Michael M. O'Shaughnessy)." The HRE determined that the property is not eligible under

[8] San Francisco Planning Department, Showplace Square/Northeast Mission Historic Resource Survey, *https://sfgov.org/sfplanningarchive/showplace-squarenortheast-mission-historic-resource-survey*, accessed November 11, 2020.

[9] California Office of Historic Preservation, California Historical Resource Status Codes, December 2003, *https://ohp.parks.ca.gov/pages/1069/files/chrstatus%20codes.pdf*, accessed May 28, 2021. A California Historical Resource Status Codes rating of "3CS" indicates that the resource appears eligible for listing in the California Register as an individual property through survey evaluation.

[10] Although the survey area includes parts of the Mission and the South of Market, the term Showplace Square is used throughout to refer to the entire survey area.

Criterion 2 (Persons). (See **EIR Appendix D-1, VerPlanck Historic Preservation Consulting, Historic Resource Evaluation, Potrero Trolley Coach Division Facility, 2500 Mariposa Street, San Francisco, CA, October 2, 2017**.)

PLANNING DEPARTMENT CALIFORNIA REGISTER ELIGIBILITY DETERMINATION

The planning department, in Parts I and II of its Historic Resource Evaluation Response (HRER), reviewed and considered the previous historic resource surveys and the HRE, and made the following determinations regarding the eligibility of the Potrero Trolley Coach Division Facility for listing in the California Register.

Criterion 1 (Events)

The Potrero Trolley Coach Division Facility is eligible for individual listing in the California Register under Criterion 1 (Events) for its association with the earliest years of San Francisco's Municipal Railway, the United States' first publicly owned street railway. San Francisco's Municipal Railway was founded in 1906 as an experiment in public ownership of a sector that had previously been dominated by private ownership. The Potrero Trolley Coach Division Facility, built in two stages in 1915 and 1924, was the railway's second car barn after the Geary Car Barn, built in 1911-1912, which was also designed by Michael O'Shaughnessy in a blend of the Renaissance Revival and Mission Revival styles.

Criterion 2 (Persons)

The Potrero Trolley Coach Division Facility does not appear to be eligible for listing in the California Register under Criterion 2. No persons associated with the property have been identified who appear to have made notable contributions to local or state history on this site such that it would be individually eligible under this criterion.

Criterion 3 (Architecture/Design/Construction)

The Potrero Trolley Coach Division Facility is eligible for individual listing in the California Register under Criterion 3 (Architecture/Design/Construction) as a property that embodies the characteristics of a car barn, for its period of construction during the post-Earthquake reconstruction, and as the work of a master, Michael M. O'Shaughnessy. Car barns originated in the late 19th Century to house and maintain streetcars. The Potrero Trolley Coach Division Facility is one of only three pre-war car barns extant in San Francisco. Unlike many American car barns, which were built either of wood or brick in the American Commercial style, the maintenance and operations building was built of reinforced concrete in the Renaissance Revival style. The Potrero Trolley Coach Division Facility is also eligible under Criterion 3 as the work of a master – Michael M. O'Shaughnessy, chief engineer for the City and County of San Francisco Office of the City

Engineer, who was the most influential and important chief engineer to hold the position in San Francisco.

Criterion 4 (Information Potential)

To be eligible for listing in the California Register under Criterion 4, a property must have the potential to yield information important in prehistory or history. Criterion 4 is generally understood to apply primarily to archeological resources. Criterion 4 may apply to architectural resources under limited circumstances where study of the physical fabric of a building may yield important scientific and historic information that is not otherwise available in the documentary record. The potential for the presence of subsurface archeological resources within the project site that pre-date construction of the Potrero Trolley Coach Division Facility is addressed in the initial study (see **EIR Appendix B**) on pp. 27-35.

Integrity

The planning department concurs with the determination in the HRE that the subject property retains sufficient integrity to convey its significance as a historic resource. The two most substantial alterations to the maintenance and operations building occurred in 1948-1949 when Muni completed the conversion of the building from a car barn into a trolley coach facility and in 1989-1990 when Muni completed a seismic retrofit and remodel of the facility.

The transition from a streetcar barn to an electric trolley coach and bus maintenance facility, completed in 1948-1949, included removing the front and rear portions of the shops wing (approximately 50 percent) and a trolley coach shop added to its west end in 1940-1941; constructing a control room at 17th and Hampshire streets and the Hampshire Street wall closest to 17th Street to close the gap created by demolishing the north portion of the shops wing; rebuilding the roof of the maintenance and operations building to accommodate a parking deck; remodeling the bays along the west façade of the maintenance and operations building; removing all ornament and replacing all fenestration; infilling the two westernmost bays and widening the easternmost bay along Mariposa Street; and removing all streetcar tracks from the site. Alterations to the office wing also included infilling several windows on the west façade and adding a new medallion with Muni's logo to the second-floor level facing Mariposa Street.

The 1989-1990 seismic retrofit and remodel of the facility included new bus wash, vacuum, and fare collection stations; new asphalt and striping; new electrical poles and catenaries on the paved bus yard; construction of a new control center near the main entrance on Mariposa Street; and the enclosure of the paved bus yard behind a metal fence. Changes to the maintenance and operations building occurred primarily to the interior. Specific changes to the exterior were limited to reconfiguring several door and window openings along the west façade facing the paved bus yard; installing five new overhead telescoping doors; installing a new metal storefront and signage at the main entrance on Mariposa Street; adding new pedestrian entrances and infilling several windows on the north (rear) façade of the office wing; and adding new telescoping doors to the shops wing.

The tertiary and quaternary façades on the north and west where most alterations occurred are obscured behind walls, fencing, equipment, and street trees. The primary and secondary street façades along Mariposa and Hampshire streets, respectively, contain most of the character-defining features of the resource and remain largely intact from the period of significance. Although the type of buses served at Potrero Yard changed in 1949, the essential function of the building as a maintenance and operations facility for a major municipal transit agency has not changed. Additionally, while the interior has seen alterations such as upgrades to the restrooms to comply with the Americans with Disabilities Act, renovations to the conference and lunch rooms, and modifications to the heavy repair bays, the Potrero Trolley Coach Division Facility still maintains the feeling and association of an early 20th-Century transit facility. Thus, despite these alterations, the resource is still recognizable as an early 20th-Century streetcar barn, particularly when viewed from the corner of Mariposa and Hampshire streets. Therefore, the subject property retains sufficient integrity as an individual resource listed in the California Register.

Character-Defining Features

The planning department concurs with the list of character-defining features identified in the HRE, which are listed in **Table 3.B.1: Character-Defining Features of the Potrero Trolley Coach Division Facility**. See **Figures 3.B.1(a) and 3.B.1(b): Character-Defining Features of the Potrero Trolley Coach Division Facility**, pp. 3.B.15-3.B.16, for an illustration of the character-defining features of the site.

Table 3.B.1: Character-Defining Features of the Potrero Trolley Coach Division Facility

• Overall height and massing of the two-story office wing and the remaining portions of the original shops wing along Hampshire Street, including its flat roof.
• Fenestration pattern on office wing (Mariposa and Hampshire Streets only) consisting of large vehicular openings at the first floor and groups of three double-hung metal windows at the second-floor level.
• Remaining molded concrete and cement plaster ornament on Mariposa and Hampshire streets, including re-entrant corner detailing, pilaster separating the vehicular openings and door hoods, molded intermediate cornice, continuous lug sill beneath the windows, shallow cornice, and medallion featuring original Muni logo. Some of this detailing continues along the west and east (Hampshire Street) façades of the office wing, as well as on the shops wing on Hampshire Street.
• Remaining pedestrian door surround on Hampshire Street façade of office wing with inscription above.
• Remaining door trim on westernmost vehicular bay on Mariposa Street.
• Surviving double-hung, six-over-six, metal windows on office wing.
• Flagpole.

Source: San Francisco Planning Department, Historic Resources Evaluation Response, Part 1, 2500 Mariposa Street, September 25, 2020, p. 4 (see **EIR Appendix D-2**, San Francisco Planning Department, Historic Resources Evaluation Response, Part 1, 2500 Mariposa Street, September 25, 2020).

California Register Eligibility Conclusion

The Showplace Square Survey, the HRE on the Potrero Trolley Coach Division Facility, and the planning department's HRER-Part I concur that the site is a historical resource under Criterion 1 (Events) and Criterion 3 (Architecture/Design/Construction). Based on the findings included in the planning department's HRER-Part I, the Potrero Trolley Coach Division Facility is individually eligible for listing in the California Register as a historic resource under Criterion 1 for its association with the earliest years of San Francisco's Municipal Railway, the United States' first publicly owned street railway; and under Criterion 3 because it embodies distinctive characteristics of a type (car barn); for its post-Earthquake period of construction; and as the work of master Michael M. O'Shaughnessy. The period of significance under Criterion 1 is 1915-1948 (the year of original construction to the year of conversion into an electric trolley coach maintenance and operations facility). The period of significance under Criterion 3 is 1924-1941.

As a property determined to be individually eligible for listing in the California Register, the property is considered a historical resource for the purposes of review under CEQA.

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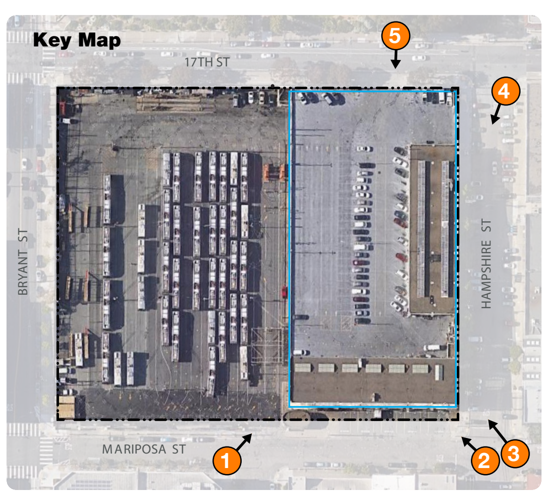
Image 1: View northeast of office wing primary façade along Mariposa Street.

Image 2: View northwest of office wing primary façade along Mariposa Street (left), and secondary façade along Hampshire Street (right).

Image 3: View northwest of secondary façade along Hampshire Street. Note the change in parapet height where the office wing (left) meets the shops wing (right).



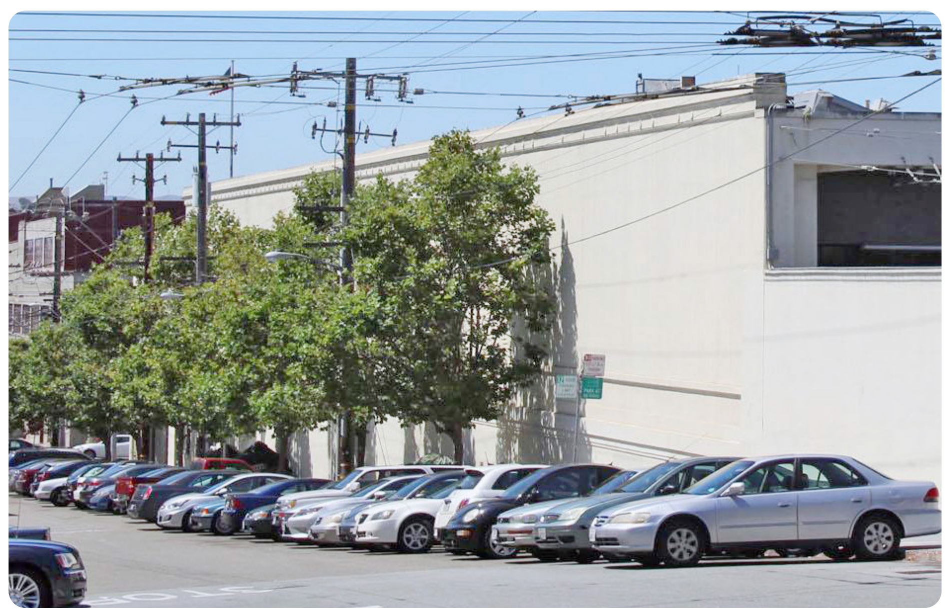


Image 4: View southwest of shops wing secondary façade along Hampshire Street. Photo taken from the corner of Hampshire Street and 17th Street.

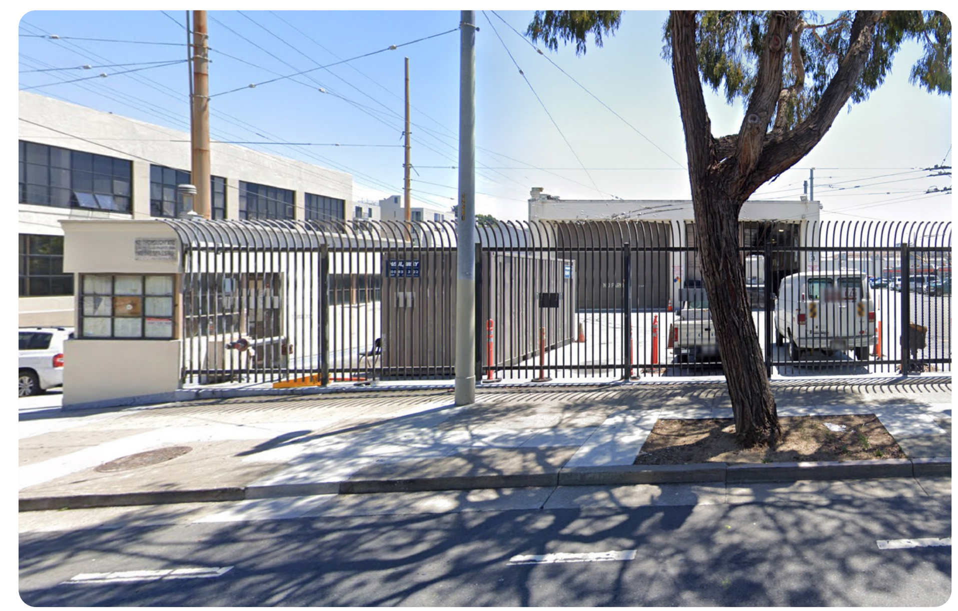


Image 5: View south of shops wing tertiary façade along 17th Street.

Character-Defining Features

- Overall height and massing of the two-story office wing and the remaining portions of the original shops wing along Hampshire Street, including its flat roof
- Fenestration pattern on office wing (Mariposa and Hampshire Streets only) consisting of large vehicular openings at the first floor and groups of three double-hung metal windows at the second-floor level
- Remaining molded concrete and cement plaster ornament on Mariposa and Hampshire Streets, including re-entrant corner detailing, pilaster separating the vehicular openings and door hoods, molded intermediate cornice, continuous lug sill beneath the windows, shallow cornice, and medallion featuring original Muni logo. Some of this detailing continues along the west and east (Hampshire Street) façades of the office wing, as well as on the shops wing on Hampshire Street
- Remaining pedestrian door surround on Hampshire Street façade of office wing with inscription above
- Remaining door trim on westernmost vehicular bay on Mariposa Street
- Surviving double-hung, six-over-six, metal windows on office wing
- Flagpole

Source: SITELAB urban studio

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 3.B.1(a): CHARACTER-DEFINING FEATURES OF THE POTRERO TROLLEY COACH DIVISION FACILITY

Image 6: Detail view of office wing primary façade. Note character defining features including molded concrete and cement plaster ornament, fenestration pattern of groups of three double-hung metal windows, medallion featuring original Muni logo, and flagpole

Image 7: Detail view of office wing secondary façade. Note character-defining features including molded concrete and cement plaster ornament, reentrant corner detailing, double-hung metal windows, and pedestrian door surround.

Image 8: Detail view of office wing primary façade. Note character-defining features include remaining door trim of westernmost bay.

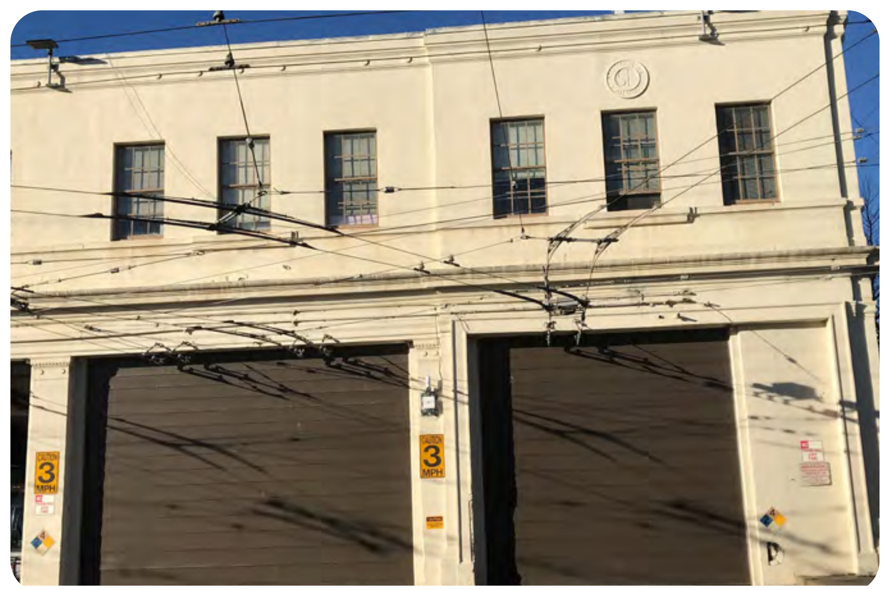
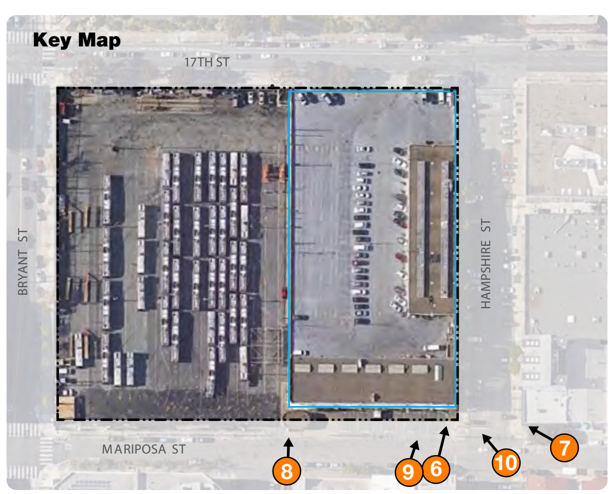


Image 9: Detail view of office wing primary façade. Note character-defining features include large vehicular openings, double-hung windows, and medallion featuring original Muni logo.

Image 10: Detail view of office wing's primary (Mariposa Street) and secondary façades (Hampshire Street). Note character-defining features include the fenestration pattern of groups of three double-hung metal windows at the second floor level with a continuous lug sill, large vehicular openings at the first floor, reentrant corner detailing, and the flagpole.



Character-Defining Features

- Overall height and massing of the two-story office wing and the remaining portions of the original shops wing along Hampshire Street, including its flat roof
- Fenestration pattern on office wing (Mariposa and Hampshire Streets only) consisting of large vehicular openings at the first floor and groups of three double-hung metal windows at the second-floor level
- Remaining molded concrete and cement plaster ornament on Mariposa and Hampshire Streets, including re-entrant corner detailing, pilaster separating the vehicular openings and door hoods, molded intermediate cornice, continuous lug sill beneath the windows, shallow cornice, and medallion featuring original Muni logo. Some of this detailing continues along the west and east (Hampshire Street) façades of the office wing, as well as on the shops wing on Hampshire Street
- Remaining pedestrian door surround on Hampshire Street façade of office wing with inscription above
- Remaining door trim on westernmost vehicular bay on Mariposa Street
- Surviving double-hung, six-over-six, metal windows on office wing
- Flagpole

Source: SITELAB urban studio; SWCA, 2021

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 3.B.1(b): CHARACTER-DEFINING FEATURES OF THE POTRERO TROLLEY COACH DIVISION FACILITY

NEARBY HISTORIC RESOURCES

Nearby historic resources include those that are within approximately 600 feet of the site (or about a block in each direction north to south and two blocks in each direction east to west).

As discussed above on p. 3.B.10, Kelley & VerPlanck Historical Resources Consulting prepared the Showplace Square Survey in conjunction with the planning department. The Showplace Square Survey area encompassed the historically industrial areas of Showplace Square/Potrero Hill and the Mission among other small contiguous areas. Within the irregular boundaries were 736 acres and 550 properties containing 526 buildings. The Showplace Square Survey studied and recorded all properties constructed before 1955.[11] The Showplace Square Survey was adopted by the Historic Preservation Commission in June 2011.[12]

The buildings described below were determined to be individual resources; all other buildings were determined not to be resources or were not age eligible at the time of the survey. Also described, although not a historic resource, is Franklin Square.

Additionally, the Showplace Square Survey resulted in the identification and documentation of one eligible historic district: the Showplace Square Heavy Timber and Streel-frame Brick Warehouse and Factory Historic District.[13] As described below in more detail, the Showplace Square Heavy Timber and Steel-frame Brick Warehouse and Factory District contains 16 discontiguous contributing properties and appears eligible for listing in the California Register under Criterion 1 (Events) for its association with the context of industrial employment in San Francisco between 1895 and 1955.[14]

Individual Resources

Lux School of Industrial Training (now the SGI Cultural Center) – 2450 17th Street

Lux School of Industrial Training is located directly northeast of the project site at 2450 17th Street. This four-story Renaissance Revival-style reinforced-concrete building was constructed in 1913

[11] Kelley & VerPlanck, Showplace Square Survey, San Francisco, California, Final (prepared for San Francisco Planning Department, October 2009), pp. 3-4.

[12] San Francisco Planning Department, Showplace Square/Northeast Mission Historic Resource Survey, *https://sfplanning.org/showplace-squarenortheast-mission-historic-resource-survey#about*, accessed November 6, 2020.

[13] Although the survey identified a second potential historic district, the Northeast Mission Industrial Employment District, the Historic Preservation Commission did not find this district to be eligible for listing in the California Register and as such it is not a historic resource under CEQA. DPR 523D Form, Northeast Mission - Showplace Square Industrial Employment Special Area, *https://default.sfplanning.org/Preservation/showplace_survey/DPR523D-ShowplaceIE-area.pdf*, accessed December 3, 2020.

[14] Kelley & VerPlanck, p. 105.

and is a highly intact former school building. The Showplace Square Survey assigned the property California Historical Resource Status Code 3S, indicating the property is individually eligible for listing in the National Register under Criterion A (Events) for its association with the "growth of interest in the education of women during the Progressive Era in San Francisco" and under Criterion C (Architecture) "as an architecturally outstanding building that possess the distinctive characteristics of a building type (institutional), period (post-1906), and method of construction (reinforced concrete with pressed brick and terra cotta façades).[15] The property was also surveyed as part of the 1976 Department of City Planning Architectural Quality Survey. Therefore, the department concludes the building is considered a historic resource for the purposes of CEQA review.

Leyser-Green Co. Building – 2401-2425 17th Street

The Leyser-Green Co. Building is located directly across Hampshire Street from the project site at 2401-2425 17th Street. This two-story American Commercial-style reinforced-concrete industrial building was constructed as a factory in 1909. The Showplace Square Survey assigned the property California Historical Resource Status Code 3CS, indicating the property is individually eligible for listing in the California Register under Criteria 1 (Events) and 3 (Architecture). Therefore, the department concludes the building is considered a historic resource for the purposes of CEQA review.

Verdi Club – 2424 Mariposa Street

The Verdi Club is located approximately half a block east of the project site at 2424 Mariposa Street. This two-story Art Deco-style reinforced-concrete building was constructed in 1936. The Showplace Square Survey assigned the property California Historical Resource Status Code 3CS, indicating the property is individually eligible for listing in the California Register under Criterion 1 (Events) "for its association with San Francisco's once-numerous and still influential Italian-American community" and under Criterion 3 (Architecture) "as an intact and unusual example of a social hall designed in the Art Deco style."[16] Therefore, the department concludes the building is considered a historic resource for the purposes of CEQA review.

Franklin Square

The Showplace Square Survey addressed two public parks: Franklin Square and Jackson Playground. Franklin Square is a landscaped open space directly north of the project site on a prominent serpentine rock outcrop bounded by concrete retaining walls. Originally a landscaped

[15] California Department of Parks and Recreation (DPR) series 523 forms, Lux School of Industrial Training – 2450 17th Street, p. 3.

[16] California Department of Parks and Recreation (DPR) series 523 forms, Verdi Club – 2424 Mariposa Street, p. 2.

Victorian park with large areas of grass, trees, and meandering paths, it was not fully completed until after the 1906 Earthquake. In 1984 a large soccer field was added. Aside from the concrete retaining walls and concrete stairs built at Bryant and 16th streets in 1911, Franklin Square does not retain historic fabric. The Showplace Square Survey assigned the property California Historical Resource Status Code 6Z, indicating the property is ineligible for listing in the California Register, and was determined to not be a resource.[17]

Historic Districts

Showplace Square Heavy Timber and Steel-frame Brick Warehouse and Factory District

In the course of survey work for the Showplace Square Survey, Kelley & VerPlanck Historical Resources Consulting, LLC identified the Showplace Square Heavy Timber and Steel-frame Brick Warehouse and Factory historic district. The district consists of 18 properties, 16 of which are contributors. It is a discontiguous[18] district consisting of one group of buildings to the north of the Potrero Trolley Coach Division Facility and two groups to the northeast. The grouping to the north is located approximately two blocks north on the east side of Bryant Street, between 15th and Division streets. A small extension of the potential district crosses west of Bryant Street on the north side of 15th Street. The first group of buildings to the northeast is located one block to the north and one block to the east, primarily on the block bordered on the west by Potrero Avenue, on the east by Utah Street, on the south by 16th Street, and on the north by 15th Street. A small extension of the district crosses east of Utah Street on the north side of 15th Street. The second, and final, group of buildings to the northeast is located one block to the north and five blocks to the east. This grouping consists of northern and southern sections. The northern section is bordered on the west by Vermont Street, on the east by Kansas Street, on the south by Alameda Street, and on the north by Division Street. The southern section is bordered on the west by Kansas Street, on the east by Rhode Island Street, on the south by 16th Street, and on the north by Alameda Street.

The Showplace Square Survey found the district to be eligible for listing in the California Register under Criterion 3 (Architecture/Design/Construction) as "San Francisco's most important concentration of large heavy timber and streel frame American Commercial style industrial buildings."[19] As a concrete transit facility, the Potrero Trolley Coach Division Facility does not

[17] Kelley & VerPlanck, p. 98, and California Department of Parks and Recreation (DPR) series 523 forms, Franklin Square – 2851 16th Street, p. 1.

[18] A discontiguous historic district is a district comprised of contributing resources (or groups of resources) that may be separated from each other by other buildings (or groups of buildings) that are not part of the district. Discontigous districts can be citywide and based on a resource type such as post-1906 Earthquake temporary structures and public libraries or in discrete but nearby locations such as the Showplace Square Heavy Timber and Steel-frame Brick Warehouse and Factory District.

[19] California Department of Parks and Recreation (DPR) series 523 forms, Showplace Square Heavy Timber and Steel-frame Brick Warehouse and Factory District, p. 1.

share the same material, architectural vocabulary, or function of contributing buildings within this identified historic district, nor is it within close proximity to the district, and as such it is not considered a contributor to this historic district.

REGULATORY FRAMEWORK

This subsection describes the federal, state, and local laws and regulations that pertain to the identification and regulation of historic architectural resources.

FEDERAL

National Register of Historic Places

The National Register of Historic Places is the nation's master inventory of cultural resources worthy of preservation. It is administered by the National Park Service, which is represented at the state level by the State Historic Preservation Officer. The National Register includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archeological, or cultural significance at the federal, state, or local level. Resources that are listed in or have been found by the State Historic Preservation Officer to be eligible for listing in the National Register are called historic properties. The National Register provides four evaluative criteria to determine eligibility of a resource:

> The quality of significance in American history, architecture, archaeology and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:
>
> A. that are associated with events that have made a significant contribution to the broad patterns of history; or
>
> B. that are associated with the lives of persons significant in our past; or
>
> C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. that have yielded or may likely yield information important in prehistory or history.[20]

Although there are exceptions, certain kinds of resources are not usually considered for listing in the National Register. These include religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

[20] Code of Federal Regulations, Title 36, Chapter 1, Part 60, Section 60.4.

Integrity

In addition to qualifying for listing under at least one of the National Register criteria, a property must possess sufficient integrity to be considered eligible for listing in the National Register. According to the National Register Bulletin: How to Apply the National Register Criteria for Evaluation, integrity is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance." The National Register Bulletin defines seven characteristics of integrity, as follows:

Location is the place where the historic property was constructed.

Design is the combination of elements that create the form, plans, space, structure, and style of the property.

Setting addresses the physical environment of the historic property inclusive of the landscape and spatial relationships of the buildings.

Materials refer to the physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form the historic property.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history.

Feeling is the property's expression of the aesthetic or historic sense of a particular period of time.

Association is the direct link between an important historic event or person and an historic property.

The Secretary of the Interior's Standards for the Treatment of Historic Properties

The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (the Secretary's Standards) were published in 1995 and codified as 36 Code of Federal Regulations 68.[21,22] Neither technical nor prescriptive, these standards are intended to promote responsible preservation practices that help protect irreplaceable cultural resources. The Secretary's Standards consist of 10 basic principles created to help preserve the distinctive character of an historic building and its

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21 U. S. Department of the Interior, National Park Service (Kay D. Weeks and Anne E. Grimmer), The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstruction of Historic Buildings, 1995, updated 2017, *https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf,* and National Park Service Technical Preservation Services, Four Approaches to the Treatment of Historic Properties, *https://www.nps.gov/tps/standards/four-treatments.htm*, accessed May 5, 2021.

22 Treatments are defined as follows: "Preservation" acknowledges a resource as a document of its history over time and emphasizes stabilization, maintenance, and repair of existing historic fabric. "Rehabilitation" is the most widely used standard; while also incorporating the retention of features that convey historic character, "Rehabilitation" also accommodates alterations and additions to facilitate continuing or new uses. "Restoration" involves the retention and replacement from a specific period of significance. "Reconstruction," the least-used treatment, provides a basis for re-creating a missing resource.

site while allowing for reasonable changes to meet new needs. The preamble to the Secretary's Standards states that they "are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility." The standards for rehabilitation of a historic resource are as follows:

> **Standard 1:** A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
>
> **Standard 2:** The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
>
> **Standard 3:** Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
>
> **Standard 4:** Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
>
> **Standard 5:** Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
>
> **Standard 6:** Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
>
> **Standard 7:** Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
>
> **Standard 8:** Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
>
> **Standard 9:** New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
>
> **Standard 10:** New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

STATE

Definition of Historical Resources under CEQA

CEQA Guidelines section 15064.5(a), in Title 14 of the California Code of Regulations, defines a "historical resource" as:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included on any local, state, or federal register, or identified in a qualifying historical resources survey, a lead agency may still determine that any resource is a historical resource for the purposes of CEQA if there is substantial evidence supporting such a determination. A lead agency must consider a resource to be historically significant if it finds that the resource meets the criteria for listing in the California Register.

California Register of Historical Resources Criteria

The California Register is the authoritative guide to historical and archeological resources that are significant within the context of California's history. Criteria for eligibility for inclusion in the California Register are based on, and therefore correspond to, National Register criteria for listing. A resource that meets at least one of the eligibility criteria for inclusion in the California Register is considered a historical resource for the purposes of CEQA. A resource is eligible for listing in the California Register if it:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage (Events);

(2) Is associated with the lives of persons important in our past (Persons);

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values (Design/Construction); or

(4) Has yielded, or may be likely to yield, information important in prehistory or history (Information Potential).[23]

National Park Service guidance on evaluating the integrity of resources often informs the determination of eligibility under the California Register.

LOCAL

San Francisco Planning Code Section 101.1: General Plan Consistency and Implementation (Priority Policies)

San Francisco Planning Code section 101.1 is generally applicable to the proposed project. It requires that the City find that the proposed project is consistent on balance with eight master plan priority policies. Priority Policy 7 is relevant to historical resources and establishes a priority policy "that landmarks and historic buildings be preserved."

San Francisco General Plan

The Urban Design Element of the San Francisco General Plan includes the following policies related to historic preservation:

Policy 2.4: Preserve notable landmarks and areas of historic, architectural or aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development.

Policy 2.5: Use care in remodeling of older buildings, in order to enhance rather than weaken the original character of such buildings.

San Francisco Planning Department, CEQA Review Procedures for Historical Resources

The planning department prepared the *CEQA Review Procedures for Historic Resources* to provide guidance in determining whether a resource is considered a historical resource as defined by CEQA.[24] Three categories of properties are defined:

<u>Category A</u>. Category A is made up of Categories A.1 and A.2:

- Category A.1. Resources listed in or formally determined to be eligible for the California Register.
- Category A.2. Resources listed in adopted local registers, or properties that appear eligible, or may become eligible, for the California Register.

<u>Category B</u>. Properties requiring further consultation and review.

[23] Public Resources Code section 5024.1.
[24] San Francisco Planning Department, Preservation Bulletin No. 16, CEQA Review Procedures for Historic Resources, Draft, March 31, 2008.

Category C. Properties determined not to be historical resources, or properties for which the City has no information indicating that the property is an historical resource.

To determine if a property is eligible as a historical resource for the purposes of CEQA, the planning department (lead agency) requires an evaluation of a property's individual significance for listing in the California Register, as well as an examination of a property's relationship to any eligible historic district.

To assess impacts within historic districts, the planning department examines several factors including, but not limited to, size and significance of a historic district, number and location of contributing features/non-contributing features, district integrity, district boundaries, and the proposed project. Assessments within historic districts are examined on a case-by-case basis, due to the wide variety and unique nature of historical resources.

San Francisco Public Works Standard Construction Measures

As discussed in **EIR Chapter 2, Project Description**, pp. 2.49, San Francisco Public Works (public works) standard construction measures (SCMs) would apply to the proposed project or project variants (see **Table 2.3: San Francisco Public Works Standard Construction Measures**, p. 2.50, and **EIR Appendix C**). The SFMTA and a private project co-sponsor (or project sponsor team) will implement public works' SCMs as part of the proposed project or project variants, including the SCM for cultural resources (**SCM #9**). **SCM #9, Cultural Resources**, establishes procedures related to construction of certain City projects that have the potential to alter cultural resources.

The component of **SCM #9** applicable to archaeological resources is discussed in the initial study (see topic E.4 in **EIR Appendix B**). The component of **SCM #9** applicable to historic architectural resources requires a project sponsor to consult with planning department staff to determine whether a Historic Resource Evaluation will be required for projects with the potential to alter buildings, structures, or landscape features. As discussed above, an HRE has already been prepared for the proposed project and the evaluation identified the subject property as an individual historic resource.

If construction activities take place in proximity to a building, structure, or landscape feature identified as a significant historical resource, **SCM #9** also specifies that a project sponsor will develop a Construction Best Practices for Historical Resources Plan and Construction Monitoring for Historical Resources Program, in consultation with planning department staff. Implementation of the protective measures outlined in these plans, such as the use of protective barriers during construction, is intended to avoid inadvertent impacts to historic buildings, structures, and landscape features near the project site or the construction staging areas for the various equipment to be used for demolition, excavation, and building construction.

SCM #9, Cultural Resources, also addresses issues related to vibration produced during construction occurring adjacent to historic architectural resources which are susceptible to vibration. The SCM specifies that a project sponsor will consult with planning department staff to determine whether historic architectural resources would be located adjacent to project construction activities such that they would be susceptible to damage caused by construction-related vibration. In such cases, vibration control procedures would be incorporated into the construction contract and require the contractor to prepare a vibration monitoring plan and vibration control plan. The vibration control plan must identify vibration-sensitive resources, standards for vibration criteria that are not to be exceeded by construction activities, real-time activity monitoring to identify when vibration levels approach the predetermined value at which damage could occur, requirements to immediately cease construction activities when vibration levels reach levels at which damage could occur, and procedures for restoring resources to their pre-construction condition should damage occur as a result of construction-related vibration. A copy of the vibration control procedures that must be incorporated into such contracts in accordance with public works requirements is included in **EIR Appendix C** (see Vibration Control Procedures for Inclusion in Construction Contracts following Attachment H).

The vibration control procedures in **SCM #9, Cultural Resources**, which require pre-construction condition assessments to identify buildings that are vulnerable to vibrational damage, vibration monitoring during construction, and requirements to restore structures to pre-construction conditions if vibration-related damage were to occur, would avoid impacts on such resources. There are no onsite buildings or structures that would be retained and no immediately adjacent properties; therefore, the historic resources analysis does not include a detailed discussion of construction-related vibrational damage to structures. The vibration-related component of **SCM #9, Cultural Resources**, and vibration-related impacts are discussed in detail in **EIR Section 3.D, Noise and Vibration**, pp. 3.D.22-3.D.23 and pp. 3.D.44-3.D.47, respectively. Because the maintenance and operations building would not be retained and reused, there would be no construction-related vibration effects on adjacent buildings on the project site. As discussed in **EIR Section 3.D**, construction activities associated with project implementation would be located at least 66 feet from the closest structures and at least 80 feet from the closest off-site historic resource (the Leyser-Green Co. Building at 2401-2425 17th Street). The distance of the off-site historic resources from the construction activities would avoid the potential for vibrational damage to existing buildings. However, due to the size of project, the amounts and types of construction activities, and the presence of significant historical resources in the immediate area (although at distance from construction activities), all components of public work's **SCM #9 Cultural Resources**, including construction activities monitoring plan to protect historical resources and vibration control procedures, would be incorporated into the construction contracts for the proposed project or project variants.

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERION

The planning department determines the significance of impacts in this analysis consistent with the environmental checklist in Appendix G of the State CEQA Guidelines. For the purposes of this analysis, the department used the following applicable criterion to determine whether implementing the proposed project or project variants would result in a significant impact related to historic architectural resources. Implementation of a project would have a significant effect related to historic architectural resources if the project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code.

The CEQA Guidelines (section 15064.5(b)) establish the criteria for assessing a significant environmental impact on historical resources. They state, "[a] project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." The CEQA Guidelines define "substantial adverse change" as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (section 15064.5(b)(1)).

CEQA Guidelines section 15064.5(b)(2)(C) provides the significance threshold for evaluating impacts on historical resources under CEQA.

> The significance of an historical resource is materially impaired when a project [d]emolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

APPROACH TO ANALYSIS

Project Features

The proposed project would demolish the existing maintenance and operations building and bus storage yard on the project site and would replace them with a new building. The new building would be approximately 75 to 150 feet tall and up to 1,300,000 gross square feet. The new building would cover the entire site between 17th Street to the north, Mariposa Street to the south, Bryant Street to the west, and Hampshire Street to the east, except for a 5-foot-wide planting strip along 17th Street.

The proposed project includes four variants, each with a minor change to an element of the project.

- **Emergency Exit Relocation Variant:** Relocation of the proposed emergency exit from 17th Street west of Hampshire Street to Hampshire Street south of 17th Street.
- **Joint Development Lobby Relocation Variant:** Relocation of joint development lobby off Mariposa Street to Hampshire Street.
- **Active 17th Street Variant:** Site program revision to include active uses along 17th Street frontage, including internal relocation of ramps from the north portion of the site to a more southerly location.
- **Employee and Family Support Variant:** Site program revision to include childcare, or related use, in a portion of the space identified in the proposed project for ground-floor commercial use.

The analysis of the proposed project also applies to the project variants because the variants are minor relocations and site programming changes that do not affect the demolition or construction program, i.e., under the proposed project and each variant, all character-defining features would be removed. Therefore, these project variants would not change the historic resources analysis detailed for the proposed project. **EIR Chapter 2, Project Description**, pp. 2.56-2.58, presents a detailed description of each variant.

As discussed in the "Environmental Setting" subsection, pp. 3.B.2-3.B.20, based on background research and analysis prepared by qualified architectural historians, and with independent review and concurrence from the department, the planning department has determined that the Potrero Trolley Coach Division Facility meets the eligibility criteria for inclusion in the California Register under Criterion 1 (Events) and Criterion 3 (Architecture/Design/Construction). As such, it is considered a historical resource under CEQA Guidelines section 15064.5(a)(3). The HRER Part I identifies the character-defining features of the resource that contribute to and convey its historic and architectural significance and that justify the resource's eligibility for inclusion in the California Register.

As discussed above under "Significance Criterion," a project's impact on a historical resource is evaluated under CEQA's "material impairment" standard. Under that standard, a significant impact on a historical resource results when a project demolishes or materially alters the resource's physical characteristics that justify its eligibility for inclusion in the California Register. Generally, if a project follows the Secretary's Standards (as listed on pp. 3.B.21-3.B.22 under "Regulatory Framework"), the project would not cause significant impacts (CEQA Guidelines section 15064.5 (b)(3)).

Additionally, this analysis assumes that the construction contracts include all public works SCMs, (see discussion above on pp. 3.B.25-3.B.26 and **EIR Appendix C**).

IMPACT EVALUATION

Impact CR-1: The proposed project or project variants would cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5 of the CEQA Guidelines. ***(Significant and Unavoidable with Mitigation)***

The Potrero Trolley Coach Division Facility, built in 1915 and remodeled in 1924 and again in 1948-1949, is eligible for listing in the California Register as an individual property under Criterion 1 for its association with the earliest years of San Francisco's Municipal Railway, the United States' first publicly owned street railway, and under Criterion 3 because it embodies distinctive characteristics of a type—car barn, for its post-Earthquake period of construction, and as the work of master Michael M. O'Shaughnessy. As such, the property is considered a "historical resource" for the purposes of CEQA.

The proposed project or project variants would demolish the entire yard and building and redevelop the whole site with an approximately 1,300,000-gross-square-foot building that rises between 75 to 150 feet in height, including a basement level. The character-defining features presented in **Table 3.B.1** on p. 3.B.13 are the distinctive qualities and characteristics of the existing maintenance and operations building that convey the property's historic and architectural significance and justify its eligibility for listing in the California Register. The demolition under the proposed project or project variants would eliminate all the character-defining features that contribute to and convey the historic and architectural significance of the project site as a post-Earthquake reinforced concrete car barn designed by master Michael M. O'Shaughnessy.

For these reasons, the proposed project or project variants would materially alter the physical characteristics of the Potrero Trolley Coach Division Facility that convey its historic significance and that justify its inclusion in the California Register. As such, the proposed project or project variants would cause a substantial adverse impact on the Potrero Trolley Coach Division Facility, a historical resource, and this would be a significant impact.

Implementation of **Mitigation Measures M-CR-1a: Documentation of Historical Resource**, **M-CR-1b: Salvage Plan**, **M-CR-1c: Interpretation of the Historical Resource**, and **M-CR-1d: Oral Histories**, shown below, would lessen the impact of the proposed demolition and new construction by documenting and presenting the complex's history and character as a car barn from the earliest years of San Francisco's Municipal Railway. However, implementation of these mitigation measures would not reduce this impact to a less-than-significant level.

> **Mitigation Measure M-CR-1a: Documentation of Historical Resource (HRER Part II, Mitigation Measure 1)**
>
> Prior to issuance of a demolition permit, the project sponsor team shall undertake Historic American Building/Historic American Landscape Survey-like (HABS/HALS-like) documentation of the building features. The documentation shall be undertaken by a professional who meets the Secretary of the Interior's Professional Qualifications

Standards for Architectural History, History, or Architecture (as appropriate) to prepare written and photographic documentation of the Potrero Trolley Coach Division Facility. The specific scope of the documentation shall be reviewed and approved by the Planning Department but shall include the following elements:

Measured Drawings – A set of measured drawings shall be prepared that depict the existing size, scale, and dimension of the historic resource. Planning Department staff will accept the original architectural drawings or an as-built set of architectural drawings (e.g., plans, sections, elevations). Planning Department staff will assist the consultant in determining the appropriate level of measured drawings.

Historic American Buildings/Historic American Landscape Survey-Level Photographs – Either Historic American Buildings/Historic American Landscape Survey (HABS/HALS) standard large-format or digital photography shall be used. The scope of the digital photographs shall be reviewed by Planning Department staff for concurrence, and all digital photography shall be conducted according to the latest National Park Service (NPS) standards. The photography shall be undertaken by a qualified professional with demonstrated experience in HABS/HALS photography. Photograph views for the data set shall include contextual views; views of each side of the building and interior views, including any original interior features, where possible; oblique views of the building; and detail views of character-defining features.

All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historic photographs shall also be collected, reproduced, and included in the data set.

HABS/HALS Historical Report – A written historical narrative and report shall be provided in accordance with the HABS/HALS Historical Report Guidelines. The written history shall follow an outline format that begins with a statement of significance supported by the development of the architectural and historical context in which the structure was built and subsequently evolved. The report shall also include architectural description and bibliographic information.

Video Recordation (HRER Part II, Mitigation Measure 3) – Video recordation shall be undertaken before demolition or site permits are issued. The project sponsor team shall undertake video documentation of the affected historical resource and its setting. The documentation shall be conducted by a professional videographer, one with experience recording architectural resources. The documentation shall be narrated by a qualified professional who meets the standards for history, architectural history, or architecture (as appropriate) set forth by the Secretary of the Interior's Professional Qualification Standards (36 Code of Federal Regulations Part 61). The documentation shall include as much information as possible—using visuals in combination with narration—about the materials, construction methods, current condition, historic use, and historic context of the historical resource. This mitigation measure would supplement the traditional HABS/HALS documentation, and would enhance the collection of reference materials that would be available to the public and inform future research.

Softcover Book – A Print-on-Demand softcover book shall be produced that includes the content from the historical report, historical photographs, HABS/HALS photography, measured drawings, and field notes. The Print-on-Demand book shall be made available to the public for distribution.

The project sponsor team shall transmit such documentation to the History Room of the San Francisco Public Library, San Francisco Architectural Heritage, the Planning Department, and the Northwest Information Center. The HABS/HALS documentation scope will determine the requested documentation type for each facility, and the project sponsor team will conduct outreach to identify other interested groups. All documentation will be reviewed and approved by the Planning Department's staff before any demolition or site permit is granted for the affected historical resource.

Mitigation Measure M-CR-1b: Salvage Plan (HRER Part II, Mitigation Measure 2)

Prior to any demolition that would remove character-defining features, the project sponsor team shall consult with the planning department as to whether any such features may be salvaged, in whole or in part, during demolition/alteration. The project sponsor team shall make a good faith effort to salvage materials of historical interest to be utilized as part of the interpretative program.

Mitigation Measure M-CR-1c: Interpretation of the Historical Resource (HRER Part II, Mitigation Measure 4)

The project sponsor team shall facilitate the development of an interpretive program focused on the history of the project site. The interpretive program should be developed and implemented by a qualified professional with demonstrated experience in displaying information and graphics to the public in a visually interesting manner, such as a museum or exhibit curator. This program shall be initially outlined in a proposal for an interpretive plan subject to review and approval by Planning Department staff. The proposal shall include the proposed format and the publicly-accessible location of the interpretive content, as well as high-quality graphics and written narratives. The proposal prepared by the qualified consultant describing the general parameters of the interpretive program shall be approved by Planning Department staff prior to issuance of the architectural addendum to the site permit. The detailed content, media, and other characteristics of such an interpretive program shall be approved by Planning Department staff prior to issuance of a Temporary Certificate of Occupancy.

The interpretative program shall include but not be limited to the installation of permanent on-site interpretive displays or screens in publicly accessible locations. Historical photographs, including some of the large-format photographs required by Mitigation Measure M-CR-1a, may be used to illustrate the site's history. The oral history program required by Mitigation Measure M-CR-1d will also inform the interpretative program.

The primary goal is to educate visitors and future residents about the property's historical themes, associations, and lost contributing features within broader historical, social, and physical landscape contexts. These themes would include but not be limited to the subject property's historic significance for its association with the earliest years of San Francisco's Municipal Railway, the United States' first publicly owned street railway and for its distinctive characteristics as a car barn, for its post-Earthquake period of construction, and as the work of master Michael M. O'Shaughnessy.

Mitigation Measure M-CR-1d: Oral Histories (HRER Part II, Mitigation Measure 5)

The project sponsor team shall undertake an oral history project on the resource that may include interviews of people such as former employees. The project shall be conducted by a professional historian in conformance with the Oral History Association's Principles and Best Practices (https://www.oralhistory.org/principles-and-best-practices-revised-2018/).

> In addition to transcripts of the interviews, the oral history project shall include a narrative project summary report containing an introduction to the project, a methodology description, and brief summaries of each conducted interview. Copies of the completed oral history project shall be submitted to the San Francisco Public Library, Planning Department, and other interested historical institutions. The oral history project shall also be incorporated into the interpretative program.

Because the identified mitigation measures would not reduce the impact to a less-than-significant level, preservation alternatives have been identified. **EIR Chapter 5, Alternatives**, presents a range of alternatives that would meet most of the project's basic and additional objectives and could avoid or substantially lessen significant effects of demolition under the proposed project or project variants.

Impact CR-2: Construction of the proposed project or project variants would not materially alter, in an adverse manner, the physical characteristics of any off-site historical resource that justifies its inclusion in the California Register of Historical Resources. *(Less than Significant)*

As discussed under "Nearby Historic Resources" on pp. 3.B.17-3.B.20, there are several historic resources in the immediate vicinity of the project site. The closest individual historic resource is the Leyser-Green Co. Building at 2401-2425 17th Street, approximately 80 feet to the east across Hampshire Street. Approximately 100 feet northeast across 17th Street is the Lux School of Industrial Training at 2450 17th Street. Lastly, the Showplace Square Heavy Timber and Steel-frame Brick Warehouse and Factory Historic District consists of the three subparts, with the closest approximately 600 feet to the north and east of the project site. There are no historical resources immediately adjacent to the project site, i.e., historical resources that share a property line.

Direct project-related impacts that could result in changes to the physical characteristics of off-site historical resources are related to construction activities and distance from the source of the construction activity. As noted, the existing historic resource on the site would be demolished and there are no immediately adjacent historic resources. Construction activities would be limited to the project site with laydown areas and other construction staging occurring in the northside parking lane and westbound travel lane of Mariposa Street and on Hampshire Street. Construction-related damage would be avoided because of the inclusion of public works' **SCM #9, Cultural Resources**, in the proposed project or project variants. Furthermore, the historic architectural resources in the immediate vicinity are located at distances that would not result in damage from construction activities or construction-related vibration. As stated above on pp. 3.B.25-3.B.26, the project sponsor team would require construction contractors to adhere to public work's **SCM #9, Cultural Resources**, including vibration control procedures, during construction of the project. These procedures require the identification of all resources that could be affected by construction activities including construction-related vibration; real-time monitoring to avoid exceedance of the vibration threshold at which damage could occur, as determined for each resource; cessation of construction activities if that vibration threshold is reached; and procedures to restore resources to their pre-construction condition should they be damaged as a result of construction activities including construction-related vibration. As a result, the application of **SCM #9**, **Cultural Resources**, and vibration control procedures would avoid damage to historical resources in the immediate project vicinity, and the impact would be less than significant. **EIR Section 3.D, Noise and Vibration**, pp. 3.D.44-3.D.47, describes construction-related vibration impacts of the proposed project or project variants as they relate to the operation of sensitive equipment.

Despite their proximity to the project site, the identified off-site historic resources have no contextual or architectural relationship with the Potrero Yard Trolley Coach Division Facility. The subject property is not a contributor to, nor is it within the general vicinity of, the Showplace Square Heavy Timber and Steel-frame Brick Warehouse and Factory Historic District. Because the Showplace Square Heavy Timber and Steel-frame Brick Warehouse and Factory Historic District consists of discontiguous buildings within the general area rather than a cohesive collection of contiguous contributors that have an intact visual and spatial connection with each other, the demolition of a non-contributing building and new construction outside the general vicinity of the historic district does not have the potential to indirectly impact the significance of this historic district. Thus, the demolition of the existing historic resource under the proposed project or project variants and the new development that would take its place would have no potential to impact that eligible historic district, either directly through the removal of a contributing structure or indirectly through the introduction of a new structure within the district that would adversely alter the visual or spatial relationships of the district characteristics that justify its listing on the California Register.

Additionally, while the Potrero Trolley Coach Division Facility and the Lux School of Industrial Training were developed within a few years of each other and are both generally designed in the Renaissance Revival style, the Potrero Trolley Coach Division Facility is more utilitarian in design. In contrast, the Lux School is a more elaborate representation of the style, exhibiting a variety of materials and architectural details. Lastly, the portion of the project site that has visual or spatial connections with the Lux School consists primarily of a parking deck and the 1924 addition of the maintenance shops wing along Hampshire Street, which exhibits minimal architectural detail compared to the primary façade on Mariposa Street. Therefore, the Potrero Trolley Coach Division Facility and the Lux School do not share a contextual or architectural relationship, and demolition of the Potrero Trolley Coach Division Facility would not have an impact on the historic significance of the Lux School.

For these reasons, the proposed project or project variants would not demolish or materially alter in an adverse manner the physical characteristics of these nearby historical or potentially historical resources that convey their historical significance and that justify their eligibility for inclusion in the California Register. No mitigation measures are necessary.

CUMULATIVE IMPACTS

Impact C-CR-1: The proposed project or project variants, in combination with cumulative projects, would not materially alter, in an adverse manner, the physical characteristics of historical resources that justify their eligibility for inclusion in the California Register of Historical Resources, resulting in a cumulative impact. *(Less than Significant)*

Cumulative projects are identified in **Table 3.A.1: Cumulative Projects**, on pp. 3.A.7-3.A.8, and in **Figure 3.A.1: Cumulative Projects**, on p. 3.A.9. The only cumulative project in the immediate vicinity of the site is 1850 Bryant Street; all other projects are more than a block away. None of the listed cumulative projects include the demolition of a historical resource. The impacts of cumulative projects on identified historical resources in the vicinity of the project site would not combine with impacts of the proposed project. The significance of the Potrero Trolley Coach Division Facility is not premised on it possessing an intact and cohesive visual or functional relationship with nearby properties. Likewise, and reciprocally, the significance of nearby offsite historical resources is not premised on their having an intact and cohesive visual or functional relationship with the project site. As such, the impact of the proposed project or project variants on the significance of the Potrero Trolley Coach Division Facility historical resource is independent of the impacts of nearby cumulative projects on the significance of nearby historical resources. Such impacts would not combine to result in a significant cumulative impact.

For these reasons, the impact of the proposed project or project variants on historical resources would not combine with those of cumulative projects to result in a significant cumulative impact on historical resources. No mitigation measures are required.

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C. TRANSPORTATION AND CIRCULATION

INTRODUCTION

EIR Section 3.C, Transportation and Circulation, describes existing transportation and circulation conditions in the study area and analyzes potential project-level and cumulative impacts on transportation and circulation during construction and operation of the proposed project or project variants. Transportation and circulation topics consist of walking, bicycling, driving hazards, public transit, emergency access, vehicle miles traveled, and loading. Supporting detailed technical information is included in **EIR Appendix E, Transportation Supporting Information**.

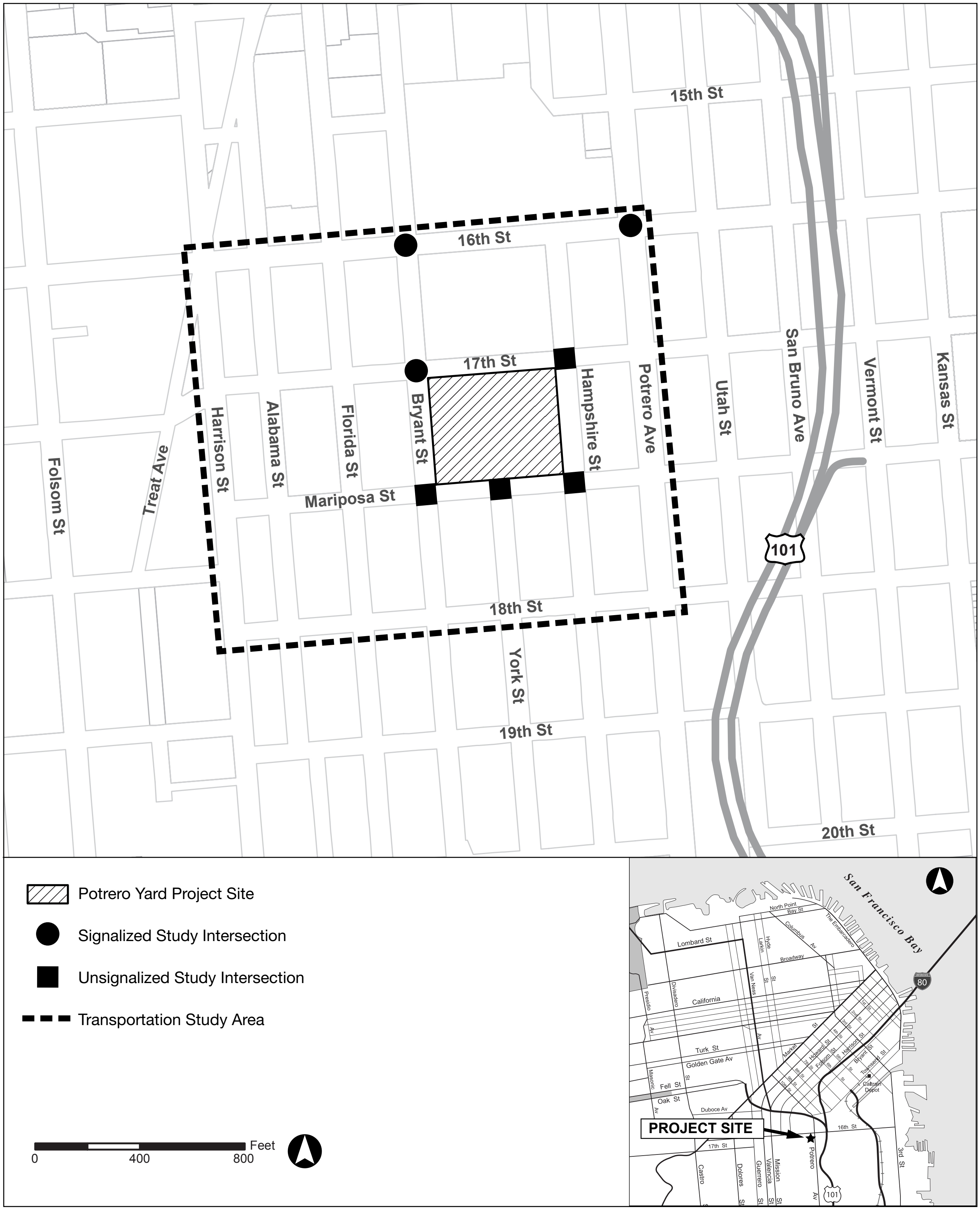
Issues identified in response to the Notice of Preparation (NOP) of an EIR and Notice of Public Scoping Meeting (**EIR Appendix A**) related to the proposed project's physical environmental impacts were considered in preparing this analysis. The San Francisco Planning Department (planning department) received comments related to transportation and circulation that focused on project transportation infrastructure upgrades, project travel demand, pedestrian and bicycle safety and accessibility, and vehicle parking (see **EIR Chapter 1, Introduction**, pp. 1.3-1.5).

EXISTING CONDITIONS

The transportation study area encompasses those locations where the project could affect transportation and circulation and is generally bounded by 16th Street to the north, Harrison Street to the west, 18th Street to the south, and Potrero Avenue to the east. **Figure 3.C.1: Transportation Study Area** shows the location of the project site, the boundaries of the transportation study area, and the study intersections.

REGIONAL AND LOCAL ROADWAYS

The closest regional roadways to the project site, including on- and off-ramps, are described below. The existing local roadways in the transportation study area are also described, including their geographic extent and their San Francisco General Plan (general plan), Better Streets Plan, Key Walking Street, and High Injury Network designations. For the existing streets adjacent to the project site, the width of the roadway, including travel lanes, and any potential or observed vehicle-to-vehicle hazardous conditions are noted. Information on the number of vehicles on roadway segments in the vicinity of the proposed project site is presented. Counts of buses and other vehicles and people walking and bicycling within the transportation study area were conducted in May 2018 and February 2020, while the description of transportation conditions near the project site is based on field surveys and observations conducted on multiple days in May 2018 and February and March 2020. All of the data collection occurred prior to the onset of changes resulting from the COVID-19 pandemic (e.g., prior to reductions in public transit service and peak period trips by all ways of travel).



Source: Fehr & Peers/LCW Consulting, 2020

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FIGURE 3.C.1: TRANSPORTATION STUDY AREA

Regional Roadways

U.S. Highways

U.S. Highway 101 (U.S. 101) is generally a north-south freeway, connecting San Francisco with the Peninsula and beyond to the south and Marin County and beyond to the north. It connects with **Interstate 80** (I-80) in the South of Market area of San Francisco, approximately 0.4 mile north of the project site. I-80 provides access to the East Bay and points farther east via the San Francisco-Oakland Bay Bridge. Between I-80 and the San Francisco city and county line, U.S. 101 is an eight- to 10-lane (total both ways) limited-access freeway. In the vicinity of the project site, northbound access from U.S. 101 is provided via an off-ramp at Vermont Street/Mariposa Street; trucks weighing more than 3 tons are prohibited from using the Vermont Street off-ramp. The on-ramp at Bryant Street at 10th Street provides access to southbound U.S. 101.

Interstate 280 (I-280) is a generally north-south freeway that connects San Francisco with the Peninsula and the South Bay. I-280 has an interchange with U.S. 101 approximately 1 mile south of the project site. I-280 terminates in San Francisco at surface streets in the South of Market/Mission Bay areas. Near the project site, I-280 is a six- to eight-lane facility (total both ways). The closest access to and from south I-280 is located at Mariposa Street/Owens Street, which is about 1 mile east of the project site.

Local Roadways

This section describes the existing local roadway system in the vicinity of the project site, including the general plan roadway designation, the number of travel lanes, vehicular traffic flow direction, and bicycle facilities.[1]

Sixteenth Street is an east-west arterial that runs between Terry A. Francois Boulevard to the east and Castro Street to the west. Between Third and Owens streets, 16th Street has one travel lane and one transit-only lane each way, with left-turn-only lanes provided at all intersections. Between Owens Street and Potrero Avenue, 16th Street has one travel lane and one transit-only lane each way and left turns are not permitted at any intersection in this 0.7-mile segment of 16th Street.

[1] City road designations within the San Francisco General Plan include the following (listed in the order of potential vehicle capacity): freeways, major arterials, transit conflict streets, secondary arterials, recreational streets, collector streets, and local streets. Each of these roadways has a different potential capacity for mixed-flow traffic and changes that might alter traffic patterns on the given roadway. The general plan also identifies certain Transit Preferential Streets from among the City's various roadways, each of which is identified as a Primary Transit Street-Transit Oriented, Primary Transit Street-Transit Important, or Secondary Transit Street. The Pedestrian Network classifies streets throughout the City. It identifies streets that have been developed primarily for use by people walking and includes the Citywide Pedestrian Network Streets and Neighborhood Pedestrian Streets. City and County of San Francisco, San Francisco General Plan, 2007, Transportation Element, *http://generalplan.sfplanning.org/I4_Transportation.htm#TRA_REG_5_4*, accessed May 5, 2021.

Between Potrero Avenue and Bryant Street, 16th Street currently has two mixed-flow travel lanes each way (i.e., no transit-only lanes). Sixteenth Street is designated in the general plan as a Primary Transit Oriented Preferential Street between De Haro and Church streets and as a Neighborhood Commercial Pedestrian Street between Bryant and Church streets. Sixteenth Street is also designated as a Key Walking Street[2] and part of the Vision Zero High Injury Network.[3]

Seventeenth Street runs east-west between Pennsylvania Street to the east and Stanyan Street to the west. In the vicinity of the project site, 17th Street has one travel lane in each direction. Bicycle lanes are provided both ways between Mississippi/Seventh streets in Mission Bay and Eureka Street in the Castro. Seventeenth Street is part of the Vision Zero High Injury Network.

Adjacent to the project site, the 17th Street roadway width is between 36 and 39 feet wide with one travel lane and a bicycle lane in each direction. On-street parallel parking is provided on the north side of the street, starting approximately 230 feet east of the intersection of Hampshire Street/17th Street. Between Bryant and Hampshire streets there are 10 vehicle parking spaces on the north side of the street, including one Americans with Disabilities Act (ADA)-accessible space. On this segment of 17th Street, field visits did not result in observation of any hazardous conditions pertaining to vehicle-to-vehicle conflicts.

Mariposa Street is an east-west roadway that runs between Illinois Street to the east and Harrison Street to the west, and is discontinuous for the one-block segment between San Bruno Avenue and Vermont Street to accommodate U.S. 101 as it winds around Potrero Hill (the nearest east-west access across U.S. 101 is at 17th and 16th streets to the north).

Adjacent to the project site the Mariposa Street public roadway width is 36 feet wide with one travel lane in each direction. On-street parallel parking is provided on the north side of the street between the two gated entry and exit points to the bus storage yard (between Bryant and York

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2 As part of the City's WalkFirst project, the San Francisco Planning Department determined the Key Walking Streets network. This map is intended to eventually update the general plan's Transportation Element. Key Walking Streets are characterized by street segments in close proximity to significant pedestrian generators such as schools, parks, tourist activities and shopping districts. The WalkFirst project is a multi-agency effort to improve pedestrian safety and walking conditions, encourage walking as a mode of transportation, and enhance pedestrian connections to key destinations. Information is available at *https://default.sfplanning.org/Citywide/WalkFirst/phase3/WalkFirst_Key_Walking_Streets.pdf.* (Accessed May 5, 2021.)

3 Vision Zero is a policy that assists in focusing traffic safety investments to reduce severe and fatal injuries to people walking, bicycling, and driving on streets where most severe or fatal injuries are concentrated. The City adopted Vision Zero as a policy in 2014, with the goal of zero traffic deaths for all ways people travel. The bicycle and bus lane improvements on Potrero Avenue is an example of a City project to address safety issues and achieve Vision Zero. A map of the Vision Zero High Injury Network is found at *https://sfgov.maps.arcgis.com/apps/webappviewer/index.html?id=fa37f1274b4446f1bdddd7bdf9e708ff.* (Accessed December 15, 2020.)

streets), and on the south side between Bryant and Hampshire streets. There are six vehicle parking spaces on the north side of the street adjacent to the project site, and eight vehicle parking spaces on the south side of the street between York and Hampshire streets.[4] On this segment of Mariposa Street, field visits did not result in observation of any hazardous conditions pertaining to vehicle-to-vehicle conflicts.

Harrison Street runs east-west between The Embarcadero and 12th Street, and north-south west of 12th Street. Harrison Street is a two-way roadway between The Embarcadero and Third Street, a one-way westbound roadway between Third and 10th streets, and a two-way roadway between 10th and Cesar Chavez streets. North of 13th Street, Harrison Street is an access route to and from westbound I-80. In the vicinity of the project site Harrison Street has one travel lane and a bicycle lane in each direction. The general plan identifies Harrison Street as a Major Arterial in the Congestion Management Plan (CMP) Network, a Metropolitan Transportation System (MTS) Street, a Transit Preferential Street (secondary transit street), and a Neighborhood Commercial Street. Harrison Street is also part of the Vision Zero High Injury Network.

Bryant Street runs east-west between The Embarcadero and 11th Street, and north-south west of 11th Street. Bryant Street is a two-way roadway between Cesar Chavez and 11th streets, a one-way eastbound roadway between 11th and Sterling streets, and a two-way roadway between Sterling Street and The Embarcadero. North of 13th Street, Bryant Street is an access route to and from eastbound I-80 and the Bay Bridge. The general plan identifies Bryant Street as a Major Arterial in the CMP Network, an MTS Street, a Transit Preferential Street (transit important and secondary transit street), and a Neighborhood Commercial Street. Between 17th and 13th streets, there are bicycle lanes on each side of the street.

The Bryant Street roadway width adjacent to the project site is 50 feet with one travel lane in each direction. On the east side of Bryant Street between 17th and Mariposa streets, there is a bus stop at the northbound approach to Mariposa Street and 15 vehicle parking spaces, while on the west side of the street there are two bus stops, six vehicle parking spaces, and two commercial vehicle loading spaces. Field surveys of conditions adjacent to the project site did not identify any hazardous conditions pertaining to vehicle-to-vehicle conflicts.

[4] The KQED headquarter facility renovation project at 2601 Mariposa Street was initiated in September 2019 and is scheduled to be completed within two years (summer 2021). Information is available at *https://www.kqed.org/pressroom/10976/kqed-breaks-ground*. (Accessed May 5, 2021.) The segment of Mariposa Street between Bryant and York streets currently has six vehicle parking spaces and a 44-foot-wide passenger loading (white) zone.

York Street runs north-south between Mariposa Street to the north and Cesar Chavez Street to the south. In the vicinity of the project site, York Street has one travel lane in each direction and terminates at Mariposa Street as a “T” intersection.[5]

Hampshire Street runs north-south between Alameda Street to the north and Cesar Chavez Street to the south. Hampshire Street is partially discontinuous between Alameda and 17th streets, and north of 17th Street it provides driveway access to the San Francisco Recreation and Parks Department’s Franklin Square maintenance area and off-street parking facilities for adjacent buildings. Hampshire Street has one travel lane in each direction.

Adjacent to the project site, the Hampshire Street roadway width is 50 feet wide with one travel lane in each direction. Between 17th and Mariposa streets, the west side of Hampshire Street (i.e., adjacent to the project site) has 43 parking spaces (all 90-degree angle spaces); the east side (across the street from the project site) has 26 parking spaces of this type and two commercial loading zones that can accommodate about six vehicles. Hazardous conditions pertaining to vehicle-to-vehicle conflicts were not observed on this segment of Hampshire Street during field visits.

Potrero Avenue runs north-south between Division Street to the north and Cesar Chavez Street to the south. Potrero Avenue connects with the U.S. 101 southbound on-ramp at Cesar Chavez Street, and south of Cesar Chavez Street, it connects with Bayshore Boulevard. Potrero Avenue generally has two travel lanes in each direction with dedicated left-turn pockets at key intersections, and a bicycle lane runs in each direction on Potrero Avenue. Between 18th and 24th streets, there is a southbound bus lane. The general plan identifies Potrero Avenue as a Major Arterial in the CMP Network, an MTS Network street, and a Transit Preferential (secondary transit) street. Potrero Avenue is also designated as a Key Walking Street and part of the Vision Zero High Injury Network.

Vehicular Counts/Traffic Conditions

Intersection turning movement counts were collected at the seven study intersections shown in **Figure 3.C.1** in May 2018 and February 2020 during the a.m. (7 a.m. to 9 a.m.) and p.m. (4 p.m. to 6 p.m.) peak periods. **EIR Appendix E-1, Summary of Intersection Turning Movement Volumes**, contains a summary of the vehicular traffic volumes by movement at the study intersections. Adjacent to the project site, the intersection of Bryant Street/17th Street is signalized, the intersections of Bryant Street/Mariposa Street and Hampshire Street/Mariposa Street are all-way STOP-sign controlled, while at the T-intersections of Hampshire Street/17th Street and York Street/Mariposa Street the northbound approach is STOP-sign controlled, and eastbound and westbound traffic does not stop.

[5] A T intersection is an intersection where two roadways meet in a perpendicular manner and one roadway does not continue across the other road, forming a “T” shape.

Table 3.C.1: Existing Weekday A.M. and P.M. Peak Hour Vehicle Counts summarizes the existing a.m. and p.m. peak traffic hour volumes on streets near the project site.[6] As shown in the table, the p.m. peak hour traffic volumes on streets adjacent to and nearby the project site are greater than the a.m. peak hour volumes. The p.m. peak hour volumes are greatest on Potrero Avenue and 16th Street, the primary north-south and east-west arterials in the project vicinity, respectively. Adjacent to the project site, traffic volumes are higher on 17th and Bryant streets than on Hampshire or Mariposa streets.

Table 3.C.1: Existing Weekday A.M. and P.M. Peak Hour Vehicle Counts

Street Segment	A.M. Peak Hour	P.M. Peak Hour
16th Street between Bryant Street and Potrero Avenue	1,222	1,598
17th Street between Bryant and Hampshire streets	634	638
Mariposa Street between Bryant and York streets	198	299
Mariposa Street between York and Hampshire streets	211	278
Bryant Street between 16th and 17th streets	555	721
Bryant Street between 17th and Mariposa streets	561	622
Hampshire Street between 17th and Mariposa streets	89	106
Potrero Avenue between 16th and 17th streets	1,437	1,581

Note: Volumes shown are two-way traffic volumes on identified street segments. Intersection turning movement volumes at the seven study intersections are provided in **EIR Appendix E-1**.

Source: Fehr & Peers/LCW Consulting, 2020. Counts conducted on May 31, 2018, or February 19, 2020.

At the intersection of Potrero Avenue/16th Street, traffic volume counts were conducted for the weekday p.m. peak period on a day without an event at the Chase Center (on 16th Street approximately 1 mile east of Potrero Avenue), February 19, 2020, and on a day with a sold-out basketball game at the Chase Center starting at 7:30 p.m., February 20, 2020. As presented in **Table 3.C.2: Existing Weekday P.M. Peak Hour Vehicle Counts, Intersection of Potrero Avenue/16th Street – Non-Event and Event Day Conditions**, traffic volumes during the p.m. peak hour of the 4 p.m. to 6 p.m. peak period did not vary substantially between the non-event and event days.

Table 3.C.2: Existing Weekday P.M. Peak Hour Vehicle Counts
Intersection of Potrero Avenue /16th Street – Non-Event and Event Day Conditions

Intersection Approach	Non-Event Day	Event Day
Northbound	717	716
Southbound	928	1,089
Eastbound	563	539
Westbound	742	779
Total Vehicles	**2,950**	**3,123**

Note: Counts conducted on February 19, 2020, for a non-event day and on February 20, 2020, for an event day. On February 20, 2020, the Golden State Warriors played the Houston Rockets at the Chase Center. The reported attendance was 18,064, with the game beginning at 7:30 p.m.

Source: Fehr & Peers/LCW Consulting, 2020.

6 The peak hour traffic volume is the volume of vehicles during the peak 60 minutes of the two-hour a.m. (7 a.m. to 9 a.m.) or p.m. (4 p.m. to 6 p.m.) peak periods during which the highest volumes of vehicles were observed.

Potrero Yard is used for bus overnight storage and maintenance activities. Bus travel to and from the yard is considered non-revenue bus travel time. Non-revenue buses are not in service picking up and dropping off passengers; rather, they are traveling to or from the facility and a terminus point where revenue service begins or ends. Bus, non-revenue vehicle, and staff vehicle access to the yard and maintenance and operations building is from Mariposa Street via the 44-foot-wide gate just west of the entry control booth and the bus entry bays near Hampshire Street and from the second-floor parking deck accessed via a 52-foot-wide curb cut and gated driveway on 17th Street near Hampshire Street.

Six Muni bus routes currently operate out of the Potrero Yard: the 5 Fulton, 5 Fulton Rapid, 6 Haight/Parnassus, 14 Mission, 22 Fillmore, and 30 Stockton routes. In general, the peak period for buses leaving Potrero Yard to access their routes is between 4 a.m. and 7 a.m., with the majority leaving between 5 a.m. and 6 a.m. Buses generally return to the yard in the evening between 7 p.m. and 9 p.m. Thus, the peak transit vehicle travel to and from the yard occurs prior to the a.m. peak hour for adjacent street traffic, which is generally between 8 a.m. and 9 a.m., and after the p.m. peak hour, which is generally between 5 p.m. and 6 p.m.

Field data were collected over a 24-hour period at the existing project site driveways on February 18, 2020. A total of 952 total vehicles entered and exited the four existing driveways for the facility (183 inbound and 187 outbound via 17th Street, and 290 inbound and 292 outbound on Mariposa Street). Of the 952 daily vehicles, 32 percent were buses and 68 percent were autos and trucks.

WALKING CONDITIONS

This subsection describes the absence, discontinuity, or presence of facilities for people walking[7] within the transportation study area. It also identifies any potentially or observed existing hazardous conditions at locations where people walk and describes the number of people walking at adjacent study intersections.

The project site slopes uphill toward the north and east (towards the intersection of Hampshire Street/17th Street) and downhill toward the south and west (towards the intersection of Bryant Street/Mariposa Street). The northeast-to-southwest slope is approximately 4.3 percent. The north-to-south downhill slope is approximately 5.5 percent along Hampshire Street and 3.5 percent along Bryant Street. The east-to-west slope along 17th Street is approximately 3 percent; along Mariposa Street, it is relatively flat or at grade with a slope of 1 percent. The project site is not accessible to the public. SFMTA staff walking to the site access the main facility entrance on Mariposa Street

[7] People walking includes people with disabilities who may or may not require personal assistive mobility devices (e.g., wheelchairs, walkers, crutches, canes).

immediately east of the entry control booth midway between Bryant and Hampshire streets or use a secondary entrance on Hampshire Street just north of Mariposa Street.

Each of the streets adjacent to the project site is identified as a mixed-use street in the Better Streets Plan. Streets with this designation have a minimum sidewalk width (i.e., the width of sidewalk between the curb and property line) of 12 feet and a recommended sidewalk width of 15 feet. The sidewalks adjacent to the project site along 17th, Hampshire, and Bryant streets are each 15 feet wide and meet the Better Streets Plan recommended sidewalk width. The existing Potrero Yard facility encroaches on the Mariposa Street sidewalk right-of-way, and therefore the Mariposa Street sidewalk is only 7 feet wide and does not meet the minimum sidewalk width of 12 feet specified in the Better Streets Plan.

As noted above, the adjacent intersection of Bryant Street/17th Street is newly signalized and has pedestrian countdown signals, but does not include leading pedestrian intervals.[8] The adjacent intersections of Bryant Street/Mariposa Street and Hampshire Street/Mariposa Street are all-way STOP-sign-controlled intersections. At the adjacent T-intersections of Hampshire Street/17th Street and York Street/Mariposa Street, the northbound approach is STOP-sign controlled, while eastbound and westbound traffic does not stop. ADA-compliant curb ramps are provided at all intersections in the transportation study area. Crosswalks in the continental design[9] are provided on all four legs of the signalized intersection of Bryant Street/17th Street and the unsignalized intersection of Bryant Street/Mariposa Street. Adjacent to the project site the curb-to-curb roadway widths are 50 feet for Bryant and Hampshire streets and 36 feet for Mariposa and 17th streets. These roadways widths are common for urban residential streets, encouraging slower travel speeds and allowing for shorter crossing distances at intersections.

Within the transportation study area, Potrero Avenue and 16th, 17th, and Harrison streets have been designated as part of the Vision Zero High-Injury Network. The network identifies street segments in San Francisco that have a high number of fatalities and severe injuries.[10]

In general, the conditions for people walking are satisfactory. During field observations conducted in May 2018 and February and March 2020, crosswalks and sidewalks were generally observed to

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[8] A leading pedestrian interval is a signal phase at signalized intersections that typically provides pedestrians a three- to five-second head start when entering an intersection with a corresponding green signal in the same direction of travel. For vehicle drivers, the leading pedestrian intervals make it easier to see people walking in the intersection and reinforce their right-of-way over turning vehicles.

[9] Crosswalks with a continental design have parallel markings that are the most visible to drivers. Use of continental design for crosswalk marking also improves crosswalk detection for people with low vision and cognitive impairments.

[10] San Francisco Department of Public Health-Program on Health, Equity and Sustainability, Vision Zero High Injury Network: 2017 Update – A Methodology for San Francisco, California, available at *https://sfgov.maps.arcgis.com/apps/webappviewer/index.html?id=fa37f1274b4446f1bdddd7bdf9e708ff*, accessed December 15, 2020.

be operating with unconstrained conditions, with normal walking speeds, freedom to bypass other people walking. As noted above, the streets adjacent to the project site have roadway widths that range between 36 and 50 feet, which is typical for urban residential streets. These narrower roadway widths reduce the distance and time for people crossing the roadway, and facilitate pedestrian travel through the study area. At intersections, no conditions that would impede pedestrian travel (e.g., physical barriers or substandard intersection design) were observed. Driveways to the existing transit facility are located on Mariposa and 17th streets, which are relatively flat (i.e., flat or up to 3 percent grade, as described above), and sightlines for people walking on the sidewalk and vehicles exiting the facility are adequate. Sidewalks on Mariposa Street adjacent to the western portion of the project site are narrow; however, due to the low volumes of people walking on Mariposa Street, they do not impede access for people walking on Mariposa Street. Overall, no substantial safety or right-of-way conflicts between people walking and bicyclists, buses or other vehicles were observed on streets adjacent to the project site.

Table 3.C.3: Existing Weekday A.M. and P.M. Peak Hour Counts of People Walking within Crosswalks presents counts of the number of people crossing at the intersections adjacent to the project site. The number of people crossing and walking on streets near the project site is greater during the p.m. peak hour than during the a.m. peak hour. Overall, the volume of people walking in the area is relatively low (about 50 to 100 people per hour during the peak hours). The volume of people walking is highest at the intersections of Bryant Street/17th Street and Bryant Street/Mariposa Street.

BICYCLING CONDITIONS

This subsection describes the absence, discontinuity, or presence of facilities for people bicycling within the transportation study area, and identifies any potentially or observed existing hazardous conditions at locations where people bicycle. In addition, it describes the number of people bicycling in the vicinity of the project site.

The transportation study area contains several existing bicycle facilities. Bicycle facilities are typically classified as class I, class II, class III, or class IV facilities, described as follows.[11]

- Class I: Bike paths with exclusive rights-of-way for use by people bicycling or people walking.
- Class II: Bikeways that are striped within the paved areas of roadways and established for the exclusive use of people bicycling in separated bicycle lanes. The separated bicycle lanes provide a striped, marked, and signed lane that is buffered from vehicular traffic. These facilities, which are located on roadways, reserve 4 to 5 feet of space for bicycle traffic exclusively.

[11] California Streets and Highway Code section 890.4, *https://codes.findlaw.com/ca/streets-and-highways-code/shc-sect-890-4.html*, accessed December 15, 2020.

Table 3.C.3: Existing Weekday A.M. and P.M. Peak Hour Counts of People Walking within Crosswalks

Intersection/Crosswalk Location	A.M. Peak Hour	P.M. Peak Hour
Bryant Street/17th Street		
North (i.e., crossing Bryant Street)	7	52
South	30	36
East (i.e. crossing 17th Street)	45	84
West	40	73
Total all crosswalks	***122***	***245***
Bryant Street/Mariposa Street		
North	23	34
South	88	62
East	44	59
West	57	76
Total all crosswalks	***212***	***231***
Hampshire Street/17th Street		
South	33	47
East	3	4
West	9	18
Total all crosswalks	***45***	***69***
Hampshire Street/Mariposa Street		
North	10	25
South	41	34
East	23	24
West	27	20
Total all crosswalks	***101***	***103***

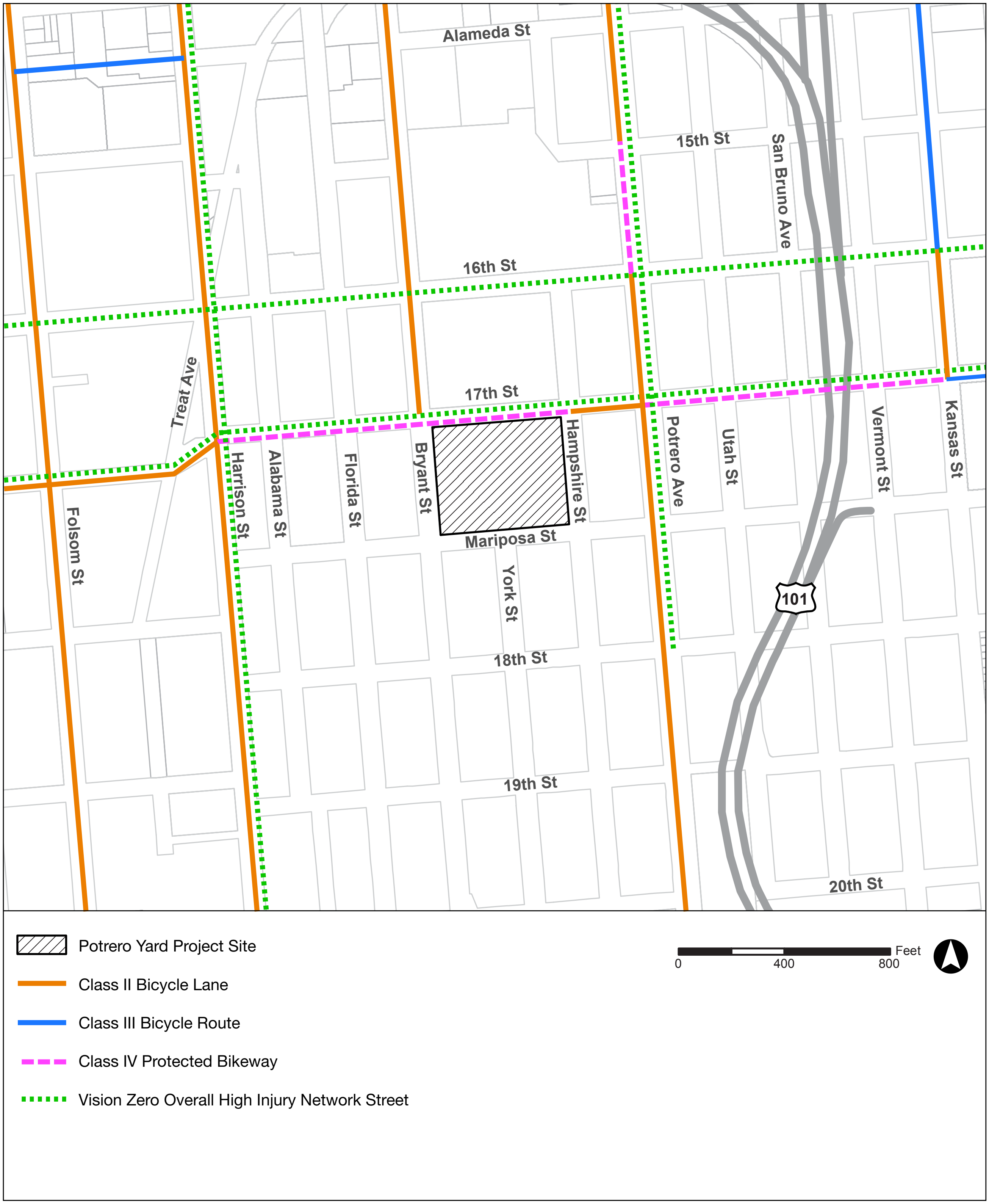
Note: Counts conducted on May 31, 2018, or February 19, 2020. See **EIR Appendix E-2, Vehicle, Bicycle, and Pedestrian Counts**.

Source: Fehr & Peers/LCW Consulting, 2020.

- Class III: Signed bicycle routes that allow people bicycling to share travel lanes with vehicles and may include a shared-lane marking.
- Class IV: An exclusive bicycle facility that is separated from vehicular traffic by a buffer zone (also referred to as a cycle track). The separation from vehicular traffic could be by grade separations, flexible posts, inflexible physical barriers, or on-street vehicular parking.

Figure 3.C.2: Existing Bicycle Route Network in Project Vicinity presents the bicycle network in the transportation study area. As shown on the figure, the streets adjacent to the project area have the following bicycle facilities:

- Seventeenth Street primarily has class II bicycle lanes in both directions of travel between Mississippi Street in Mission Bay and Eureka Street in the Castro; however, portions are class III or class IV facilities. Class II or IV bikeways are provided in each direction between Harrison and Hampshire streets. Adjacent to the project site the bicycle lane is protected (class IV) on the western half of the block between Bryant and Hampshire streets. A class II bicycle lane is provided in both directions of travel for the block between Hampshire Street and Potrero Avenue.



Source: SFMTA San Francisco Bike Map, 2019-https://www.sfmta.com/sites/default/files/pdf_map/2019/06/sfmta-metro-06.12.2019-web.pdf;
SF Planning Department-https://sfplanninggis.org/TIM/

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FIGURE 3.C.2: EXISTING BICYCLE ROUTE NETWORK IN PROJECT VICINITY

- Bryant Street has class II bicycle lanes in both directions of travel between 17th and Division streets (i.e., north of the project site).
- Potrero Avenue between Cesar Chavez and 13th/Division streets has class II bicycle lanes in both directions of travel.
- Harrison Street between 11th and Cesar Chavez streets has class II bicycle lanes in both directions of travel, with the exception of the segment between 23rd and 26th streets, which has class III facilities.
- Folsom Street between 13th and Cesar Chavez streets has class II bicycle lanes in both directions of travel. Between 13th Street and The Embarcadero, Folsom Street has an eastbound class IV separated bikeway or a class II bicycle lane.

There is a Bay Area bicycle-share station on the east side of Bryant Street north of 17th street with 19 bicycle docks. On the streets that border the project site, there are two bicycle racks on the east side of Hampshire Street between 17th and Mariposa streets and three bicycle racks on the south side of Mariposa Street between York and Hampshire streets.

Bicycle volume counts were conducted during the weekday a.m. and p.m. peak periods in May 2018 and February 2020 at the seven study intersections, and counts on selected street segments adjacent to and near the project site are presented in **Table 3.C.4: Existing Weekday A.M. and P.M. Peak Hour Counts of People Bicycling**. As noted in the table, the greatest number of bicyclists was counted on 17th Street and on Potrero Avenue; both streets provide class II bicycle lanes. On 17th Street between Bryant and Hampshire streets, there were generally between 100 and 150 bicyclists per hour, with bicyclists primarily traveling eastbound during the a.m. peak hour and westbound during the p.m. peak hour. There were about 70 bicyclists per hour on Potrero Avenue for both directions of travel, with bicyclists primarily traveling northbound during the a.m. peak hour and southbound during the p.m. peak hour.

Table 3.C.4: Existing Weekday A.M. and P.M. Peak Hour Counts of People Bicycling

Street Segment	A.M. Peak Hour	P.M. Peak Hour
17th Street between Bryant and Hampshire streets	17 wb/101 eb = 118	124 wb/20 eb = 144
Mariposa Street between Bryant and York streets	4 wb/10 eb = 14	4 wb/4 eb = 8
Mariposa Street between York and Hampshire streets	5 wb/14 eb = 19	8 wb/5 eb = 13
Bryant Street between 16th and 17th streets	22 nb/13 sb = 35	19 nb/25 sb = 44
Bryant Street between 17th and Mariposa streets	20 nb/10 sb = 30	9 nb/24 sb = 33
Hampshire Street between 17th and Mariposa streets	54 nb/5 sb = 59	6 nb/34 sb = 40
Potrero Avenue between 16th and 17th streets	65 nb/3 sb = 68	11 nb/59 sb = 70

Note: wb = westbound/eb = eastbound, nb = northbound/sb = southbound.

Source: Fehr & Peers/LCW Consulting, 2020. Counts conducted on May 31, 2018, or February 19, 2020. See **EIR Appendix E-2**.

On streets without bicycle lanes, the number of bicyclists traveling during the peak hours was generally fewer than 30 bicyclists per hour. The exception was on Hampshire Street, which had between 40 and 60 bicyclists per hour. Hampshire Street is used by bicyclists to travel north to eastbound 17th Street during the a.m. peak hour, and from westbound 17th Street to southbound Hampshire Street during the p.m. peak hour. Hampshire Street has 90-degree angle parking and a north-to-south downhill slope of approximately 5.5 percent between 17th and Mariposa streets. The 90-degree angle parking increases the potential for conflicts between drivers exiting the parking space and bicyclists on the roadway than parallel parking.

As noted above, there are bicycle lanes in both directions of travel on 17th Street between Mission Bay and Castro neighborhoods. The bicycle corridor connects with north-south routes, including at Folsom Street, Harrison Street, Bryant Street (to the north of 17th Street), and Potrero Avenue within the transportation study area. The SFMTA's Bicycle Network Comfort index[12] (i.e., level of traffic stress) is LTS 1, which represents the highest level of ridership comfort. During field surveys conducted in May 2018 and February and March 2020 bicyclists were observed traveling within the bicycle lane unconstrained, with no conflicts at intersections. However, during off-peak periods some bicyclists on 17th Street were observed not stopping at the all-way stop-control intersections of Florida Street/17th Street and Alabama Street/17th Street primarily in the eastbound (uphill) direction. However, because of the generally lower traffic volumes on these streets compared to nearby arterial streets and narrow roadway widths, no conflicts or hazardous conditions were observed. On 17th Street adjacent to the project site there is one driveway west of Hampshire Street that provides inbound and outbound access to the transit facility for buses and maintenance vehicles. On a daily basis there are about 183 inbound and 187 outbound vehicles at this driveway, with a substantial number occurring during the early morning facility peak period of 4 a.m. to 7 a.m.

No physical impediments to bicycling on area roadways were observed. Overall, no substantial safety or right-of-way conflicts between bicyclists, people walking, buses or other vehicles were observed on streets adjacent to the project site.

PUBLIC TRANSIT CONDITIONS

This subsection describes the local and regional public transit service in the transportation study area, including geographic extent, scheduled frequency, and transit stop proximity to the project site. In addition, it describes observed conditions that delay public transit. This section does not discuss non-revenue transit vehicles that access the project site (a discussion of transit facility operations is presented under "Vehicular Counts/Traffic Conditions," above).

Local service in San Francisco is provided by the San Francisco Municipal Railway (Muni), the transit division of the SFMTA. Muni bus routes, cable car lines, and light rail lines can be used to access regional transit. **Figure 3.C.3: Existing Transit Network in Project Vicinity** presents the

[12] SFMTA Map of San Francisco Bike Network Comfort Index, *https://www.sfmta.com/sites/default/files/projects/2017/ComfortIndexCIP_011317_0.pdf*, accessed May 11, 2021. Traffic stress is defined as how comfortable a roadway feels for a person biking, based on interaction with other ways of travel (e.g., people walking or driving), traffic controls (e.g., stop signs, signals), and the geographic features of the area (slope of the street, quality of the pavement).

existing transit network serving the transportation study area and identifies the location of the bus stops for these routes.

As shown in **Figure 3.C.3**, numerous Muni bus routes serve the project site. Muni operates six bus routes within one block of the project site along Bryant Street (27 Bryant), 16th Street (22 Fillmore, 33 Ashbury/18th Street, 55 16th Street), and Potrero Avenue (9 San Bruno, 9R San Bruno Rapid, 33 Ashbury/18th). The 27 Bryant route runs north-south adjacent to the project site on Bryant Street, and there is a bus stop with a transit shelter at the northbound approach to 17th Street (i.e., a near-side stop[13]).

Table 3.C.5: Existing Muni Routes in Project Vicinity presents information for each Muni route that operates within the transportation study area, including service frequencies[14] for the a.m. and p.m. peak periods, general hours of operation, nearest stop location, and neighborhoods served. In addition to these routes, four Muni routes (8 San Bruno, 8AX San Bruno Express, 8BX San Bruno Express, and 14X Mission Express) travel on U.S. 101 but do not stop.

Regional transit providers include Bay Area Rapid Transit (BART), Golden Gate Transit, and San Mateo County Transit District (SamTrans). BART operates heavy rail regional trains and the closest station is located approximately 0.5 mile west of the site (16th and Mission BART station). Golden Gate Transit operates surface buses within 0.8 mile of the project site, along Folsom and Eighth streets.[15] SamTrans operates four surface bus lines in San Francisco, including a commuter express line, along Mission, Ninth, and 10th streets and along Potrero Avenue. The closest stop for SamTrans (for Route 292) is located on Potrero Avenue at 24th Street.

During field surveys conducted in May 2018 and February and March 2020, no conditions that would delay transit were observed. Adjacent to the project site, intersections have been upgraded to accommodate bus travel to and from the existing transit facility entrances and exits on Mariposa and 17th streets (e.g., the bus yard accessed from Mariposa Street and the second-floor maintenance shops accessed from 17th Street) via Bryant Street and to reduce conflicts between transit vehicles and people walking and bicycling. These improvements include a new signal at the intersection of Bryant Street/17th Street, red curbs on Mariposa Street, white diagonal crosshatch markings on Mariposa and Bryant streets, and continental crosswalks at Bryant Street/17th Street and Bryant Street/Mariposa Street.

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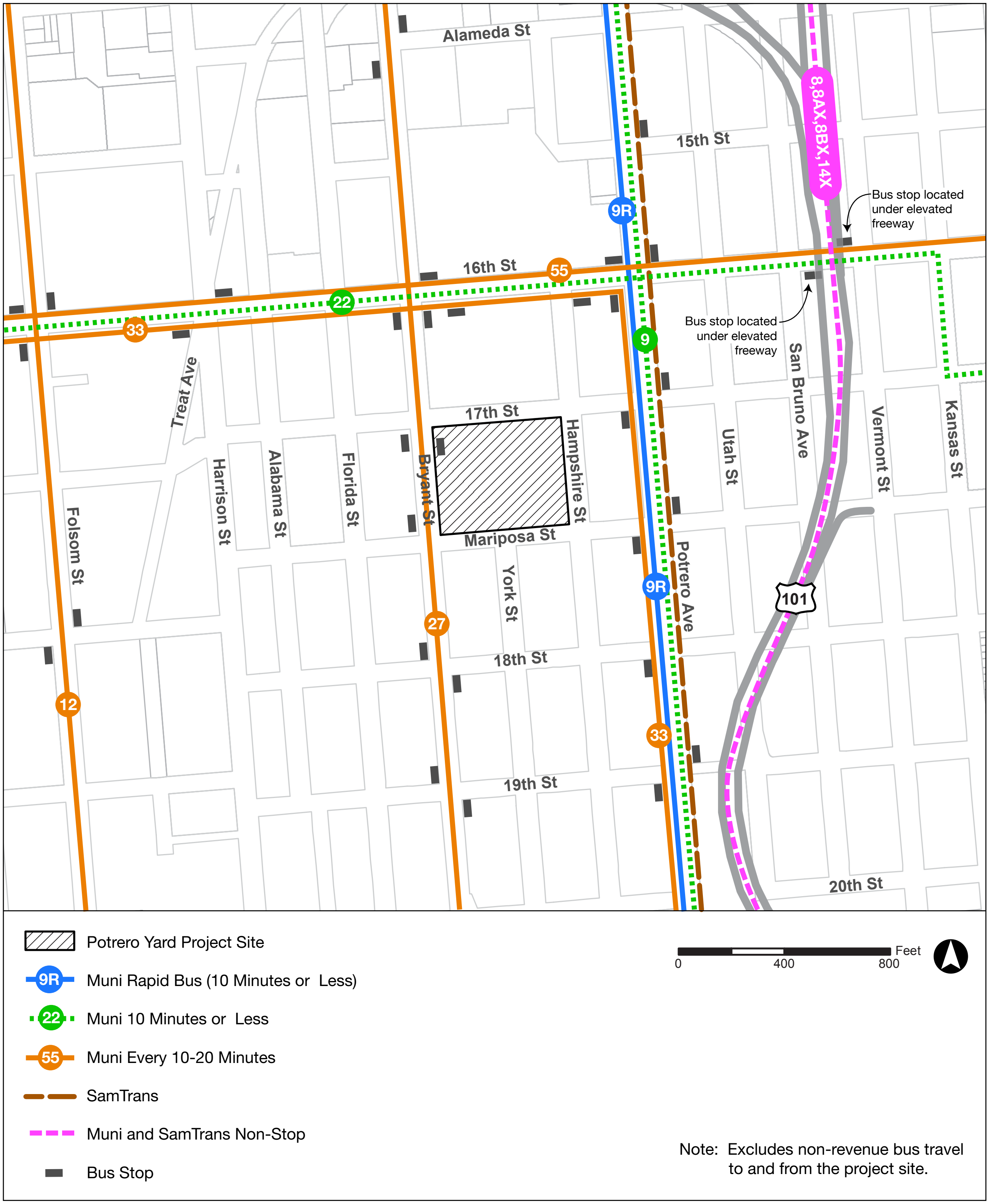
[13] Near-side stops are stops located at the first or nearest side of the intersection before a transit vehicle passes through the intersection. Far-side transit stops are stops located at the second or farthest side of the intersection after a transit vehicle passes through the intersection.

[14] The service headway is the number of minutes between buses or trains on a particular bus route or light rail line.

[15] Golden Gate Transit, San Francisco System Map, *https://www.goldengate.org/assets/1/31/map-san-francisco.pdf?4763*, accessed August 19, 2020.



Source: MUNI System Map, 2019-http://sfmta.com/sites/default/files/pdf_map/2019/06/sfmta-metro-06.12.2019-web.pdf

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 3.C.3: EXISTING TRANSIT NETWORK IN PROJECT VICINITY

Table 3.C.5: Existing Muni Routes in Project Vicinity

Bus Route	Frequencies NOTE A (in minutes)		General Hours of Weekday Operation (first and last trips)	Nearest Stop to Project Site	Neighborhoods Served
	Neighborhoods Served	P.M. Peak Period NOTE B			
9 San Bruno	12	12	5:30 a.m. – 12:10 a.m.	Potrero Avenue and 17th Street	Bayview, Bernal Heights, Chinatown, Crocker Amazon, Downtown/Civic Center, Excelsior, Financial District, Mission, Potrero Hill, South of Market, Visitacion Valley, Western Addition
9R San Bruno Rapid	9	9	6:20 a.m. – 7 p.m.	Potrero Avenue and 16th Street	Bayview, Bernal Heights, Chinatown, Downtown/Civic Center, Excelsior, Financial District, Mission, Potrero Hill, South of Market, Visitacion Valley, Western Addition
22 Fillmore	8	8	24 hours	16th Street and Bryant Street	Castro/Upper Market, Marina, Mission, Pacific Heights, Potrero Hill, South of Market, Western Addition
27 Bryant	15	15	5:45 a.m. – 12:40 a.m.	Bryant Street and 17th Street	Bernal Heights, Downtown/Civic Center, Financial District, Mission, Nob Hill, Noe Valley, Potrero Hill, Russian Hill, South of Market, Western Addition
33 Ashbury/18th	15	5	6 a.m. – 12:30 a.m.	16th Street and Bryant Street	Bayview, Bernal Heights, Castro/Upper Market, Golden Gate Park, Inner Richmond, Inner Sunset, Mission, Noe Valley, Potrero Hill, Presidio, Presidio Heights, South of Market, Twin Peaks, Haight Ashbury
55 16th Street	15	15	6 a.m. – 12 a.m.	16th Street and Bryant Street	Mission, Potrero Hill, South of Market

Notes:
[A] Frequencies represent wait times between transit vehicles.
[B] The a.m. peak period for Muni service is between 7 a.m. and 10 a.m., and the p.m. peak period is between 3 p.m. and 7 p.m.
Source: SFMTA, *https://www.sfmta.com/getting-around/muni/routes-stops*, Fehr & Peers/LCW Consulting, 2020.

EMERGENCY ACCESS CONDITIONS

This subsection describes the closest emergency access facilities to the project site and identifies any observed delays to emergency access providers adjacent to the construction work sites.

The nearest fire stations to the project site are Station 29 at 299 Vermont Street between 15th and 16th streets (about 0.3 mile northeast of the project site) and Station 7 at 2300 Folsom Street at 19th Street (about 0.4 mile southwest of the project site). The nearest police station is the Mission District police station located at 630 Valencia Street at 17th Street.

During field surveys of the project site and vicinity conducted in February and March 2020, delays to emergency service providers were not observed.

VEHICLE MILES TRAVELED

Vehicle miles traveled per person (or per capita) (VMT) is a measurement of the amount and distance that a resident, employee, or visitor drives, accounting for the number of passengers within a vehicle. In general, higher VMT areas are associated with more air pollution, including greenhouse gas emissions, and energy usage than lower VMT areas. Many interdependent factors affect the amount and distance a person might drive. In particular, the built environment affects how many places a person can access within a given distance, time, and cost, using different ways of travel (e.g., private vehicle, public transit, bicycling, walking, etc.). Typically, low-density development located at great distances from other land uses and in areas with few options for ways of travel provides less access than a location with high density, a mix of land uses, and numerous ways of travel. Therefore, low-density development typically generates more VMT compared to a similarly sized development located in urban areas.

Given these travel behavior factors, on average, persons living or working in San Francisco result in lower amounts of VMT per person than persons living or working elsewhere in the nine-county San Francisco Bay Area region. In addition, on average, persons living or working in some areas of San Francisco result in lower amounts of VMT per person than persons living or working elsewhere in San Francisco. The City displays different amounts of VMT per capita geographically through transportation analysis zones (TAZs).[16]

The San Francisco County Transportation Authority (transportation authority) uses the San Francisco chained activity modeling process to estimate VMT by private automobiles and taxis for different transportation analysis zones. The transportation authority calibrates travel behavior in

[16] Planners use these zones as part of transportation planning models for transportation analyses and other planning purposes. The zones vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas such as the Hunters Point Shipyard area.

the model based on observed behavior from the California Household Travel Survey [2010-2012], census data regarding automobile ownership rates and county-to-county worker flows, and observed vehicle counts and transit boardings. The model uses a synthetic population, which is a set of individual actors that represents the Bay Area's actual population, who make simulated travel decisions for a complete day.

The model estimates daily VMT for residential, office, and retail land use types. For residential and office uses, the transportation authority uses tour-based analysis. A tour-based analysis examines the entire chain of trips over the course of a day, not just trips to and from a site. For retail uses, the transportation authority uses trip-based analysis. A trip-based analysis counts VMT from individual trips to and from a site (as opposed to the entire chain of trips). A trip-based approach, as opposed to a tour-based approach, is necessary for retail sites because a tour is likely to consist of trips stopping in multiple locations, and the summarizing of tour VMT to each location would over-estimate VMT.[17,18,19]

Table 3.C.6: Existing VMT Per Capita presents existing average daily VMT per capita for residents, employees, and visitors in the nine-county San Francisco Bay Area and TAZ 538 in which the project site is located. As shown in **Table 3.C.6**, in TAZ 538 people drive substantially less than in the region as a whole, as demonstrated by the fact that the current average daily VMT per capita figures for the various trip types are substantially lower than the regional Bay Area averages for the nine-county San Francisco Bay Area.

Table 3.C.6: Existing VMT per Capita

Trip Type (Land Use)	Bay Area Regional Average	TAZ 538 [NOTE A]
Households (residential)	17.2	5.3
Employment (office)	19.1	9.6
Visitors (retail)	14.9	9.8

Note:
[A] Average daily VMT per capita for TAZ 538, in which the proposed project is located. TAZ 538 is bounded by 17th Street to the north, Hampshire Street to the east, 19th Street to the south, and Harrison Street to the west.

Source: San Francisco Planning Department, Transportation Information Map, *http://www.sftransportationmap.org*.

17 To state another way: a tour-based assessment of VMT at a retail site would consider the VMT for all trips in the tour, for any tour with a stop at the retail site. If a single tour stops at two retail locations, for example, a coffee shop on the way to work and a restaurant on the way back home, then both retail locations would be allotted the total tour VMT. A trip-based approach allows us to apportion all retail-related VMT to retail sites without double-counting.

18 Retail travel is not explicitly captured in San Francisco chained activity modeling process; rather, there is a generic "Other" purpose which includes retail shopping, medical appointments, visiting friends or family, and all other non-work, non-school tours. The retail efficiency metric captures all of the "Other" purpose travel generated by Bay Area households. The denominator of employment (including retail; cultural, institutional, and educational; and medical employment; school enrollment, and number of households) represents the size, or attraction, of the zone for this type of "Other" purpose travel.

19 San Francisco Planning Department, Executive Summary: Resolution Modifying Transportation Impact Analysis, Appendix F, Attachment A, March 3, 2016.

LOADING CONDITIONS

This subsection describes the absence, discontinuity, or presence of features related to commercial and passenger loading activities in the transportation study area. The description includes the location of commercial and passenger on-street loading spaces, hour restrictions, and usage. In addition, it identifies any potentially or observed hazardous conditions or delays to public transit due to loading activities.

Freight Loading

Freight loading activities associated with the existing Potrero Yard maintenance and operations activities are conducted within the project site.

On-street commercial loading spaces (yellow zones or metered spaces) are reserved for use by freight vehicles with San Francisco commercial permit stickers or similar commercial trucks. There are no on-street commercial loading spaces directly adjacent to the project site. The nearest commercial loading spaces include two spaces (a 47-foot-wide zone) located on the west side of Bryant Street between 17th and Mariposa streets, and six spaces within two commercial loading zones on the east side of Hampshire Street between 17th and Mariposa streets (a 38-foot-wide zone and a 20-foot-wide zone, with 90-degree angle loading spaces).[20] All three zones are across the street from the project site, and loading activities are subject to 30-minute loading, Monday through Friday, between 7 a.m. and 6 p.m. After 6 p.m., the commercial loading spaces become available for general vehicular parking. During midday period field surveys in March 2020, three of the eight commercial loading spaces were occupied (see **EIR Appendix E-3, Loading and Parking Data**). No conflicts between commercial and freight loading activities and people walking, bicycling, or driving, or transit operations were observed.

Passenger Loading

Passenger loading/unloading zones (i.e., white zones) provide a place to load and unload passengers for adjacent businesses and residences. These zones are intended for safe and efficient passenger drop-off and pickup and require permit renewal biennially. Passenger loading/unloading zones are reserved for five-minute passenger or material loading and unloading activities, and vehicles must be attended. Parking for more than 10 minutes is prohibited within these designated zones. Passenger loading and unloading is also permitted in commercial loading spaces as long as it is active loading/unloading and does not exceed three minutes.

There are no passenger loading/unloading zones adjacent to the project site. The nearest passenger loading/unloading zone is located on the south side of Mariposa Street between Bryant and

[20] The commercial loading space supply within the commercial zones on Hampshire Street was estimated using an average of 10 feet per space.

Hampshire streets (about 44 feet in length, accommodating two vehicles at one time),[21] and the passenger loading regulation is in effect at all times. However, this zone served the KQED headquarters building, which is currently being renovated, and the sidewalk is blocked off for construction staging for the renovation project. A temporary protected pedestrian walkway is provided within the curbside parking lane, and therefore this passenger loading/unloading zone is temporarily suspended.

During field surveys of the project site and vicinity conducted in February and March 2020, no passenger loading/unloading activities were observed.

PARKING CONDITIONS

California Senate Bill (SB) 743 amended the California Environmental Quality Act (CEQA) by adding California Public Resources Code (PRC) section 21099 regarding the analysis of parking impacts for certain urban infill projects in transit priority areas.[22] PRC section 21099(d), effective January 1, 2014, provides that "…parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment."[23] Accordingly, parking is no longer to be considered in determining if a project has the potential to result in significant environmental effects for projects that meet all three criteria established in the statute.

The proposed project meets all of the criteria, and thus the transportation impact analysis does not consider the adequacy of parking in determining the significance of project impacts under CEQA. Parking is not discussed further in this EIR.

REGULATORY FRAMEWORK

This section summarizes the relevant transportation plans and policies of the City, regional, and state agencies that have policy and regulatory control within the proposed project area. There are no relevant federal regulations that pertain to transportation impacts associated with the proposed project.

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[21] The passenger loading/unloading space supply within the passenger loading/unloading zone on the south side of Mariposa Street was estimated using an average of 20 feet per space.

[22] A "transit priority area" is defined as an area within 0.5 mile of an existing or planned major transit stop. A "major transit stop" is defined in California Public Resource Code section 21064.3 as a rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service intervals of 15 minutes or less during the morning and afternoon peak commute periods. A map of San Francisco's Transit Priority Areas is available online at: *https://sfmea.sfplanning.org/Map%20of%20San%20Francisco%20Transit%20Priority%20Areas.pdf.* (Accessed May 5, 2021.)

[23] California Office of Planning and Research, *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, Implementing State Senate Bill 742 (Steinberg, 2013)*, January 20, 2016.

STATE

CEQA Section 21099(b)(1) (Senate Bill 743)

CEQA section 21099(b)(1) requires the Office of Planning and Research to develop revisions to the CEQA Guidelines, thereby establishing criteria for determining the significance of transportation impacts from projects that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." CEQA section 21099(b)(2) states that, upon certification of the revised guidelines for determining transportation impacts, pursuant to section 21099(b)(1), automobile delay, as described solely by level of service (LOS) or similar measures of vehicular capacity, or vehicular traffic congestion shall not be considered a significant impact on the environment under CEQA.

In January 2016, the Office of Planning and Research published for public review and comment its *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA*, *Implementing Senate Bill 743* (proposed transportation impact guidelines), recommending that project transportation impacts be measured using a VMT metric.[24] In January 2019, changes to the CEQA statutes and guidelines went into effect, including a new section 15064.3 that states that VMT is the most appropriate measure of transportation impacts, and includes updated criteria for analyzing transportation impacts.

REGIONAL

Plan Bay Area

Plan Bay Area 2040 is a state-mandated, integrated long-range transportation and land use plan. As required by SB 375, all metropolitan regions in California must complete a Sustainable Communities Strategy as part of a Regional Transportation Plan. This strategy integrates transportation, land use, and housing to meet greenhouse gas reduction targets set by the California Air Resources Board. The plan meets those requirements. In addition, the plan sets a road map for future transportation investments and identifies what it would take to accommodate expected growth. The plan neither funds specific transportation projects nor changes local land use policies.

In the Bay Area, the Metropolitan Transportation Commission and the Association of Bay Area Governments adopted the latest plan in 2017. To meet the greenhouse gas reduction targets, the Plan Bay Area identifies priority development areas. The agencies estimate approximately 77 percent of the Bay Area housing and 55 percent of Bay Area job growth will occur within priority development areas between 2010 and 2040.

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[24] Office of Planning and Research, Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, Implementing Senate Bill 743 (Steinberg, 2013), January 20, 2016.

LOCAL

Transit First Policy

In 1999, San Francisco voters amended the City Charter (article 8A, section 8A.115) to include the Transit First Policy, which was first articulated as a City priority policy by the San Francisco Board of Supervisors (board of supervisors) in 1973. The Transit First Policy is a set of principles that underscore the City's commitment to have travel by transit, bicycle, and foot be given priority over use of the private automobile. These principles are embodied in the policies and objectives of the transportation element of the San Francisco General Plan. All City boards, commissions, and departments are required, by law, to implement the Transit First Policy's principles in conducting City affairs.

Vision Zero

In 2014, the board of supervisors adopted a resolution to implement an action plan to reduce traffic facilities to zero by 2024 through engineering, education, and enforcement (resolution 91-14). Numerous San Francisco agencies responsible for the aforementioned aspects of the action plans adopted similar resolutions. In 2017, the board of supervisors amended the Transportation and Urban Design elements of the General Plan to implement Vision Zero (ordinance 175-17). In 2019, the SFMTA and the Department of Public Health published the third version of the Vision Zero San Francisco Action Strategy that lays out the strategic actions for City departments and agencies to reach the City's Vision Zero goal.

San Francisco General Plan

The Transportation Element of the San Francisco General Plan is composed of objectives and policies that relate to eight aspects of the citywide transportation system: general regional transportation, congestion management, vehicle circulation, transit, people walking, bicycles, citywide vehicular parking, and goods management. The Transportation Element, which references San Francisco's Transit First Policy in its introduction, contains objectives and policies that are directly pertinent to consideration of the proposed project, including objectives related to prioritizing sustainable modes of travel, integrating and connecting land use development and transportation investments, and designing streets for walking, bicycling, and public transit.

The San Francisco General Plan also includes the Mission Area Plan, which provides objectives and policies to guide land use development, to enhance urban space and urban form, and to improve the transportation network for all ways of travel.

Better Streets Plan, Policy, and Requirements

In 2006, the San Francisco Board of Supervisors adopted the Better Streets Policy. Since then, the board has amended the policy several times, including in 2010 to reference the Better Streets Plan. The Better Streets Plan creates a unified set of standards, guidelines, and implementation strategies to govern how San Francisco designs, builds, and maintains its pedestrian environment. The San Francisco Planning Code (planning code) requires certain new development projects to make changes to the public right-of-way, such that it is consistent with the Better Streets Plan (section 138.1). The planning code requires most projects to plant street trees and some larger projects to submit a streetscape plan that may require elements such as sidewalk widening, transit boarding islands, and medians.

San Francisco Regulations for Working in San Francisco Streets

The San Francisco Regulations for Working in San Francisco Streets (SFMTA Blue Book), prepared and regularly updated by SFMTA under authority derived from the San Francisco Transportation Code, serves as a guide for contractors working in San Francisco streets. The manual establishes rules and guidance so that work can be done safely and with the least possible interference with people walking and bicycling, transit, and vehicular traffic. The manual also contains relevant general information, contact information, and procedures related to working in the public right-of-way when under the jurisdiction of agencies other than SFMTA. The manual identifies permits that may be required by San Francisco Public Works (public works) during construction, such as excavation permits, temporary occupancy permits, street space permit, additional street space permits, and night noise permits. The contractor would also need to comply with all applicable public works orders such as public works' order 167,840 which provides guidelines for the placement of barricades at construction sites so that a safe and accessible path of travel is provided for people walking around and/or through construction sites.

In addition to the regulations presented in the manual, all construction-related traffic control, warning, and guidance devices must conform to the California Manual on Uniform Traffic Control Devices. Furthermore, contractors are responsible for complying with all applicable City, state, and federal codes, rules, and regulations. The party responsible for setting up traffic controls during construction shall be held accountable and responsible if such controls do not meet the guidance and requirements established by the manual and any applicable City and state requirements.

San Francisco Public Works Standard Construction Measures

As discussed in **EIR Chapter 2, Project Description**, public works' Standard Construction Measures (SCMs) would apply to the proposed project or project variants (see **Table 2.3**, pp. 2.50-2.53). The SFMTA and private project co-sponsor (together referred to as the project sponsor team) will implement public works' SCMs as part of the proposed project or project variants, including

SCM #4, Traffic. **SCM #4** establishes procedures related to construction of certain City projects that have the potential to affect traffic. It requires all projects to implement traffic control measures to maintain traffic and pedestrian circulation on streets affected by project construction. In addition, the traffic control measures need to be consistent with the requirements of the SFMTA Blue Book. Any temporary rerouting of transit vehicles or relocation of transit facilities would need to be coordinated with SFMTA Muni Operations. Refer to **EIR Appendix C** for additional information on public works' SCMs.

Transportation Sustainability Fee

The planning code requires certain new development projects to pay an updated transportation sustainability fee, based on the size of the development, to the City (section 411A). The fee offsets a portion of the development project's impacts on the transportation system. The City may use the fee only toward specific programs consisting of transit capital maintenance, local and regional transit service expansion and reliability, complete streets, and program administration.

Transportation Demand Management Program

The planning code requires certain new development projects to incorporate "design features, incentives, and tools" to reduce VMT (section 169). Development projects must choose measures from a menu of options to develop an overall transportation demand management (TDM) plan. Some options overlap with requirements elsewhere in the planning code (e.g., bicycle parking, car-share parking). Each development project's TDM plan requires routine monitoring and reporting to the planning department to demonstrate compliance.

Off-street Loading

The planning code requires certain new development projects to include off-street freight loading spaces (section 152.1). The planning code requirements for loading spaces depends on the size of the development projects, and specifies dimensions of the spaces and allows for substituted service vehicle spaces (section 154(b)).[25]

[25] Per San Francisco Planning Code section 154(b), in the C-3 and the South of Market districts, substitution of two service vehicle spaces for each required off-street freight loading space may be made, provided that a minimum of 50 percent of the required number of spaces are provided for freight loading.

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

San Francisco Administrative Code Chapter 31 directs the planning department to identify environmental effects of a project using as its base the environmental checklist form set forth in Appendix G of the CEQA Guidelines. As it relates to transportation and circulation, Appendix G asks if the project would:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), which pertains to VMT;
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses; or
- Result in inadequate emergency access.

The planning department uses significance criteria to facilitate the transportation analysis and address the Appendix G checklist. The department separates the significance criteria into construction and operation.

Construction

Construction of the project would have a significant effect on the environment if it would require a substantially extended duration or intense activity; and the effects would create potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations; or interfere with accessibility for people walking or bicycling; or substantially delay public transit.

Operation

The operational impact analysis addresses the following five significance criteria. A project would have a significant effect if it would:

- Create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations;
- Interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access;
- Substantially delay public transit;
- Cause substantial additional VMT or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or by adding new roadways to the network; or
- Result in a loading deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving or substantially delay public transit.

APPROACH TO ANALYSIS

Project Features

The project includes the following onsite transportation features and proposes the following changes to the street network outside of the project site:

Roadway Network Features

The proposed project would include multiple curb cuts/driveways for the transit facility on Mariposa Street (a 63-foot-wide curb cut, a 47-foot-wide curb cut, and a 97-foot-wide curb cut for three bus bays), a driveway to the basement-level loading facilities for the transit facility and joint development on Mariposa Street (20-foot-wide curb cut), and an emergency bus exit onto 17th Street (42-foot-wide curb cut).

See **Figure 2.3: Proposed Site Plan** in **EIR Chapter 2, Project Description**, p. 2.20, for an illustration of the proposed changes.

Walking Network Features

The proposed project would include the following changes to the walking network adjacent to the project site:

- Adjacent to the project site, reconstruction of the sidewalks on 17th, Bryant, and Hampshire streets. The sidewalks would remain at least 15 feet wide, which would meet the Better Streets Plan recommended width. The Mariposa Street sidewalk would be widened from 7 to 15 feet, which would meet the recommended width under the Better Streets Plan.
- Sidewalk bulbouts onto Bryant and Mariposa streets adjacent to the project site at the intersection of Bryant Street/Mariposa Street.
- New continental crosswalks at Hampshire Street/17th Street, Hampshire Street/Mariposa Street, and Mariposa Street/York Street and associated curb ramps, if missing.
- Raised crosswalk across 17th Street at Hampshire Street with a rectangular rapid flashing beacon.

Bicycle Network Features

The proposed project would upgrade the existing bicycle lanes on 17th Street between Bryant and Hampshire streets by converting the existing striped and partially protected bicycle lanes into wider green protected bikeways in both directions.

Transit Network Features

The proposed project does not include any transit network features, such as modifications to transit service, operations, or amenities.

Loading Features

The proposed project would include two onsite commercial loading spaces within the below-grade garage to service the transit facility (one loading space) and the joint development land uses (one loading space). These onsite loading spaces would be accessible from Mariposa Street.

In addition, the proposed project would include the following on-street commercial and passenger loading zones adjacent to the project site:

- On-street passenger (60-foot) and commercial loading (40-foot) zones on Bryant Street
- A 60-foot parallel passenger loading bulbout on the west side of Hampshire Street adjacent to the project site, north of the intersection of Hampshire Street/Mariposa Street

Vehicle Parking Features

The proposed project would remove or reconfigure on-street parking on streets adjacent to the project site. Overall, the proposed project would result in a reduction of about 48 general vehicle parking spaces, including the following:

- On 17th Street, the project would prohibit on-street parking on the north side between Bryant and Hampshire streets (a reduction of 10 vehicle parking spaces on 17th Street). The existing accessible parking space on this segment would be relocated to another location, likely to Bryant Street between Mariposa and 16th streets; however, the exact location would be determined following an assessment by the SFMTA of feasible locations.
- On Mariposa Street, the project would prohibit on-street parking on the north side between Bryant and Hampshire streets (a reduction of six vehicle parking spaces on Mariposa Street).
- On the west side of Hampshire Street, the project would install a 60-foot parallel passenger loading bulbout north of Mariposa Street and a 10-foot red daylighting[26] zone south of 17th Street. This would reduce the number of 90-degree angle parking spaces on the west side of Hampshire Street from 43 to 34 (a reduction of nine vehicle parking spaces).
- On the east side of Hampshire Street, the project would convert the 90-degree angle general parking (26 spaces) and commercial loading (six spaces) spaces to parallel parking spaces. In addition, the project would install a 10-foot daylighting zone south of 17th Street. There are multiple driveways on the east side of Hampshire Street, and the conversion of the spaces from 90-degree to parallel would reduce the total number of spaces from 31 to 14 (a reduction of 17 spaces).

[26] Daylighting is the removal of vehicular parking near intersections and crosswalks to improve the sightline distance and visibility for people.

- On Bryant Street, the project would install a 40-foot commercial loading zone and a 60-foot passenger loading zone, and a bulbout into Bryant and Mariposa streets at the intersection of Bryant Street/Mariposa Street. The 15 existing parallel parking spaces would be reduced to nine spaces (a reduction of six vehicle parking spaces).

Transportation Demand Management Plan

Planning code section 169 identifies the applicability of the TDM program and establishes the TDM Program Standards for new development. Both the transit facility and joint development components of the proposed project would be subject to the City's TDM program requirements and would include preparation and implementation of a TDM plan.

Project Variants

The proposed project includes the following four variants, each with a minor change to an element of the project:

- **Emergency Exit Relocation Variant:** Relocation of the proposed emergency exit from 17th Street west of Hampshire Street to Hampshire Street south of 17th Street.
- **Joint Development Lobby Relocation Variant:** Relocation of joint development lobby off Mariposa Street to Hampshire Street.
- **Active 17th Street Variant:** Site program revision to include active uses along 17th Street frontage, including internal relocation of ramps from the north portion of the site to a more southerly location.
- **Employee and Family Support Variant:** Site program revision to include childcare, or related use, in a portion of the space identified in the proposed project for ground-floor commercial use.

The transportation methodologies and analyses of the proposed project also apply to the project variants except where the methodological or analytical approach to the minor relocations and the site programming changes are explicitly called out, e.g., for the site programming changes of the Employee and Family Support Variant. The project variants would not affect the demolition or construction program. **EIR Chapter 2, Project Description**, pp. 2.56-2.58, presents a detailed description of each variant.

Methodology and Thresholds of Significance

This section summarizes the methodology for analyzing transportation impacts and information considered in developing travel demand estimates for the proposed project. In addition, this section summarizes the methodology for analyzing any quantitative thresholds of significance for determining transportation impacts under existing plus project conditions. The travel demand and impact analysis methodology use the data and guidance within the department's Transportation Impact Analysis Guidelines (2019 SF Guidelines). If the methodology differs from that in the guidelines, such differences are summarized in the following discussion.

Analysis Periods and Geographic Scope

The geographic scope of potential transportation impacts encompasses the transportation study area and study intersections. The transportation study area includes aspects of the transportation network within generally 0.25 mile of the center of the project site, bounded by Potrero Avenue to the east, Harrison Street to the west, 16th Street to the north, and 18th Street to the south. The transportation study area and study intersections are shown in **Figure 3.C.1**, p. 3.C.2.

The analysis of the proposed project was conducted for existing plus project and 2040 cumulative conditions. The existing plus project conditions assess the near-term impacts of the proposed project, while 2040 cumulative conditions assess the near-term and long-term impacts of the proposed project in combination with cumulative development. The 2040 cumulative analysis incorporates data and forecasts from the City's SF-CHAMP travel demand model in the analysis of VMT impacts, while all other cumulative transportation impacts are assessed based on a review of the cumulative projects (a list-based approach) that are located within the project's study area (see **EIR Section 3.A**, pp. 3.A.6 to 3.A.8, and **Figure 3.A.1**, p. 3.A.9, for, respectively, a detailed description of these projects and a map of their locations).

In San Francisco, the weekday extended p.m. peak period (Tuesday, Wednesday, or Thursday, 3 p.m. to 7 p.m.) is typically the period when the most overall travel happens. Although a substantial amount of travel occurs throughout the day, impacts from projects would typically be less during other periods for most topics, and therefore the impact assessment focuses on the p.m. peak period (defined as 4 p.m. to 6 p.m.). The peak periods for the transit facility occur in the early morning (i.e., between 4 a.m. and 7 a.m.) and in the late evening (i.e., between 7 p.m. and 9 p.m.) when travel by the residential and retail land uses is very low. Most travel associated with the proposed project would be generated by the residential and retail land uses, which generate the most trips during the p.m. peak period. The analysis period for assessing loading impacts is the 11 a.m. to 1 p.m. period for commercial vehicle loading activities and the 4 p.m. to 6 p.m. period for passenger vehicle loading activities.

Project Travel Demand Methodology and Results

Project travel demand refers to the number, type, and common destinations of new trips that people would take to and from the project. The memorandum containing the detailed methodology and results for the project travel demand is included in **EIR Appendix E-4, Travel Demand Memorandum**.[27] This section summarizes information and analysis contained in the travel demand memorandum and presents the estimates of project-generated person trips[28] by the various ways of

[27] Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4**.
[28] A person trip is a trip made by one person by any means of transportation (vehicle, transit, walking, bicycling, etc.).

travel, as well as the project-generated vehicle trips. In addition, this section presents the estimation of the demand for loading spaces to accommodate project-generated delivery and service vehicles and passenger loading activities.

EXISTING SITE TRIPS

The project site occupies the equivalent of roughly two typical city blocks. The western half is occupied by an asphalt-paved bus storage yard, including a bus wash area and running repair station, while the eastern half is occupied by the maintenance and operations building, including a second-floor parking deck. The facility currently houses and maintains 158 trolley coaches. Vehicular access is currently provided by a driveway on 17th Street for access to the second story of the maintenance and operations building and rooftop parking, and by three driveways on Mariposa Street for all other purposes. There are about 400 total employees, including 295 bus operators, at the facility.

- On a daily basis, there are 952 total vehicles entering and exiting the four existing driveways for the facility (183 inbound and 187 outbound via 17th Street, and 290 inbound and 292 outbound on Mariposa Street).[29] Of the 952 daily vehicles, 32 percent are buses, and 68 percent are autos and trucks. In addition, there are eight bicycle trips and 395 pedestrian trips made to and from the site, for a total of 1,202 daily person trips.
- Because many employees park on surrounding streets and therefore do not use the facility's existing driveways, an additional 295 vehicle trips are associated with the project, resulting in a total of 1,247 vehicle trips generated by the existing uses at the project site, including 302 bus trips.
- During the 4 p.m. to 6 p.m. peak period, the greatest number of trips entering and exiting the facility occurs between 4:30 p.m. and 5:30 p.m. (10 autos and trucks, four buses, two bicycles, and 15 pedestrians), which represents 1 percent of the daily total vehicle count and 2 percent of daily person trips.
- The peak hour for vehicle activity to and from the site occurs from 5:45 a.m. to 6:45 a.m., with 73 auto and truck trips, 42 bus trips, and 45 pedestrian trips, representing 12 percent of total daily vehicle activity and 11 percent of daily person trips.

PROJECT TRIPS

The travel demand methodology consists of four steps: 1) trip generation, 2) ways people travel, 3) common destinations, and 4) assignment. The following summarizes each of these steps.

<u>Step 1. Trip Generation</u>

Trip generation refers to the number of estimated trips people would take to and from the project, regardless of the way they travel (see step 2 below). The following applies person trip generation rates, accounting for the size and type of land use, to estimate the number of project person trips.

[29] Field data collection was conducted on Thursday, May 31, 2018, and Thursday, March 12, 2020.

As presented in **EIR Chapter 2, Project Description**, the proposed project would modernize and expand the existing Potrero Yard transit facility to accommodate 213 trolley buses (an increase of 55 buses from the 158 buses currently accommodated) and 18 maintenance bays, as well as 52,000 gross square feet of new administrative, training, and office space. The number of employees reporting to the facility on a daily basis would increase from 400 employees under existing conditions to 829 employees under the proposed project. The proposed project would also include a joint development component of up to 575 residential units, of which a substantial percentage would be below-market or affordable units, and 33,000 gross square feet of ground-floor commercial/retail uses.

Total person trip generation was calculated for each project component (i.e., the transit facility and the joint development components) and individual land uses. The person trip generation estimates for the proposed project include residents, employees, and visitors associated with the proposed land uses. Trip generation rates for the residential and retail uses within the joint development, and the administrative, training, and office uses within the transit facility were based on the 2019 SF Guidelines trip generation information.

The travel demand for the bus maintenance and storage and bus operations uses within the transit facility was based on trip generation rates developed from vehicle and pedestrian counts and observations at the existing facility.

- Person trip generation rates for the existing **bus maintenance and storage** use were determined by dividing the person trips obtained from field counts by the total number of onsite employees (including bus operators).[30]
- The vehicle trip rates for existing **bus operations** (i.e., activity of revenue service vehicles/buses traveling to and from the site) were developed by dividing the daily and p.m. peak hour bus trips by the total number of buses accommodated at the existing facility (i.e., 158 buses).

Because the proposed project would replace an existing active transit facility, a credit was applied to the new trip generation to determine the **net-new** trips by way of travel and vehicle trips that would be added to the adjacent transportation network. The credit was determined from counts of people and vehicles entering and exiting the existing facility, as described above.

Table 3.C.7: Proposed Project Net-New Person Generation by Land Use summarizes the daily and weekday p.m. peak hour person trips by proposed project component. The proposed project would generate a total of 10,254 net-new person trips on a daily basis and 870 net-new person trips during the weekday p.m. peak hour. As shown in the table, the majority of the net-new daily and p.m. peak hour person trips would be generated by the residential and retail uses.

[30] Ways of travel data from SF Guidelines and SFMTA were applied to the vehicle field counts traveling to and from the facility to estimate total person trips by all ways of travel at the existing facility. This allows for the inclusion of employees walking, bicycling, or taking transit, and those employees who may drive and park off-site and walk between the site and their parking location.

Table 3.C.7: Proposed Project Net-New Person Trip Generation by Land Use – Daily and Weekday P.M. Peak Hour

Project Component/Land Use	Daily	P.M. Peak Hour
Transit Facility		
Administrative and Office	816	73
Bus Maintenance and Storage NOTE A	1,923	45
Credit for Existing Use	1,202	28
Subtotal Net-New Transit Facility	**1,537**	**90**
Joint Development		
Residential	3,767	335
Retail	4,950	446
Subtotal Joint Development	**8,717**	**780**
Total Project Net-New Person Trips NOTE B	***10,254***	***870***

Notes:
[A] Muni buses traveling to and from the facility were not included in person trip generation. Bus driver trips to and from work at the facility were included in the bus maintenance and storage use.
[B] Numbers may not sum to total due to rounding.

Source: Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4**.

Step 2. Ways People Travel

Ways people travel, also known as mode split or travel mode, refer to the estimated way or method people travel (e.g., walking, bicycling, etc.). The person trips estimated in step 1 were independently allocated to ways of travel to determine the number of trips by auto/truck, taxi/ transportation network companies' (TNC) vehicles, transit, walking, and bicycling. The "auto" mode includes persons traveling by private auto and carpool, as well as commercial vehicle traffic (i.e., pickup trucks and other trucks) generated by the project. The "taxi/TNC" mode includes taxis and app-based ride hailing services (e.g., Uber, Lyft), etc. The "transit" mode includes individuals traveling by local and regional public transit. The number of vehicle trips generated by the project is estimated by dividing the person trips by auto way of travel by the average vehicle occupancy to account for carpooling (thereby resulting in a fewer number of vehicle trips than person trips by auto, taxi/TNC, and buses).

Table 3.C.8: Proposed Project Ways of Travel by Land Use provides the estimated percentage of daily and weekday p.m. peak period project trips by different ways of travel (e.g., walking, bicycling, transit, etc.). These trip numbers by mode account for the geographic location of the project site, and reflect travel survey of SFMTA employees for the transit facility component. Overall, during the weekday p.m. peak hour, 37 percent of the net-new trips would occur by auto and taxi/TNC, 17 percent by transit, 43 percent by walking, and 3 percent by bicycling. During the weekday p.m. peak hour, the proposed project would generate 226 net-new vehicle trips, and the majority of the vehicle trips would be by auto (i.e., as opposed to bus or taxi/TNC trips).

Table 3.C.8: Proposed Project Ways of Travel by Land Use – Daily and Weekday P.M. Peak Hour

Trip Type/Way of Travel	Daily			P.M. Peak Hour		
	Transit Facility	Joint Development	Total	Transit Facility	Joint Development	Total
Person Trips						
Auto	69%	32%	41%	51%	32%	34%
Taxi/TNC	6%	2%	3%	9%	2%	3%
Transit	15%	15%	15%	24%	15%	17%
Walk	9%	48%	38%	14%	48%	43%
Bicycle	1%	3%	3%	2%	3%	3%

Source: Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4**.

Table 3.C.9: Proposed Project Net-New Trip Generation by Way of Travel summarizes the weekday daily and p.m. peak hour person trips by way of travel for the proposed project components and provides the estimated number of vehicle trips.

Table 3.C.9: Proposed Project Net-New Trip Generation by Way of Travel – Weekday Daily and P.M. Peak Hour

Trip Type/Way of Travel	Daily			P.M. Peak Hour		
	Transit Facility	Joint Development NOTE A	Total	Transit Facility	Joint Development NOTE A	Total
Person Trips						
Auto	1,903	2,747	4,650	60	246	306
Taxi/TNC NOTE B	156	201	357	11	18	29
Transit	402	1,340	1,742	29	120	149
Walk	256	4,143	4,399	17	371	388
Bicycle	23	285	308	2	26	28
Credit for Existing Uses Trips NOTE C	(1,202)	n/a	(1,202)	(28)	n/a	(28)
Net-New Person Trips NOTE D	**1,537**	**8,717**	**10,254**	**91**	**781**	**872**
Vehicle Trips						
Auto	1,567	1,839	3,406	49	155	204
Taxi/TNC NOTE B	372	270	642	22	22	44
Buses (Transit Facility)	407	0	407	5	0	5
Credit for Existing Uses Trips NOTE C	(1,247)	n/a	(1,247)	(27)	n/a	(27)
Net-New Vehicle Trips NOTE D	**1,099**	**2,109**	**3,208**	**49**	**177**	**226**

Notes:
[A] Because the residential and retail uses would be a new use at the project site, the application of a credit is not applicable (n/a).
[B] Taxi/TNC trips were doubled to account for separate vehicle trips to and from the project site.
[C] Person trips by all ways of travel, and vehicle trips include autos, trucks, taxi/TNC vehicles, and buses.
[D] Numbers may not sum to total due to rounding.

Source: Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4**.

The transit facility would generate few trips during the p.m. peak hour, and these would be associated with the administrative, training, and office uses. Buses generally leave the yard to access their route between 4 a.m. and 7 a.m., and return to the yard in the evening between 7 p.m. and 9 p.m., and therefore most employees work non-standard shifts. Thus, the majority of morning employee commute trips occur before the typical a.m. peak period, and the majority of evening commute trips occur after the typical p.m. peak period.

Table 3.C.10: Proposed Project Net-New Vehicle Trip Generation by Vehicle Type and Direction summarizes the daily and weekday p.m. peak hour vehicle trips disaggregated by vehicle type, including private autos, taxi/TNC, and bus operations. In addition, the direction of travel relative to the project site is presented (i.e., inbound to the site or outbound from the site).

The proposed project would generate 3,208 net-new daily vehicle trips (1,620 inbound and 1,589 outbound) and 226 net-new weekday p.m. peak hour vehicle trips (130 inbound and 96 outbound). These net-new trips represent the new vehicle trips that would be added to the roadway network after accounting for the existing bus and maintenance activity at the site.

Table 3.C.10: Proposed Project Net-New Vehicle Trip Generation by Vehicle Type and Direction –Daily and Weekday P.M. Peak Hour

	Daily			P.M. Peak Hour		
Project Component/Vehicle Type	**Inbound**	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Transit Facility NOTE A						
Auto NOTE B	782	785	1,567	12	37	49
Taxi/TNC NOTE C	186	186	372	11	11	22
Bus	204	204	407	2	4	5
Credit for Existing Use Trips NOTE D	(620)	(627)	(1,247)	(9)	(18)	(27)
Subtotal Net-New Transit Facility	**552**	**548**	**1,099**	**15**	**34**	**49**
Joint Development NOTE A						
Auto NOTE B	933	906	1,839	104	51	155
Taxi/TNC NOTE C	135	135	270	11	11	23
Subtotal Joint Development	**1,068**	**1,041**	**2,109**	**115**	**62**	**177**
Total Project Net-New Vehicle Trips	***1,620***	***1,589***	***3,208***	***130***	***96***	***226***

Notes:
[A] Numbers may not sum to total due to rounding.
[B] Auto includes maintenance vehicles, including trucks.
[C] Taxi/TNC trips were doubled to account for separate vehicle trips to and from the project site.
[D] Credit for existing transit facility use based on counts of vehicle and person trips conducted in February 2020 in conjunction with employee travel survey data collected by SFMTA. Existing vehicle credit accounts for autos, commercial vehicles, taxi/TNC vehicles, and buses.

Source: Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4**.

Step 3. Common Destinations

Common destinations, also known as trip distribution, refers to the estimated number of trips people would take to (inbound) and from (outbound) the project site and another place (e.g., another neighborhood). The person and vehicle trips estimated in the previous step were then distributed to various points of trip origin or destination, inbound and outbound, for each of the project's specific land use, and account for the geographic location of the project site. Specifically, the trips origins and destinations were allocated to the eight San Francisco neighborhoods and the East Bay, North Bay, and South Bay. **Table 3.C.11: Proposed Project Vehicle and Transit Person Trip Distribution by Place of Origin or Destination** provides the estimated percentage of weekday p.m. peak hour project vehicle and transit trips to the common destinations.

Table 3.C.12: Proposed Project Net-New Vehicle and Transit Trip Generation by Place of Origin summarizes the inbound and outbound vehicle and transit person trips for the weekday p.m. peak hour by place of origin. As shown in **Table 3.C.12,** the majority of the project-generated vehicle and transit person trips would be within San Francisco; the largest proportion of vehicle trips would be to and from the Mission/Potrero and Outer Mission/Hills neighborhoods, and the largest proportion of transit person trips would be to and from the Downtown/North Beach and Outer Mission/Hills neighborhoods. As shown on **Table 3.C.12**, during the weekday p.m. peak hour, more transit person trips (97 inbound and 52 outbound) and vehicle trips (130 inbound and 96 outbound) would be inbound to the project site than outbound from the project site.

Table 3.C.11: Proposed Project Vehicle and Transit Person Trip Distribution by Place of Origin – Weekday P.M. Peak Hour

Place of Trip Origin or Destination	Vehicle Trips NOTE A	Transit Person Trips
San Francisco		
Downtown/North Beach	8%	23%
South of Market	2%	6%
Marina/Western Market	10%	11%
Mission/Potrero Hill	37%	14%
Outer Mission/Hills	13%	21%
Bayshore	2%	2%
Richmond	1%	0%
Sunset	2%	1%
Treasure Island	0%	0%
South Bay	15%	12%
East Bay	7%	7%
North Bay	1%	1%
Total NOTE B	**100%**	**100%**

Notes:
[A] Vehicle trips include autos, trucks, taxi/TNC vehicles, and buses.
[B] Numbers may not sum to total due to rounding.

Source: Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4**.

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Table 3.C.12: Proposed Project Net-New Vehicle and Transit Person Trip Generation by Place of Origin – Weekday P.M. Peak Hour

Place of Trip Origin or Destination	Vehicle Trips NOTE A			Transit Person Trips		
	Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
San Francisco						
Downtown/North Beach	13	7	20	30	5	35
South of Market	3	2	5	0	9	9
Marina/Western Market	21	3	24	12	5	17
Mission/Potrero Hill	51	33	84	9	12	21
Outer Mission/Hills	16	14	30	31	1	32
Bayshore	2	3	5	2	1	3
Richmond	2	0	2	0	0	0
Sunset	4	1	5	0	2	2
Treasure Island	0	0	0	0	0	0
South Bay	15	19	34	10	8	18
East Bay	4	11	15	3	8	11
North Bay	0	2	2	0	2	2
Total Trips NOTE B	**130**	**96**	**226**	**97**	**52**	**149**

Notes:
A Vehicle trips include autos, trucks, taxi/TNC vehicles, and buses.
B Numbers may not sum to total due to rounding.

Source: Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4**.

Step 4. Assignment

Assignment refers to the location of assignment of project vehicle trips to adjacent streets, to loading zones, and driveways. The project-generated vehicle trips and directional distribution obtained in the previous steps were then used as the basis for assigning vehicle trips to the local streets in the study area, specifically:

- Vehicular access for buses, maintenance vehicles, and deliveries for the transit facility would remain on Mariposa Street and the net-new vehicle trips were assigned to the proposed new driveways on Mariposa Street.
- Taxi/TNC trips associated with the transit facility and joint development uses were assigned to the proposed passenger loading zone on Bryant Street adjacent to the project site. The taxi/TNC vehicle estimates assume that each trip would generate a separate inbound and outbound vehicle trip (i.e., the vehicle trips by taxi/TNC were doubled to reflect localized traffic created by taxi/TNC vehicles inbound to the site to pick up someone and outbound after dropping someone off, or vice versa).
- The proposed project would not provide any onsite vehicle parking for the residential or retail uses (with the exception of 12 public car-share parking spaces within the basement level). As a conservative assumption, all other new vehicle trips associated with the joint development were assigned to and from Mariposa Street. Because onsite parking would not be provided, most drivers would park further from the project site in on-street spaces. This may generate additional vehicle activity in the surrounding neighborhood due to drivers searching for parking.

Figure 3.C.4: Project Vehicle Trip Assignment Weekday P.M. Peak Hour presents the weekday p.m. peak hour vehicle trip assignment at the seven study intersections.

PROJECT LOADING DEMAND

Loading demand consists of the estimated number of project delivery, service, and passenger vehicle trips, and is shown in **Table 3.C.13: Proposed Project Freight and Passenger Loading Demand by Land Use**. The 2019 SF Guidelines methodology for estimating commercial vehicle and freight loading demand and passenger loading demand was used to calculate the peak hour loading space demand. See **EIR Appendix E-4**.

Table 3.C.13: Proposed Project Freight and Passenger Loading Demand by Land Use

	Freight Loading [NOTE A]		Passenger Loading [NOTE B]	
Land Use	**Daily Delivery and Service Vehicles**	**Peak Hour Loading Space Demand**	**P.M. Peak Hour Loading Instances**	**P.M. Peak Hour Peak Minute Loading Space Demand**
Transit Facility				
Administrative & Office	11	1	10	**1**
Bus Maintenance & Storage	n/a	n/a	4	
Joint Development				
Residential	16	1	24	**1**
Retail	7	1	14	
Total [NOTE C]	**34**	**3**	**52**	**2**

Notes:

[A] Freight loading demand is presented as the number of delivery and service vehicle trips per time period. The peak period of freight loading demand typically occurs between 10 a.m. and 1 p.m. and does not coincide with the weekday a.m. or p.m. peak periods.

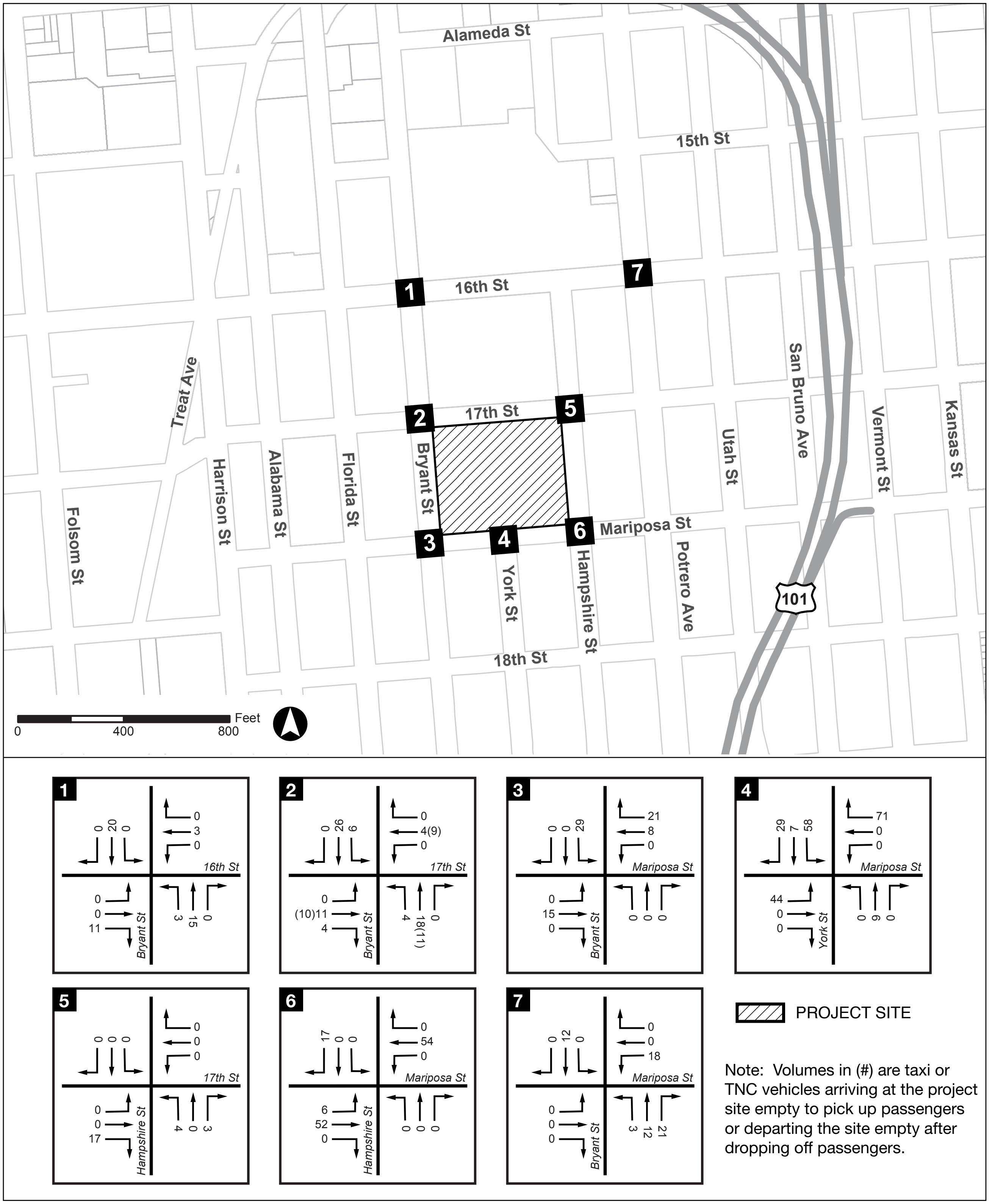
[B] Passenger loading is presented as the passenger loading trips estimated to occur during the p.m. peak period. The peak period of passenger loading demand generally occurs during the extended weekday p.m. peak period of 3 p.m. to 7 p.m. The passenger loading space demand is presented for the peak one minute of the peak 15 minutes of the p.m. peak hour.

[C] The delivery and service vehicle trips, passenger loading instances, and the freight and passenger loading space demand for each land use were rounded up to whole numbers, and therefore the totals may not sum due to rounding.

Source: Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4**.

The administrative/office, residential, and retail uses would generate a total of 34 delivery and service vehicle trips per day, which corresponds to a demand for three loading spaces during the peak hour of loading activities (generally between 10 a.m. and 1 p.m.). A specific estimate of the loading demand of the bus maintenance and bus operations was not determined, as these loading activities would be accommodated off-street within the transit facility's square footage allocated to these uses (i.e., these types of deliveries would likely not be conducted in the onsite loading spaces for the administrative/office, residential, and retail uses).

The proposed project would also generate about 52 loading instances during the p.m. peak hour, which corresponds to a demand for two spaces of passenger loading during any one minute of the peak 15 minutes of loading activities.



Source: Fehr & Peers/LCW Consulting, 2020

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 3.C.4: PROJECT VEHICLE TRIP ASSIGNMENT WEEKDAY P.M. PEAK HOUR

Employee and Family Support Variant Travel Demand

The Employee and Family Support Variant would replace 9,000 of the 33,000 square feet of commercial retail uses included in the proposed project with childcare uses, and therefore the trip generation for this variant would be different than for the proposed project. Travel demand for the Employee and Family Support Variant was estimated consistent with the methodology presented above for proposed project, and travel demand calculations for this project variant are included in **EIR Appendix E-4**.

Table 3.C.14: Employee and Family Support Variant Net-New Vehicle Trip Generation by Way of Travel summarizes the daily and p.m. peak hour person trips disaggregated by way of travel for each component (i.e., transit facility, joint development), and also presents vehicle trips.

Table 3.C.14: Employee and Family Support Variant Net-New Trip Generation by Way of Travel – Weekday Daily and P.M. Peak Hour

	Daily			P.M. Peak Hour		
Trip Type/Way of Travel	**Transit Facility**	**Joint Development** NOTE A	**Total**	**Transit Facility**	**Joint Development** NOTE A	**Total**
Person Trips						
Auto	1,903	2,528	4,430	60	262	322
Taxi/TNC NOTE B	156	188	344	11	19	30
Transit	402	1,177	1,579	29	115	144
Walk	256	3,395	3,650	17	312	329
Bicycle	23	250	273	2	23	25
Credit for Existing Uses Trips NOTE C	(1,202)	n/a	(1,202)	(28)	n/a	(28)
Net-New Person Trips	**1,537**	**7,537**	**9,075**	**91**	**732**	**822**
Vehicle Trips						
Auto	1,567	1,795	3,362	49	203	252
Taxi/TNC NOTE B	372	258	630	22	26	48
Buses (Transit Facility)	407	0	407	5	0	5
Credit for Existing Uses Trips NOTE C	(1,247)	n/a	(1,247)	(27)	n/a	(27)
Net-New Vehicle Trips	**1,099**	**2,053**	**3,152**	**49**	**229**	**278**

Notes: Numbers may not sum to total due to rounding.

[A] Because the residential and retail uses would be a new use at the project site, the application of a credit is not applicable (n/a). A trip reduction factor of 30 percent was applied to the childcare land use, because the childcare facility would serve transit facility employees and joint development residents and employees, as well as be available to the general public.

[B] Taxi/TNC trips were doubled to account for separate vehicle trips to and from the project site.

[C] Person trips by all ways of travel, and vehicle trips include autos, trucks, taxi/TNC vehicles, and buses.

Source: Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4**.

During the p.m. peak hour the Employee and Family Support Variant would generate about 5 percent fewer net-new person trips by all ways of travel than the proposed project (822 person trips for this variant and 872 person trips for the proposed project), but 23 percent more net-new p.m. peak hour vehicle trips than the proposed project (278 vehicle trips for this variant and

226 vehicle trips for the proposed project). This variant includes an increase in vehicle trips due to the nature of childcare pick-up and drop-off activities, wherein parents/guardians drive both to and from the site during the peak hour, resulting in both one inbound and one outbound trip.

Loading demand for this variant is presented in **Table 3.C.15: Employee and Family Support Variant Freight and Passenger Loading Demand by Land Use**. Freight loading demand for this variant would remain the same as for the proposed project (a demand for three loading spaces during the peak hour of loading activities); however, the passenger loading space demand would increase due to the introduction of the childcare uses. The passenger loading duration for a childcare use is typically longer than for other uses, with observations at sites serving kindergartens showing a duration of between two and five minutes. The Employee and Family Support Variant would generate about 81 loading instances during the p.m. peak hour, which corresponds to a demand for eight spaces of passenger loading during any one minute of the peak 15 minutes of loading activities (compared to 52 loading instances and a demand for two spaces for passenger loading for the proposed project). During the p.m. peak hour, the childcare use would generate a demand for six of the eight spaces of passenger loading.

Table 3.C.15: Employee and Family Support Variant Freight and Passenger Loading Demand by Land Use

	Freight Loading NOTE A		Passenger Loading NOTE B	
Land Use	**Daily Delivery and Service Vehicles**	**Peak Hour Loading Space Demand**	**P.M. Peak Hour Loading Instances**	**P.M. Peak Hour Peak Minute Loading Space Demand**
Transit Facility				
Administrative & Office	11	1	10	**1**
Bus Maintenance & Storage	n/a	n/a	4	
Joint Development				
Residential	16	1	24	**1**
Retail	6	1	10	
Childcare NOTE C			33	**6**
Total NOTE D	**34**	**3**	**81**	**8**

Notes:

A Freight loading demand is presented as the number of delivery and service vehicle trips per time period. The peak period of freight loading demand typically occurs between 10 a.m. and 1 p.m. and does not coincide with the weekday a.m. or p.m. peak periods.

B Passenger loading is presented as the passenger loading trips estimated to occur during the p.m. peak period. The peak period of passenger loading demand generally occurs during the extended weekday p.m. peak period of 3 p.m. to 7 p.m. which includes the typical afternoon pick-up period for childcare facilities. The passenger loading space demand is presented for the peak one minute of the peak 15-minutes of the p.m. peak hour.

C Loading duration for childcare is assumed to be five minutes, compared to one minute for all other uses.

D The delivery and service vehicle trips, passenger loading instances, and the freight and passenger loading space demand for each land use were rounded up to whole numbers, and therefore the totals may not sum due to rounding.

Source: Technical Memorandum – Travel Demand Estimates for the Potrero Yard Modernization Project, August 2020. See **EIR Appendix E-4.**

Construction Impacts

The analysis for addressing project construction impacts uses preliminary project construction information. The evaluation addresses the staging and duration of construction activities, estimated daily worker and truck trips, truck routes, and roadway and/or sidewalk closures, and evaluates the effects of construction activities on people walking, bicycling, driving, or riding public transit, as well as the effects on emergency vehicle operators.

Operational Impacts

The following describes the methodology for analysis of operational impacts, by significance criterion.

POTENTIALLY HAZARDOUS CONDITIONS

A "hazard" refers to a project-generated vehicle potentially colliding with a person walking, bicycling, or driving or public transit vehicle that could cause serious or fatal physical injury, accounting for the aspects described below. Human error or non-compliance with laws, weather conditions, time of day, and other factors can affect whether a collision could occur. However, for purposes of CEQA, hazards refer to engineering aspects of a project (e.g., speed, turning movements, complex designs, substantial distance between street crossings, sightlines) that may cause a greater risk of collisions that result in serious or fatal physical injury than a typical project. This analysis focuses on hazards that could reasonably stem from the project itself, beyond collisions that may result from aforementioned non-engineering aspects or the transportation system as a whole.

Therefore, the methodology qualitatively addresses the potential for the project to exacerbate an existing or create a new potentially hazardous condition to people walking, bicycling, or driving, or public transit operations. The methodology accounts for the number, movement type, sightlines, and speed of project vehicle trips and project changes to the public right-of-way in relation to the presence of people walking, bicycling, or driving.

ACCESSIBILITY

The methodology qualitatively addresses the potential for the project to interfere with the accessibility of people walking or bicycling or result in inadequate emergency access. The methodology accounts for the number, movement type, sightlines, and speed of project vehicle trips and project changes to the public right-of-way in relation to the presence of people walking and bicycling or emergency service operator facilities.

PUBLIC TRANSIT DELAY

The planning department uses a quantitative threshold of significance and qualitative criteria to determine whether the project would substantially delay public transit. For individual routes, if the project would result in transit delay greater than or equal to four minutes, then it might result in a significant impact. For individual Muni routes with headways less than eight minutes, the department may use a threshold of significance less than four minutes.[31] For individual surface routes operated by regional agencies, if the project would result in transit delay greater than one-half headway, then it might result in a significant impact. For determining whether a delay would result in significant impacts due to a substantial number of people riding transit switching to riding in private or for-hire vehicles, the department considers the following qualitative criteria: transit service headways and ridership, origins and destinations of trips, availability of other transit and modes, and competitiveness with private vehicles.

VMT ANALYSIS METHODOLOGY

Land Use Components

The department uses the following quantitative thresholds of significance to determine whether the project would generate substantial additional VMT:

- For residential projects, if it exceeds the regional household VMT per capita minus 15 percent
- For office projects, if it exceeds the regional VMT per employee minus 15 percent
- For retail projects, if it exceeds the regional VMT per retail employee minus 15 percent[32]
- For mixed-use projects, evaluate each land use independently, per the thresholds of significance described above

The department uses VMT efficiency metrics (per capita or per employee) for thresholds of significance. VMT per capita reductions mean that individuals will, on average, travel less by automobile than previously but, because the population will continue to grow, it may not mean an overall reduction in the number of miles driven.

[31] The threshold uses the adopted Transit First Policy. City Charter section 8A.103 85 percent on-time performance service standard for Muni. With the charter considering vehicles arriving more than four minutes beyond a published schedule time as late.

[32] Retail travel is not explicitly captured in San Francisco chained activity modeling process; rather, there is a generic “Other” purpose which includes retail shopping, medical appointments, visiting friends or family, and all other non-work, non-school tours. The retail efficiency metric captures all of the “Other” purpose travel generated by Bay Area households. The denominator of employment (including retail employment; cultural, institutional, and educational employment; medical employment; school enrollment; and number of households) represents the size, or attraction, of the zone for this type of “Other” purpose travel.

The department uses a map-based screening criterion to identify types and locations of land use projects that would not exceed these quantitative thresholds of significance. The San Francisco County Transportation Authority uses a travel demand model to present VMT for residential, office, and retail in San Francisco and the region, as described and shown under existing conditions. The department uses that data and associated maps to determine whether a project site's location is below the VMT quantitative threshold of significance.

Further, the department presumes residential, retail, and office projects, and projects that are a mix of these uses, proposed within 0.5 mile of an existing major transit stop (as defined by CEQA section 21064.3) or an existing stop along a high-quality transit corridor (as defined by CEQA section 21155) would not exceed these quantitative thresholds of significance. However, this presumption would not apply if the project would: (1) have a floor area ratio of less than 0.75; (2) include more parking for use by residents, customers, or employees of the project than required or allowed, without a conditional use; or (3) is inconsistent with the applicable Sustainable Communities Strategy.[33]

Transportation Components

The department uses the following quantitative threshold of significance and screening criteria to determine whether transportation projects may substantially induce additional automobile travel: 2,075,220 VMT per year. This threshold is based on the fair share VMT allocated to transportation projects required to achieve California's long-term greenhouse gas emissions reduction goal of 40 percent below 1990 levels by 2030.

The department uses a list of transportation components that would not exceed this quantitative threshold of significance. If a project fits within the general types of projects (including combinations of types) listed below, then the department presumes that VMT impacts would be less than significant:

- Active Transportation, Rightsizing, and Transit Projects
  - Infrastructure projects, including safety and accessibility improvements for people walking or bicycling
  - Installation or reconfiguration of traffic calming devices
- Other Minor Transportation Projects
  - Rehabilitation, maintenance, replacement, and repair projects designed to improve the condition of existing transportation assets (e.g., highways, roadways, bridges, culverts, tunnels, transit systems, and bicycle and pedestrian facilities) that do not add additional motor vehicle capacity
  - Addition of transportation wayfinding signage

[33] The department considers a project to be inconsistent with the Sustainable Communities Strategy if the project is located outside of areas contemplated for development in the Sustainable Communities Strategy.

- Removal of on-street parking spaces
- Adoption, removal, or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)

LOADING METHODOLOGY

The methodology assesses the potential for convenient off- and on-street loading facilities to meet the project's loading demand during the average peak period. For the purposes of this section, convenient refers to facilities within 250 linear feet of the project site. If convenient loading facilities meet the estimated demand, the analysis is complete. If convenient loading facilities do not meet the demand, then the methodology qualitatively addresses the potential for the project to exacerbate an existing or create a new potentially hazardous condition to people walking, bicycling, or driving or substantially delay public transit.

2040 Cumulative Conditions

The 2040 cumulative conditions assess the long-term impacts of the project in combination with other cumulative projects. The following summarizes future year modeling and cumulative projects relevant to transportation topics. In addition, the following summarizes differences between existing plus project and these future year conditions regarding the methodology for analyzing any quantitative thresholds of significance for determining transportation impacts.

2040 Modeling

The cumulative conditions analysis incorporates data and forecasts from the City's SF-CHAMP travel demand model outputs in the analysis of VMT impacts. The model is an activity-based travel demand model that the transportation authority calibrates to represent future transportation conditions in San Francisco, accounting for assumptions regarding cumulative infrastructure projects and population growth. Inputs to the model include:

- Infrastructure projects listed in Plan Bay Area (2017);
- Infrastructure projects listed in San Francisco's Countywide Transportation Plan, Capital Plan, or a San Francisco agency's (e.g., SFMTA) Capital Improvement Program and anticipated for completion between 2020 and 2040;
- Infrastructure, private development, or area plan projects actively undergoing environmental review, recently completed environmental review, or the department anticipates undertaking environmental review in the near future because they have received sufficient project definition; or

- Land use growth assumptions derived from the Jobs-Housing-Connections projections developed by the Association of Bay Area Governments/Metropolitan Transportation Commission.[34]

2040 Cumulative Projects

The cumulative conditions analysis for transportation topics other than VMT uses a list-based approach. The geographic context for the analysis of cumulative transportation impacts generally includes the sidewalks and roadways adjacent to the project site, and the local roadway and transit network within 0.5 mile of the project site. The discussion of cumulative transportation impacts assesses the degree to which the proposed project would affect the transportation network in conjunction with overall citywide growth and other cumulative projects. The following describes cumulative land development and transportation projects that the analysis uses to assess cumulative impacts.

DEVELOPMENT PROJECTS

The list of cumulative development projects located within 0.25 mile of the project site that are considered in the transportation analysis is presented in **Table 3.A.1: Cumulative Projects**, p. 3.A.7. Of the 11 cumulative development projects, the 2601 Mariposa Street project (currently under construction) and the 1850 Bryant Street project are located across the street from the project site. The remaining nine cumulative projects are not in the immediate vicinity of the project site.

TRANSPORTATION PROJECTS

The cumulative conditions analysis also considers the effects of foreseeable changes to the transportation network. In the project vicinity, the 16th Street Improvement Project is currently under construction and planning for the SFMTA Northeast Mission Parking Management Plan has recently been initiated. In addition to these projects, the cumulative conditions analysis also incorporates the effects of other major projects that are citywide or regional in scope, even though they would not directly affect the transportation network in the vicinity of the project site. Projects such as Muni Forward, the Caltrain Modernization Program, expanded ferry service from the Water Emergency Transportation Authority (WETA), and various upgrades to BART would affect transit service and capacity and have been accounted for in the latest SF-CHAMP model runs.

Construction Impacts

The analysis for addressing project construction impacts uses preliminary project construction information from the following cumulative projects: 2601 Mariposa Street and 1850 Bryant Street

[34] The analysis used the Central SoMa Plan Model Run. Documentation, including input assumptions, is included in the Transportation Impact Analysis Guidelines – Supplementary Guidance Memorandum on pp. 16-21, *https://default.sfplanning.org/publications_reports/TIA_Guidelines_Supplementary_Guidance_Memo.pdf*, accessed May 5, 2021.

projects. The evaluation uses the same methodology as described above for existing plus project conditions.

Operational Impacts

The following describes the methodology for cumulative analysis of operational impacts, by significance criterion. If the combined projects would result in a significant cumulative impact, the 2040 cumulative conditions assess the project's contribution to that impact.

POTENTIALLY HAZARDOUS CONDITIONS

The analysis for addressing potentially hazardous conditions uses information from a subset of cumulative projects identified in **Table 3.A.1** and shown on **Figure 3.A.1: Cumulative Projects**, including the 2601 Mariposa Street and 1850 Bryant Street projects. (See **EIR Section 3.A**, pp. 3.A.7 - 3.A.9.) The evaluation uses the same methodology as described above on p. 3.C.29 for existing plus project conditions.

ACCESSIBILITY

The analysis for addressing interference or inadequate access uses information from a subset of cumulative projects identified in **Table 3.A.1**, including the 2601 Mariposa Street and 1850 Bryant Street projects. The evaluation uses the same methodology as described on p. 3.C.29 for existing plus project conditions.

PUBLIC TRANSIT DELAY

The analysis for addressing public transit delay uses information from the cumulative projects identified in **Table 3.A.1**. Cumulative impacts related to transit delay were assessed qualitatively based on the same methodology as described above on pp. 3.C.29-3.C.31 for existing plus project conditions.

VMT ANALYSIS

VMT by its nature is largely a cumulative impact. The number and distance of vehicular trips associated with past, present, and future projects might cause or contribute to the secondary physical environmental impacts associated with VMT. It is likely that no single project by itself would be sufficient in size to prevent the region or state in meeting its VMT reduction goals. Instead, a project's individual VMT contributes to cumulative VMT impacts. The department uses existing plus project-level thresholds of significance based on levels at which the department does not anticipate new projects to conflict with state and regional long-term greenhouse gas emission reduction targets and statewide VMT per capita reduction targets.

Therefore, the department assesses whether the region is estimated to meet its long-term greenhouse gas emission reduction targets to determine if a cumulative impact would occur. If a cumulative impact would occur, the department uses a map-based screening criterion to identify types and locations of land use projects that would not exceed the same quantitative thresholds of significance described under existing plus project conditions. The analysis uses the 2040 modeling of VMT estimates to present VMT for residential, office, and retail land uses in San Francisco and the region. The department uses that data and associated maps to determine whether a project site's location is below the aforementioned VMT quantitative threshold of significance, including for the other land use types described above.

LOADING

The analysis for addressing loading uses information from a subset of cumulative projects identified in **Table 3.A.1**, p. 3.A.7, including the 2601 Mariposa Street and 1850 Bryant Street projects. The evaluation uses the same methodology as described above under "Loading Methodology" on pp. 3.C.45-3.C.46 for existing plus project conditions.

IMPACT EVALUATION

Existing plus Project Conditions

Impact TR-1: Construction of the proposed project or project variants would not require a substantially extended duration or intense activity and the secondary effects would not create potentially hazardous conditions for people walking, bicycling, or driving; or interfere with accessibility for people walking or bicycling; or substantially delay public transit. (*Less than Significant*)

Proposed Project

The proposed project would be constructed in six overlapping phases over a three- to four-year period. Prior to construction of the proposed project, the existing bus parking, operations, and maintenance support functions would temporarily relocate to the Muni Metro East Light Rail Vehicle Facility (601 25th Street), the 1399 Marin Street Facility, or other SFMTA facilities and bus storage yards. The Presidio, Kirkland, and Woods yards can accommodate the 40-foot-long buses and the Flynn and Islais Creek divisions, and the 1399 Marin Facility can accommodate the 60-foot-long buses. The electric trolley coaches would use the existing overhead contact system (OCS) and/or operate in battery mode to travel between these facilities and the start or end of their routes. All electric trolley coaches at the existing facility have a battery which allows them to travel off-wire for short distances. Therefore, the temporary relocation of the bus and maintenance operations at the existing facility would not require new construction of an OCS for temporary use during proposed project construction. During the three- to four-year construction period of the proposed project, the existing person and vehicle trips to and from the project site and surrounding area as described above starting on p. 3.C.31 under "Existing Site Trips" would not occur at the project site, but instead would be distributed between two facilities, both located south of the project site in the Bayview neighborhood.

Prior to construction, as part of the permit process, the project sponsor team and its construction contractor(s) would be required to meet with appropriate SFMTA Transportation Engineering personnel to develop and review truck routing plans for demolition, disposal of excavated materials, materials delivery and storage, as well as staging for construction vehicles. The construction contractor(s) would be required to construct the proposed project or project variants in conformance with the City's Regulations for Working in San Francisco Streets, eighth edition (also known as the "SFMTA Blue Book"), public works order 167,840, and public works' **SCM #4, Traffic** (shown in **Table 2.3**, p. 2.50, and in **EIR Appendix C**). These guidelines establish regulations for working in San Francisco streets so that the activities are conducted safely and with the least possible interference with pedestrians, bicyclists, transit, and vehicles. In addition to the regulations in the SFMTA Blue Book and public works' SCMs, the contractor would be responsible for complying with all City, state and federal codes, rules, and regulations.

In general, construction-related activities would typically occur between 7 a.m. and 8 p.m. Nighttime and weekend construction activities may be required. For example, the pouring of concrete for the foundation mat would most likely occur during a continuous 24-hour period and may occur during the overnight hours and/or on a Saturday. Some weekend work, including equipment and material deliveries, would be expected in order to minimize the impact on adjacent traffic, including transit. Construction is not anticipated to occur on major legal holidays but may occur on an as-needed basis. The contractor(s) would be required to comply with the San Francisco Noise Ordinance,[35] which requires a permit for nighttime work.

Construction staging (e.g., staging of construction vehicles, staging of construction materials, construction worker parking, and delivery and haul trucks) would occur onsite and within the sidewalks and parking lanes adjacent to the project site for the duration of project construction. Fifteen on-street parking spaces adjacent to the project site and the bus stop on northbound Bryant Street at the approach to 17th Street would be temporarily removed for the three- to four-year period. The nearest bus stops to the project site for the northbound 27 Bryant route are at the approach to 16th Street and at the approach to Mariposa Street, about 170 feet to the north and south, respectively, of the bus stop that would be temporarily removed. As part of the ongoing construction of the 2601 Mariposa Street project, the bus stop on the east side of Bryant Street at the approach to Mariposa Street has been temporarily removed, pending completion of construction by the end of 2021 (i.e., prior to start of construction of the proposed project or project variants). These three bus stops at the northbound approaches to Mariposa, 17th, and 16th Streets are within one block of each other and are more closely spaced than recommended by the SFMTA's transit

[35] The San Francisco Noise Ordinance allows construction activities seven days a week, between 7:00 a.m. and 8:00 p.m.

stop spacing guidelines.[36] Therefore, the temporary removal of the stop adjacent to the project site for the three- to four-year duration of construction may increase the physical distance and effort required to reach the 27 Bryant route by one block but would not result in substantial overcrowding at the adjacent bus stops, create potentially hazardous conditions or otherwise interfere with accessibility for people walking near the project site.

People walking would be directed to use the sidewalks on the other side of the street from the project site on 17th, Hampshire, Mariposa and Bryant streets. The pedestrian detours and temporary changes to transit stop locations would increase the travel distance for some people walking and taking transit and may be an inconvenience to some people walking. As part of the pedestrian detours, appropriate pedestrian signs, including but not limited to "Sidewalk Closed," would be posted. The number of people walking adjacent to the project site is very low (between 5 and 100 people during the peak hours) and primarily related to the existing transit facility. As noted above, the bus facility maintenance and storage activities would be temporarily relocated to two existing SFMTA facilities and therefore trips associated with this use would not occur adjacent to the project site during the construction period. The SFMTA Blue Book regulations, public works order 167,840, and public works' **SCM #4, Traffic**, require maintaining pedestrian circulation and implementing construction safety measures for people walking.

Potrero Avenue, Bryant Street, and Mariposa Street would be used to access the site, and access into the construction site would be from Mariposa Street. During project construction there would be additional construction trucks on 17th Street, which has a bicycle lane (class II or class IV) in each direction; however, the existing bicycle lanes would be maintained, and therefore construction trucks would not substantially affect bicycle travel. The SFMTA Blue Book and public works' **SCM #4** require maintaining bicycle access and circulation during project construction.

Travel lane closures on 17th and Bryant streets are not anticipated, and therefore would not affect people driving, transit operations for the 27 Bryant bus route, or emergency vehicle access. On Mariposa Street between Bryant and Hampshire streets, the parking lane on the north side of the street and the westbound travel lane would be closed during the first 12 months of construction to provide for additional space for staging, and westbound vehicles would be detoured to 17th and/or 18th streets, which are both two-way streets. Hampshire Street between 17th and Mariposa streets would be partially closed on a temporary, as-needed basis to provide additional space for laydown and staging. When temporary travel lane and partial street closures are required for Mariposa and Hampshire streets, access for people walking, bicycling, and driving would be maintained consistent with the requirements of the SFMTA Blue Book. Construction activities would not require removal or changes to existing on-street commercial or passenger loading spaces on Hampshire, Bryant, or Mariposa streets across the street from the project site, and therefore would

[36] The SFMTA's transit stop spacing guidelines generally recommend transit stops to be 800 to 1,360 feet apart depending on the block lengths and terrain of the neighborhood.

not interfere with existing loading operations using these facilities or create potentially hazardous conditions due to unaccommodated demand.

During the construction period, the number of construction trucks traveling to and from the site would vary depending on the phase and the type of construction activity. **Table 3.C.16: Summary of Construction Phases and Duration and Average Daily Construction Trucks and Workers by Phase** presents the average daily number of construction workers that would be onsite during the day and construction trucks traveling to and from the site during each phase. The peak number of construction trucks would occur during the demolition and site preparation phases, with an average of between 140 and 190 trucks per day. Due to the large size of the project site, it is possible that one or more of these initial phases could overlap, at which point the number of construction trucks per day traveling to and from the site could increase.

Table 3.C.16: Summary of Construction Phases and Duration and Average Daily Construction Trucks and Workers by Phase

Phase NOTE A	Duration (months)	Workers Per Day	Daily Construction Trucks NOTE B			
			Vendor	Off-Haul	Concrete	Total
Demolition	2	30	20	119	0	139
Site Preparation, Grading and Piling	6	50	5	182	2	189
Foundation and Basement Construction	2	100	25	5	79	109
Building Construction	26	450	25	0	5	30
Paving	2	25	3	1	3	7
Architectural Coating	2	30	5	0	0	5

Notes:
[A] Some of the phases would overlap during the three- to four-year construction duration.
[B] Average daily construction trucks based on the number of work days during each phase.
Source: SFMTA and Public Works Construction Schedule and Equipment List, July 2020. (See **EIR Appendix F-1**.)

As shown on **Table 3.C.16**, the number of daily construction workers would vary by phase depending on the overlap in phases and types of construction activities being performed and would range between about 25 and 450 workers. However, it is anticipated that the addition of the worker-related vehicle- or transit-trips would not substantially affect transportation conditions, as any impacts on the transportation network would be temporary in nature and variable depending on the construction activity. Construction workers who drive to the site could cause a temporary increase in parking demand. The time-limited on-street parking on many streets in the vicinity of the project site would limit legal all-day parking by construction personnel.

Construction activities would be required to be conducted in accordance with public works' **SCM #4, Traffic**; public works order 167,840; and the SFMTA Blue Book to minimize the potential for hazardous conditions and to maintain safe travel in and around the site. Although construction would occur over a period of three to four years, construction would be phased and conducted in compliance with City requirements such that construction work can be done with the least possible interference to people walking, bicycling, or driving or transit operations. Overall, construction of the proposed project would not create potentially hazardous conditions for people walking, bicycling, driving, or riding transit; interfere with emergency access; or interfere with accessibility for people walking or bicycling; or substantially delay transit. The proposed project's construction-related transportation impacts would be less than significant.

Although the SFMTA would require preparation and implementation of a construction management plan, **Improvement Measure I-TR-A: Construction Management Plan – Additional Measures** identifies additional measures that would be included as a part of the proposed project's construction management plan.

Improvement Measure I-TR-A: Construction Management Plan – Additional Measures

As part of the project's construction management plan, the SFMTA and a private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) will require additional measures to further minimize disruptions to people walking and bicycling, transit, and emergency vehicles during project construction: The additional measures include:

- ***Carpool, Bicycle, Walk, and Transit Access for Construction Workers***—To minimize parking demand and vehicle trips associated with construction workers, the construction contractor will include as part of the Construction Management Plan methods to encourage carpooling, bicycle, walk, and transit access to the project site by construction workers. These methods could include providing secure bicycle parking spaces, participating in free-to-employee and employer ride matching program from *www.511.org*, participating in emergency ride home program through the City of San Francisco (*www.sferh.org*), and providing transit information to construction workers.
- ***Project Construction Updates for Adjacent Businesses and Residents***—To minimize construction impacts on access to nearby residences and businesses, the project sponsor team will provide nearby residences and adjacent businesses with regularly updated information regarding project construction, including construction activities, peak construction vehicle activities, travel lane closures, and parking lane and sidewalk closures (e.g., via the project's website). At regular intervals to be defined in the construction management plan, a regular email notice will be distributed by the project sponsor team that will provide current construction information of interest to neighbors, as well as contact information for specific construction inquiries or concerns.

Project Variants

Construction activities for the Emergency Exit Relocation Variant, the Joint Development Lobby Relocation Variant, the Active 17th Street Variant, and the Employee and Family Support Variant would be the same as described above for the proposed project, and therefore construction of these variants would not create potentially hazardous conditions for people walking, bicycling, driving, or riding transit; interfere with emergency access; or interfere with accessibility for people walking or bicycling; or substantially delay transit. Therefore, similar to the proposed project, construction-related transportation impacts of the project variants would be less than significant.

Impact TR-2: Operation of the proposed project or project variants would not create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations. (*Less than Significant*)

The project proposes a number of changes to the street network adjacent to the project site, including changes to driveway locations, reconstructed sidewalks, a raised crosswalk, sidewalk bulbouts, upgrade of the bicycle lanes on 17th Street, and various color curb changes on Bryant, Mariposa, and Hampshire streets. See **Figure 2.3: Proposed Site Plan** in **EIR Chapter 2, Project Description**, p. 2.20, for an illustration of proposed changes. The design of the driveways and street network changes, including the raised crosswalk, would be consistent with Better Streets Plan guidelines. The street network changes would be required to undergo review by SFMTA's Transportation Advisory Committee and the San Francisco Fire Department (fire department), along with other City agencies. The proposed project would not include any design features that would create potentially hazardous conditions.

The proposed project would add trips by people walking, bicycling, and driving. During the weekday p.m. peak hour, the proposed project would generate about 537 walk trips (388 walk-only and 149 walk-to-transit trips) and 28 bicycle trips. In addition, during the p.m. peak hour the project would generate 226 net-new vehicle trips (49 by the transit facility and 177 by the joint development uses). The net-new trips represent the new vehicle trips that would be added to the roadway network after accounting for the existing bus and maintenance activity at the site.

WALKING AND BICYCLING

Peak activity for the transit facility and the residential and retail uses would not overlap. However, people walking and bicycling would be exposed to a greater number of driveways, buses, maintenance vehicles, and delivery trucks than on other residential blocks in the neighborhood.

The street network changes would enhance the environment and safety for people walking adjacent to the project site and people bicycling along 17th Street. The walking network adjacent to the project site would be enhanced by the proposed sidewalk widening on Mariposa Street; sidewalk bulbouts adjacent to the project site onto Bryant and Mariposa streets at the intersection of Bryant Street/Mariposa Street and onto Hampshire Street at the intersection of Hampshire Street/Mariposa Street; new curb ramps; and new continental crosswalks. In addition, the raised crosswalk across 17th Street at Hampshire Street and the rectangular rapid flashing beacon would prioritize safe movement of people walking between the project site and locations north of the site such as Franklin Square and the Potrero Center commercial area.

Pedestrian access to the proposed project's ground-floor retail uses would be on Bryant Street, while access to the residential units would be located on Bryant and Mariposa streets, and therefore the majority of the new trips by walking and bicycling would be on Bryant and Mariposa streets, including within the crosswalks at the adjacent intersections of Bryant Street/17th Street and Bryant Street/Mariposa Street. Pedestrian access to the transit facility would be on Mariposa Street.

On Bryant Street the project would convert approximately six general vehicle parking spaces to commercial and passenger loading zones, which would increase the number of vehicles accessing the curbside compared to existing conditions. During the p.m. peak hour there would be about 52 passenger loading/unloading instances generated by the proposed project. Curbside passenger loading activities adjacent to the project site would be similar to conditions at other nearby loading zones and do not represent potentially hazardous conditions for people walking or bicycling.

On Mariposa Street there would be a lobby for the residential units located midway between York and Hampshire streets, and also an access point near Bryant Street for the residential lobby fronting Bryant Street. The residential lobby located midway between York and Hampshire streets would be located between multiple curb cuts/driveways for the proposed project's transit facility, and therefore people walking to and from this lobby would cross one or more transit facility driveways. These driveways would have an audible and/or visual warning system for people walking as buses exit onto Mariposa Street. These vehicle turning movements into and out of the transit facility are not expected to create potentially hazardous conditions for people walking on Mariposa Street as drivers exiting the transit facility would have unobstructed sightlines and/or adequate sight distance to see approaching people walking or bicycling, the travel speeds of vehicles turning into and out of the site would be lower than the adjacent street traffic, and drivers would need to wait for a gap in people walking on the sidewalk to complete their turn. During the p.m. peak hour, when pedestrian volumes are highest, buses are expected to exit via these driveways approximately once every 10 minutes, with other vehicles using driveways once every minute.

The transit facility would be most active during the early morning hours, as buses leave the facility to access their routes (generally between 4 a.m. and 7 a.m.), and during the late evening hours, as buses arrive at the facility after service terminates (generally between 7 p.m. and 9 p.m.). Vehicle trips into and out of the transit facility throughout the rest of the day would be substantially lower than during those hours, and would be associated with the administrative, training, and maintenance activities at the transit facility. The curb cut/driveway into the onsite basement-level loading area would be limited to freight loading for both the transit facility and the joint development components (about 14 delivery and service vehicle trips per day), trash/compost/recycling removal for the transit facility and the residential units, and 12 car-share parking spaces; most activity would occur during the early morning or midday hours, outside of the peak periods for the transit facility.

The proposed project would enhance bicycling conditions on 17th Street and would not include any physical features that would obstruct the bicycle lanes on 17th Street. The conversion of the existing striped and partially protected bicycle lanes into wider green protected bikeways in both directions on the segment of 17th Street between Bryant and Hampshire streets would improve bicycle safety by providing greater separation of right-of-way compared to existing conditions. As noted in **EIR Chapter 2, Project Description**, p. 2.45, if the widened bikeways are determined not to be feasible, the SFMTA would raise the bike lane on the south side to sidewalk level, apply green paint, and install "safe hit posts." With both types of separated bike lane scenarios, the existing driveway on 17th Street west of Hampshire Street would be reconfigured and the width reduced from 52 to 42 feet, and would include visual and/or audible warning systems. Under the proposed project this driveway would serve as an emergency exit for the transit facility, and therefore the number of vehicles crossing the eastbound bike lane would decrease compared to existing conditions, as the emergency exit would be rarely used. While these alternative improvements for bicycle travel along 17th Street would not be as effective in enhancing bicycle safety as the green protected widened bikeways, bicycle safety for eastbound travel would be improved compared to existing conditions. The project would add vehicles to 17th Street (e.g., 21 vehicles during the p.m. peak hour); however, because no on-street loading zones or project driveways would be located on 17th Street (except for the emergency exit described above), the additional vehicles on 17th Street are not expected to create potentially hazardous conditions for bicyclists.

The proposed project would convert the existing 90-degree angle parking spaces on the east side of Hampshire Street between 17th and Mariposa streets to parallel parking spaces. This reconfiguration would widen the existing travel lanes and would provide additional room for bicyclists and vehicles. As noted above on p. 3.C.13 under "Environmental Setting," Hampshire Street is used by bicyclists to travel north to eastbound 17th Street during the a.m. peak hour, and from westbound 17th Street to southbound Hampshire Street during the p.m. peak hour; the total number of bicyclists using the roadway is considered low, at 35 to 40 cyclists during the peak hours. In addition, no potentially vulnerable areas were identified near the project site under existing conditions that could create potential hazards for people bicycling or walking.

In summary, because of the wider sidewalks and enhanced bicycling conditions, conformance with City design standards, and an audible and/or visual warning system at the driveways, the transit facility operations would not create potentially hazardous conditions for people walking or bicycling.

DRIVING AND PUBLIC TRANSIT OPERATIONS

The proposed project's street network would accommodate various vehicle types, including trucks and buses, and the proposed conceptual plans have undergone conceptual review by City agencies. Final design would be subject to approval by the SFMTA, public works, and the fire department so that the streets are designed consistent with City policies and design standards, including the Better Streets Plan, and do not result in potentially hazardous conditions for people driving or public transit operators. The project would generate additional vehicles (i.e., 226 net-new vehicles during the p.m. peak hour); however, increases in vehicles using the roadway are not considered driving hazards. During the p.m. peak hour there would be 130 net-new inbound and 96 outbound vehicle trips traveling to and from the project area. Because vehicle parking would not be provided onsite (with the exception of 12 car-share parking spaces), the majority of these vehicles would either be destined to and from the on-street passenger loading zone on Bryant Street (e.g., taxi/TNC vehicles) and on-street parking in the neighborhood.

With the reconfiguration of transit facility driveways and access points, on-street parking would be removed on the north side of Mariposa Street between Bryant and Hampshire streets to facilitate bus movements into and out of the transit facility. This reconfigured access would also not create potentially hazardous conditions for people driving on Mariposa Street; the removal of parking is intended to facilitate clear sightlines for both vehicles on Mariposa Street and vehicles using the driveways. The driveways would be designed to the standards for transit facilities to allow for adequate space and visibility for vehicles exiting the project site and accessing the adjacent travel lanes.

The proposed raised crosswalk and rapid flashing beacon on 17th Street would not be anticipated to create potentially hazardous conditions for people driving, as it would be designed to engineering standards and the raised crosswalk would include a rectangular rapid flashing beacon to notify drivers of the pedestrian crossing. During the p.m. peak hour there are currently 638 vehicles traveling on 17th Street between Bryant and Hampshire streets (364 westbound and 274 eastbound) and the proposed project would add 21 vehicles to this segment. These additional project-generated vehicles combined with the raised crosswalk and upgraded bicycle lanes described above would not create potentially hazardous conditions for people driving. There are no local or regional bus routes traveling on this segment of 17th Street that would be affected by the proposed street network changes.

Therefore, for the reasons described above, the proposed project would not create potentially hazardous conditions for people driving or transit operations.

Overall, the proposed project would not create potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations, and the proposed project's impacts related to potentially hazardous conditions would be less than significant.

Project Variants

The proposed land uses and street network changes for the Emergency Exit Relocation Variant, the Joint Development Lobby Relocation Variant, and the Active 17th Street Variant would be the same as for the proposed project, and these variants would not change the travel demand. The site access for people walking, bicycling, or driving, and transit operations for the Active 17th Street Variant would be the same as for the proposed project. The Emergency Exit Relocation Variant, the Joint Development Lobby Relocation Variant, and the Employee and Family Support Variant[37] would have somewhat different configurations of the project features and street network changes, as follows:

- Under the Emergency Exit Relocation Variant, the emergency exit for the transit facility would be relocated from 17th Street to Hampshire Street, and five on-street parking spaces would be removed on the west side of the street to accommodate the emergency exit driveway. The relocation of the emergency exit would remove the proposed 42-foot-wide driveway on 17th Street, and would therefore remove a location of potential conflicts between bicyclists traveling eastbound within the bicycle lane and buses exiting the facility and crossing the eastbound bicycle lane (no conflicts between bicyclists and transit facility vehicles were observed during field surveys of existing transit facility operations). While there is bicycle activity on Hampshire Street where the new emergency exit would be located, the number of bicyclists traveling on Hampshire Street is substantially lower than the number within the 17th Street bicycle lanes.

  Across the street from the proposed location of the emergency exit for the transit facility on Hampshire Street, two on-street parking spaces would be removed. With the reconfiguration of on-street parking on the east side of Hampshire Street between 17th and Mariposa streets from 90-degree angle to parallel and the removal of the two on-street parking spaces on the east side of Hampshire Street, buses and other vehicles would have adequate right-of-way to be able to exit the transit facility and turn right or left onto Hampshire Street. Hampshire Street has lower vehicle volumes than 17th Street and no transit service, and use of the emergency exit would be rare. Therefore, the potential for conflicts between vehicles exiting the transit facility and vehicles on the street would be low. Therefore, the relocation of the emergency exit to Hampshire Street would not create potentially hazardous conditions for people walking, bicycling, or driving on Hampshire Street.

- The Joint Development Lobby Relocation Variant would relocate the residential lobby located on Mariposa Street midway between York and Hampshire streets to Hampshire Street north of Mariposa Street, which would reduce the potential for conflicts between people walking and transit facility operations on Mariposa Street. With the relocated residential lobby, some pedestrians would use 17th and Hampshire streets, or the south side of Mariposa Street, to walk to and from the site and would therefore not need to cross multiple transit facility driveways on Mariposa Street. However, because Bryant and Mariposa streets have less of a grade change (about 1 percent for Mariposa Street and 3.5 percent for Bryant Street) than 17th Street and Hampshire streets (about 3 percent for 17th Street and 5.5 percent for Hampshire Street), a portion of the residents would use Mariposa Street adjacent to the project site to access the residential lobby on Hampshire Street and cross the transit facility driveways (i.e., people walking generally tend to use

[37] The Employee and Family Support Variant is a land use variant that would include particularly vulnerable people (i.e., children). Consistent with the 2019 SF Guidelines, the impact analyses of this variant with respect to potentially hazardous conditions (Impact TR-2) and accessibility (Impact TR-3 below) considered the presence of people and children walking to and from and adjacent to the project site.

streets with less of a grade to access their destination). However, as noted above, the transit facility would include audible and/or visual warning systems at the Mariposa Street exit driveways and the peak activity of the transit facility would not overlap with the peak hours of travel for residents.

- Under the Employee and Family Support Variant, 9,000 gross square feet of the proposed project's commercial retail space would be converted to childcare uses, and nine general on-street parking spaces on Bryant Street would be converted to childcare passenger loading. The childcare use would further increase the number of vehicles accessing the curbside compared to the proposed project (i.e., a total of 81 passenger loading/unloading instances under this variant during the p.m. peak hour compared to 52 passenger loading/unloading instances under the proposed project). However, the additional passenger loading activities would be accommodated within the childcare loading spaces, thereby not blocking a travel lane, and would not represent potentially hazardous conditions for people walking, bicycling, or driving or transit operations on Bryant Street. Prior to project variant approval, the department would require the joint development sponsor to prepare a Childcare Drop-off and Pick-up Management Plan[38] that would address the specific loading activities and needs associated with the childcare uses (also see **Impact TR-6** for an assessment of passenger loading activities, pp. 3.C.64-3.C.68).

Therefore, similar to the proposed project, the project variants' impacts related to potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations would be less than significant.

Impact TR-3: Operation of the proposed project or project variants would not interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access. (*Less than Significant*)

Proposed Project

The proposed project would not involve any substantial changes to the street network that would interfere with walking or bicycling to and from the project site and adjoining areas, or result in inadequate emergency access. As listed above in **Impact TR-2**, proposed street network changes include removal of on-street parking, color curb changes, sidewalk bulbouts, curb ramps, continental crosswalks, sidewalk widening, and upgrades to the existing bicycle lanes on 17th Street. In addition, the proposed project would also implement a raised crosswalk across 17th Street at Hampshire Street with a rectangular flashing beacon. The project would be designed to be compliant with the Americans with Disabilities Act.

WALKING AND BICYCLING

The walking network adjacent to the project site would be enhanced by the proposed sidewalk widening on Mariposa Street; sidewalk bulbouts onto Bryant and onto Mariposa streets at the

[38] The department requires such a plan for any project with a new or expanded school or childcare facility. Refer to here: *https://sfplanning.org/resource/school-and-child-care-drop-and-pick-management-supplemental*.

intersection of Bryant Street/Mariposa Street and onto Hampshire Street at the intersection of Hampshire Street/Mariposa Street; new curb ramps; and continental crosswalks. In addition, the raised crosswalk across 17th Street at Hampshire Street and rapid flashing beacon would prioritize safe movement of people walking between the project site and locations north of the site such as Franklin Square and the Potrero Center commercial area.

During the weekday p.m. peak hour, the proposed project would add about 537 walk trips (388 walk-only and 149 walk-to-transit trips) to the adjacent sidewalks on Bryant and Mariposa streets, with about 211 trips destined to and from the retail uses on Bryant Street, 280 trips to and from the residential lobbies/access points on Mariposa and Bryant streets, and 46 trips to and from the transit facility access points on Mariposa Street. People accessing transit would primarily walk on Bryant Street to access the 27 Bryant bus stop adjacent to the project site at 17th Street, or continue north along Bryant Street to 16th Street to access the 22 Fillmore, 33 Ashbury/18th Street, and 55 16th Street routes on 16th Street, or walk east on Mariposa Street to access the 9 San Bruno, 9R San Bruno Rapid, or 33 Ashbury/16th Street routes. People would also walk west along 17th or 16th streets to access other Muni routes on Folsom and Mission streets and the 16th Street BART station on Mission Street. As noted under "Existing Conditions," p. 3.C.10, the numbers of people walking on sidewalks adjacent to the project site (fewer than 100 people per hour during the peak hours) and within crosswalks at nearby intersections are generally low (fewer than 250 people combined crossing within the crosswalks at nearby intersections), and the additional project trips would not create overcrowding or otherwise interfere with accessibility for people walking in the area.

The existing striped and partially protected bicycle lanes on 17th Street would be converted into green protected widened bikeways in both directions on the segment of 17th Street between Bryant and Hampshire streets, and on-street parking on the north side of the street would be removed. As noted in **EIR Chapter 2, Project Description**, p. 2.45, if the widened bikeways are determined not to be feasible, the SFMTA would raise the bike lane on the south side to sidewalk level, apply green paint, and install "safe hit posts." These bicycle lane upgrades would enhance the bicycle network on 17th Street and enhance accessibility, compared to existing conditions, and would not include any physical features that would obstruct the bicycle lanes on 17th Street or other bicycle lanes in the study area. During the p.m. peak hour, the project would generate 28 trips by bicycling, which would not result in overcrowding on bicycle facilities on 17th Street or in the project vicinity.

The proposed project would include 736 class 1 bicycle parking spaces located within the below-grade basement level and would be accessible via transit facility and joint development elevators for use by unit residents, non-residential occupants, and employees.

Overall, the proposed project would promote accessibility for people walking and bicycling to the site by reconstructing and widening adjacent sidewalks, and upgrading the bicycle lane on

17th Street. The project would not generate activities that would interfere with access or circulation for people walking or bicycling.

EMERGENCY ACCESS

The proposed project would not introduce any design features or street network changes that would substantially change emergency vehicle travel adjacent to the project site. Emergency access routes to the project site would remain unchanged compared with existing conditions. The width of the vehicle travel right-of-way on both Hampshire and Mariposa streets adjacent to the project site would be widened through the proposed reconfiguration of on-street parking on the east side of Hampshire Street (i.e., from 90-degree angle to parallel parking) and the proposed removal of on-street parking on the north side of Mariposa Street. The widened vehicle travel rights-of-way would facilitate maneuverability for emergency vehicles. Therefore, the proposed project would not result in inadequate emergency access.

Therefore, for the reasons described above, the proposed project would not interfere with accessibility of people walking or bicycling, or result in inadequate emergency access, and the proposed project's impacts related to accessibility would be less than significant.

Project Variants

The proposed land uses and street network changes for the Emergency Exit Relocation Variant, the Joint Development Lobby Relocation Variant, the Active 17th Street Variant, and the Employee and Family Support Variant would be the same or similar to the proposed project, and the impact assessment would be the same as described above for the proposed project. Similar to the proposed project, the project variants' impacts related to accessibility would be less than significant.

Impact TR-4: Operation of the proposed project or project variants would not substantially delay public transit. (*Less than Significant*)

The proposed project would not result in permanent relocation or removal of any existing bus stops, and therefore would not change existing bus operations. The transit facility component of the proposed project would accommodate the modernization and expansion of the trolley bus maintenance, fleet size, operation, and administrative services, and would make transit operations more efficient. The project would also accommodate the expansion and consolidation of training operations, currently sited elsewhere, in one location. The new facility would accommodate up to 213 trolley buses, an increase of 55 buses from the 158 buses currently accommodated under constrained conditions, but would not alter transit service. The proposed project travel demand and impact analysis assumes an increase of 55 additional buses over existing conditions traveling to and from the project site on a daily basis. However, it is noted that these additional buses would be a result of expansion of transit service on the bus routes accommodated at the facility, rather than a result of the additional bus storage capacity of the new facility. The increases in service on the routes accommodated at this facility, as described and analyzed in the Transit Effectiveness Project and consistent with the 10 percent growth in the Muni Fleet Plan, was evaluated in previous environmental documentation and associated project approvals.[39]

During the weekday p.m. peak hour, the proposed project would generate a net-new increase of 130 inbound and 96 outbound vehicle trips. The 226 net-new p.m. peak hour vehicle trips would be as follows:

- 33 net-new transit facility trips (7 inbound and 26 outbound)
- 38 new taxi/TNC trips (19 inbound and 19 outbound)
- 155 new residential and retail non-taxi/TNC vehicle trips (104 inbound and 51 outbound)

The 226 net-new p.m. peak hour project vehicle trips would be less than the 300 p.m. peak-hour project vehicle trips identified by the department as the number of vehicle trips that could result in delays for transit and exceed the four-minute threshold of significance. Therefore, the proposed project would not result in a significant impact related to transit delay.

For informational purposes, all access/egress driveways serving the transit facility and joint development would be on Mariposa Street, except for the emergency exit driveway onto 17th Street. The project was designed to accommodate the bus turns into and out of the transit facility, and between Mariposa Street and other streets. For example, the bulbouts into Mariposa and Bryant streets at the intersection of Bryant Street/Mariposa Street would be smaller than standard corner bulbouts to provide adequate maneuvering space for buses turning from westbound Mariposa Street onto northbound Bryant Street. Under existing conditions, this location is striped off and safe hit posts are positioned within the striped area. As part of final design of the street network changes, field testing of the bus movements would be conducted to verify that the dimensions of the bulbouts would not impede bus movements.

On Mariposa Street, the driveway into the onsite basement-level loading area would be limited to freight loading for both the transit facility and the joint development components, trash/compost/recycling removal for the transit facility and the residential units, and 12 car-share parking spaces. These activities would not likely overlap with the peak of the transit facility (i.e., between 4 a.m. and 7 a.m., and between 7 p.m. and 9 p.m.). Thus, buses would enter and exit the transit facility similar to existing conditions, and the joint development activities within the basement level would not substantially affect transit operations or create new conflicts with transit vehicles. The proposed project would not provide any driveways on Bryant Street on which the 27 Bryant bus route travels.

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[39] City and County of San Francisco, Transit Effectiveness Project, Final EIR, March 2014. Planning Department Case File No. 2011.0555E.

The proposed project would not provide onsite vehicular parking for the residential or retail uses. However, 12 car-share parking spaces would be provided within the basement level. Therefore, the majority of the new residential and retail non-taxi/TNC vehicle trips generated by the proposed project (e.g., the 104 inbound and 51 outbound during the weekday p.m. peak hour) would not travel to the project site but instead would seek nearby parking on-street and in off-street facilities.

No Muni or regional transit routes operate on 17th or Hampshire streets, and there are no driveways proposed on either street, with the exception of the transit facility emergency exit on 17th Street. This exit would only be used during emergencies, and therefore would be used rarely.

Project Variants

The proposed land uses and street network changes for the Emergency Exit Relocation Variant, the Joint Development Lobby Relocation Variant, and the Active 17th Street Variant would be the same as for the proposed project, and these variants would not affect how vehicles would access the transit facility or change on-street conditions for transit operations. For these project variants the number of vehicles generated by the proposed land uses would be the same as for the proposed project, and therefore the transit impact assessment for these project variants would remain the same as those identified above for the proposed project.

The Employee and Family Support Variant would replace 9,000 of the 33,000 square feet of commercial retail uses included in the proposed project with childcare uses. With the change in land uses, the Employee and Family Support Variant would generate 278 net-new vehicle trips during the p.m. peak hour, which, similar to the proposed project, would be less than the 300 p.m. peak-hour project vehicle trips identified by the department as the number of vehicle trips that could result in delays for transit and exceed the four-minute threshold of significance. Therefore, the transit impact assessment for the Employee and Family Support Variant would remain the same as identified above for the proposed project.

Under all project variants, the nearby transit service and transit facility operations would remain similar to that described for the proposed project.

Therefore, similar to the proposed project, transit impacts under the project variants would be less than significant.

Impact TR-5: Operation of the proposed project or project variants would not cause substantial additional VMT or substantially induce automobile travel. (*Less than Significant*)

As presented in **Table 3.C.6**, p. 3.C.19, the existing average daily VMT per capita for the transportation analysis zone in which the proposed project site is located (i.e., TAZ 538) is below the existing regional average daily VMT. Specifically:

- For the residential uses, the average daily VMT per capita is 5.3, which is about 69 percent below the existing regional average daily VMT per capita of 17.2.
- For the office uses (i.e., transit facility administrative and training uses, childcare)[40], the average daily work-related VMT per employee is 9.6, which is about 50 percent below the existing regional average daily work-related VMT per employee of 19.1.
- For the retail uses, the average daily retail VMT per employee is 9.8, which is about 34 percent below the existing regional average daily retail VMT per employee of 14.9.[41],[42]

As described above under "VMT Analysis Methodology," the project site is within an area of the city where the existing VMT is more than 15 percent below the regional VMT thresholds. The proposed project would meet the City's map-based screening for residential, office (transit facility), and retail projects, and it would include similar features to other developments in the area in terms of density and mix of uses. As such, the proposed project's land uses would not generate a substantial increase in VMT. Furthermore, the project site meets the proximity to transit stations screening criterion, which also indicates that the proposed project's uses would not cause substantial additional VMT.

The proposed project is also a transportation project and includes features that would alter the transportation network adjacent to the project site. Therefore, as described above under "VMT Analysis Methodology," the VMT impact assessment entailed a review of the proposed project features that would alter the transportation network to determine whether they would induce automobile travel. The features that would alter the transportation network include reconstructed and widened sidewalks, bicycle lane upgrades, reconfigured on-street vehicular parking, closures and/or relocation of driveways, and on-street commercial and passenger loading zones. These features fit within the general types of projects that would not substantially induce automobile travel. In addition, the transit facility component of the proposed project is a replacement project designed to improve conditions for an existing transportation asset, and therefore the transit facility component would be considered a type of project that would not induce automobile travel.

40 OPR has not provided a proposed screening criteria and thresholds of significance for 'other' types of land use, beyond residential, retail, office. The Planning Department has designated the project's 'other' land uses (i.e., transit facility administrative and training uses, childcare) to be treated as office for screening and analysis.

41 Retail travel is not explicitly captured in San Francisco chained activity modeling process; rather, there is a generic "Other" purpose which includes retail shopping, medical appointments, visiting friends or family, and all other non-work, non-school tours. The retail efficiency metric captures all of the "Other" purpose travel generated by Bay Area households. The denominator of employment (including retail; cultural, institutional, and educational; and medical employment; school enrollment, and number of households) represents the size, or attraction, of the zone for this type of "Other" purpose travel.

42 San Francisco Planning Department. Eligibility Checklist: CEQA Section 21099 – Modernization of Transportation Analysis for 2500 Mariposa St – SFMTA Potrero Yard Modernization Project, April 9, 2021.

Both the transit facility and joint development components of the proposed project would be subject to the City's TDM program requirements.

Therefore, for the reasons described above, the proposed project impacts related to VMT and induced automobile travel would be less than significant.

Project Variants

Under the Emergency Exit Relocation Variant, the Joint Development Lobby Relocation Variant, the Active 17th Street Variant, and the Employee and Family Support Variant, the project land uses and transportation features would remain the same as or similar to the proposed project, and the impact assessment would be the same as discussed above for the proposed project. Similar to the proposed project, impacts of the project variants related to VMT and induced automobile travel would be less than significant.

Impact TR-6: Operation of the proposed project or project variants would not result in a loading deficit. (*Less than Significant*)

Proposed Project

FREIGHT LOADING

The proposed project includes two onsite commercial loading spaces within the below-grade garage to serve the transit facility and the joint development land uses. In addition, the project proposes a 40-foot-long commercial loading zone (which could accommodate up to two vehicles) on Bryant Street adjacent to the project site and proposed retail uses on Bryant Street. The locations of the on-street loading zones are presented on **Figure 2.3: Project Site Plan**, p. 2.20.

Review of available conceptual plans for the garage access ramp and basement-level driveway aisles and loading areas indicate that larger SU30[43] trucks would be able to access and maneuver into and out of the loading spaces. Final design review by the SFMTA would reassess if larger trucks or vehicles with larger turning radii would also need to be accommodated, and the basement would be designed accordingly to reflect these larger vehicles. The on-street commercial and passenger loading spaces would be designed consistent with existing SFMTA and public works standards, as well as the Better Streets Plan requirements, to provide for efficient access into the zones (e.g., length and width of loading space). Time-of-day loading restrictions would be used to promote more efficient use of limited curb space and avoid conflicts between loading and other activities.

[43] SU30 (single unit) trucks include standard delivery trucks 30 feet in length that are common in downtown and commercial areas.

The proposed project's peak hour commercial loading demand of three loading spaces (one for the transit facility, and two for the joint development residential and retail uses) would be accommodated with the two onsite and two on-street loading spaces. No commercial loading deficit would occur.

For the transit facility and the residential units, a dedicated trash/recycling/compost room would be provided within the basement level and would be accessed via the ramp to and from Mariposa Street. Trash pickup for these uses would occur underground, and both the ramp and basement level would have adequate clearance for garbage truck access to the basement level, to maneuver within the basement level, and to conduct trash pickup, which is anticipated to be via a roll-off compactor. The proposed 20-foot vertical clearance within the basement and on the access ramp would accommodate the trash/recycling/compost collection vehicles and pickup operations. For the ground-floor retail uses, the individual retail tenants would transport the trash, recycling, and compost bins to the Bryant Street curb for pickup. Trash/recycle/compost collection occurs during the early morning hours and could potentially overlap with the peak period for buses leaving the transit facility and traveling northbound on Bryant Street to access their routes. However, given the limited amount of ground-floor retail uses, the short duration of collection activities, and the ability of a bus to maneuver around a collection vehicle stopped in the travel lane, the trash/recycle/compost collection for the ground-floor retail uses is not expected to create potentially hazardous conditions or delay transit.

The single loading space within the basement for the residential uses would also accommodate residential move-in and move-out activities. This loading space would be located near the freight elevators for the joint development uses. The 20-foot vertical clearance on the access ramp and in the basement would accommodate moving trucks, including larger moving trucks (e.g., a 23-foot-long moving truck can fit items from a three- to four-bedroom house), and therefore move-in and move-out activities are not anticipated to occur on-street at the curb adjacent to the project site. Should on-street parking be necessary for move-in/move-out activities (e.g., cross country moves conducted in semi-trailer trucks 68 feet in length), individuals or residential building management would be required to reserve spaces on Bryant Street through SFMTA's temporary signage program. Typically, these activities occur during off-peak times, such as on weekends when there are lower volumes of vehicles, people walking, and bicycling. Therefore, residential move-in/move-out operations would not substantially affect transportation conditions in the project vicinity.

PASSENGER LOADING

The proposed project would include a 60-foot-long passenger loading zone (which could accommodate up to three vehicles) on Bryant Street and a 60-foot parallel passenger loading bulbout on Hampshire Street (which could accommodate up to three vehicles) adjacent to the project site (see **Figure 2.3: Project Site Plan**, p. 2.20). The passenger loading zone on Bryant

Street would be adjacent to the ground-floor retail uses and the residential access point on Bryant Street, within 60 feet of the residential access on Mariposa Street just east of Bryant Street, and within 420 feet of the residential access on Mariposa Street midway between York and Hampshire streets. The passenger loading bulbout on Hampshire Street would be within 90 feet of the residential access on Mariposa Street midway between York and Hampshire streets. During the weekday p.m. peak hour, the proposed project would generate 52 passenger loading instances (14 for the transit facility uses and 38 for the residential and retail uses), which corresponds to a demand for two passenger loading spaces at the project site. This passenger loading demand would be accommodated within the two 60-foot-long passenger loading zones that, combined, would accommodate up to six vehicles. Thus, the passenger loading activities would not result in double parking or substantially delay transit operations on Bryant Street (i.e., the 27 Bryant bus route that runs northbound adjacent to the project site and any buses exiting the transit facility during the p.m. peak hour).

The proposed onsite and on-street loading facilities for the proposed project would be adequate to accommodate the projected demand. Therefore, no secondary impact analysis is required. The impacts of the proposed project related to loading would be less than significant.

Although the proposed project would not result in a loading deficit, **Improvement Measure I-TR-B: Driveway and Loading Operations Plan** is identified to help manage onsite and on-street loading operations of the transit facility and the joint development uses, and minimize conflicts between onsite and on-street loading operations/transit facility activities and people walking, bicycling, and driving on the adjacent streets.

Improvement Measure I-TR-B: Driveway and Loading Operations Plan (DLOP)

The project sponsor team will be required to prepare and implement a Driveway and Loading Operations Plan (DLOP). The DLOP will be prepared by the private project co-sponsor, in coordination with the SFMTA, and submitted as part of the application for the first temporary occupancy permit. The DLOP will include provisions to manage loading activities and driveway operations associated with the below-grade onsite loading spaces; provisions for assessing on-street commercial and passenger loading supply and protocol for expanding on-street supply, if needed; provisions for trash/recycling/compost truck access and collection operations; provisions for residential move-in and move-out operations; provisions for scheduling Muni deliveries using the onsite loading facilities; and provisions for accommodating recurring deliveries such as from private company vans and trucks, and the United States Postal Service vehicles within the onsite loading facilities.

The intent of the DLOP is to reduce potential conflicts between passenger and freight loading and transit operations, and between passenger and freight loading activities and people walking and bicycling, and other vehicles in the project vicinity, as well as to maximize reliance on onsite facilities to accommodate freight loading demand.

Project Variants

The proposed land uses and commercial and passenger loading demand for the Emergency Exit Relocation Variant, the Joint Development Lobby Relocation Variant, and the Active 17th Street Variant would be the same as for the proposed project. The Employee and Family Support Variant would have a greater passenger loading demand than the proposed project. The proposed commercial and passenger loading supply and demand for the variants compared to the proposed project are as follows:

- Under the Emergency Exit Relocation Variant, the commercial and passenger loading supply and demand conditions would be the same as for the proposed project.
- Under the Joint Development Lobby Relocation Variant, the relocation of the residential lobby from Mariposa Street midway between York and Hampshire streets to Hampshire Street north of Mariposa Street would not change the proposed commercial and passenger loading space supply from the proposed project. Similar to the proposed project, the Joint Development Lobby Relocation Variant would include the proposed 60-foot parallel passenger loading bulbout on the west side of Hampshire Street at the approach to Mariposa Street, which would be nearby the relocated lobby. With the relocation of the residential lobby to Hampshire Street, the commercial loading zone on Bryant Street would be more than 480 feet away from the relocated residential lobby. However, on the east side of Hampshire Street, the existing commercial loading spaces that would be included as part of the reconfiguration of the on-street parking from 90-degree angle to parallel parking would be available for commercial loading activities and would be closer than the proposed spaces on Bryant Street.
- Under the Active 17th Street Variant, the internal ramp circulation changes would allow for ground-floor retail uses along 17th Street. Under this variant, the 60-foot-long commercial loading zone on Bryant Street north of Mariposa Street would be provided and additional on-street commercial loading spaces would be provided on the northern portion of Bryant Street south of 17th Street and/or on Hampshire Street by converting general parking spaces to commercial loading zones. For the ground-floor retail uses, the individual retail tenants would transport the trash, recycling, and compost bins to the 17th Street curb for pickup. Because trash/recycling/compost pickup occurs during the early morning hours, carting of trash containers between the curb and garbage truck would not substantially affect bicycle travel within the eastbound bicycle lane.
- Under the Employee and Family Support Variant 9,000 gross square feet of the 33,000 gross square feet of commercial retail uses included in the proposed project would be replaced with childcare uses. This variant would generate the same freight loading demand as the proposed project (i.e., a demand for three spaces during the peak hour of loading activities); however, it would generate an increase in passenger loading demand due to childcare uses (81 loading instances during the p.m. peak hour under this variant, compared to 52 loading instances under the proposed project).

  The 81 passenger loading instances generated by the Employee and Family Support Variant during the p.m. peak hour correspond to a demand for eight passenger loading spaces at the project site. This peak demand would be accommodated within the two 60-foot-long passenger loading zones on Bryant and Hampshire streets (six vehicles) and the childcare passenger loading zone on Bryant Street (nine spaces). During the p.m. peak hour, the passenger loading demand for the childcare uses would be six spaces, and this demand would be contained within the nine passenger loading spaces designated for the childcare uses. Prior to project variant approval, the department would require the joint development sponsor to prepare a Childcare Drop-off and Pick-up Management Plan that would address the specific loading activities and needs associated with the childcare uses. Thus, similar to the proposed project, the Employee and Family Support Variant would not result in a loading deficit.

Thus, similar to the proposed project, loading impacts under the project variants would be less than significant.

2040 Cumulative Conditions

The geographic context for the analysis of cumulative impacts is the transportation study area presented on **Figure 3.C.1**, p. 3.C.2. This section discusses the cumulative impacts to transportation that could result from the proposed project or project variants in combination with cumulative projects. Additional discussion of the land use development and transportation network assumptions is provided in "2040 Cumulative Conditions" on p. 3.C.45.

Impact C-TR-1: The proposed project or project variants, in combination with cumulative projects, would not result in significant construction-related transportation impacts. (*Less than Significant*)

Construction of the proposed project or project variants could overlap with construction of a number of other projects. **Figure 3.A.1: Cumulative Projects**, p. 3.A.9, presents the cumulative projects considered in the analysis. Of the 11 development projects that have been entitled, are currently under review, or are under construction, the construction schedules of nine development projects may overlap; however, the timing of construction is not known, and most are not located in the immediate vicinity of the project site. Construction of the 2601 Mariposa Street project (KQED renovation/expansion) is currently underway, and construction will be completed prior to initiation of construction of the proposed project. In addition, construction of the SFMTA 16th Street Improvement Project will be completed in the spring of 2022, prior to initiation of construction of the proposed project. Therefore, construction of only the 1850 Bryant Street project, located across the street from the project site, could have an overlapping schedule during 18 months of the 1850 Bryant Street project's construction duration. During this overlapping period the same roadways could be used to access the project site (e.g., Bryant Street, 17th Street). Construction of the proposed project and the 1850 Bryant Street project would not likely change circulation patterns in the area. As part of the construction permitting process, development projects would be required to work with various City departments to develop detailed and coordinated construction logistics and contractor parking plan, as applicable, that would address construction vehicle routing, traffic control, transit movement, and movement of people walking and bicycling adjacent to the construction areas. Given the limited number of projects in the immediate vicinity of the project site that would overlap with project construction, construction activities of cumulative projects would not result in significant cumulative construction-related transportation impacts.

Therefore, for the above reasons, the proposed project or project variants, in combination with cumulative development in San Francisco, would result in less-than-significant cumulative construction-related transportation impacts.

Improvement Measure I-TR-A: Construction Management Plan – Additional Measures, described above on p. 3.C.52, addresses potential for project overlap with other development or infrastructure projects.

Impact C-TR-2: The proposed project or project variants, in combination with cumulative projects, would not create potentially hazardous conditions. (*Less than Significant*)

Cumulative development projects near the project site are listed in **Table 3.A.1** and illustrated on **Figure 3.A.1: Cumulative Projects** (see pp. 3.A.7 and 3.A.9). Transportation network projects include the 16th Street Improvement Project and the Northeast Mission Parking Management Plan. As with the proposed project, other cumulative development projects would conform to the requirements of the Better Streets Plan, the Transit First Policy, and the TDM program, as applicable. The 16th Street Improvement Project, currently under construction, includes design features that would enhance safety for all ways of travel, including accessible pedestrian signals and visible crosswalks, new bus boarding islands, and bus bulbouts for easier and safer passenger boarding. As part of the Northeast Mission Parking Management Plan, on-street parking would be reconfigured on several blocks in the transportation study area where the 90-degree angle parking on both sides of the street does not allow for sufficient clearance for emergency vehicles. One side of the street would still have 90-degree angle parking but the other side of the street would be changed to parallel parking spaces. This would widen the available travel right-of-way for bicyclists and vehicles, including emergency vehicles.

Under cumulative conditions, trips by people walking, bicycling, or driving on the surrounding street network would increase due to the proposed project as well as other development projects identified above, and growth elsewhere in the City and region. This would generally be expected to lead to an increase in the potential for conflicts between people driving and people walking or bicycling, and public transit operations. However, a general increase in cumulative travel by all modes, in and of itself, would not be considered a potentially hazardous condition. Cumulative projects, including the proposed project or project variants, would be designed consistent with City policies and design standards, including the Better Streets Plan, and therefore would not create potentially hazardous conditions. Thus, no significant cumulative impacts related to potentially hazardous conditions would occur.

Therefore, for the above reasons, the proposed project or project variants, in combination with cumulative projects in San Francisco, would result in less-than-significant cumulative impacts related to potentially hazardous conditions for people walking, bicycling, or driving, or transit operations.

Impact C-TR-3: The proposed project or project variants, in combination with cumulative projects, would not interfere with accessibility. (*Less than Significant*)

Cumulative development projects near the project site are listed in **Table 3.A.1** and illustrated on **Figure 3.A.1: Cumulative Projects** (see pp. 3.A.7 and 3.A.9). Transportation network projects include the 16th Street Improvement Project and the Northeast Mission Parking Management Plan. The 16th Street Improvement Project would enhance transit operations along 16th Street and would promote walking, bicycling, and transit use. With implementation of the Northeast Mission Parking Management Plan, conditions for emergency vehicles would be enhanced through wider travel lanes on blocks in the transportation study area where 90-degree parking is currently provided on both sides of the street.

Overall, cumulative development and transportation projects would enhance the transportation network for all modes and would promote accessibility for people walking and bicycling within and through the study area by conforming to the requirements of the Better Streets Plan, Transit First Policy, and Vision Zero, and by adhering to planning principles that emphasize providing convenient connections and safe routes for people walking and bicycling. None of the known cumulative projects would affect vehicular circulation in the project vicinity and would not impede emergency access. Prior to finalizing the design and dimensions of any proposed transportation network changes, fire department and police department staff would review and approve streetscape modifications, as required, so that emergency vehicle access is acceptable. As a result, cumulative projects would not create impediments to accessibility or circulation for people walking or bicycling or create conditions inadequate for emergency access.

Under cumulative conditions, there would be a projected increase in vehicles on study area streets; however, the increase would not impede or hinder travel for people walking or bicycling, or emergency vehicles. Thus, no significant cumulative impacts related to accessibility would occur.

Therefore, for the above reasons, the proposed project or project variants, in combination with cumulative projects in San Francisco, would result in less-than-significant cumulative impacts related to accessibility of people walking or bicycling to and from the site and adjoining areas, and emergency access.

Impact C-TR-4: The proposed project or project variants, in combination with cumulative projects, would not substantially delay public transit. (*Less than Significant*)

Construction of the SFMTA's 16th Street Improvement Project is currently underway. This project's transit improvements include transit-only lanes, transit bulbouts, and new vehicle and pedestrian signals. The project is projected to improve transit reliability and travel time for the 22 Fillmore and 55 16th Street routes, which run along 16th Street, and would also reduce conflicts between private vehicles and transit vehicles. The proposed project would improve cumulative transit conditions by modernizing and expanding the trolley bus maintenance, fleet size, operation, and administrative services.

None of the known cumulative development projects would substantially affect vehicular circulation or increase p.m. peak hour vehicles trips in the project vicinity as to result in substantial transit delay. As a result, no significant cumulative transit impacts would occur.

Therefore, for the above reasons, the proposed project or project variants, in combination with cumulative projects in San Francisco, would result in less-than-significant cumulative transit impacts.

Impact C-TR-5: The proposed project or project variants, in combination with cumulative projects, would not cause substantial additional VMT or substantially induce automobile travel. (*Less than Significant*)

As stated in the approach to analysis, VMT by its very nature is largely a cumulative impact. As discussed in **Impact TR-5**, pp. 3.C.62-3.C.64, for existing plus project conditions, the proposed project would not exceed the project-level quantitative thresholds of significance for VMT. In addition, Plan Bay Area meets greenhouse gas reduction targets set by the California Air Resources Board. Furthermore, projected 2040 average daily VMT per capita for the TAZ in which the project site is located (i.e., TAZ 538) is below the projected 2040 regional average daily VMT. Specifically:

- For the residential uses, the projected 2040 average daily VMT per capita is 4.6, which is 71 percent below the 2040 projected regional average daily VMT per capita of 16.1.
- For the office uses (i.e., transit facility administrative and training and childcare uses), the projected 2040 average daily VMT per employee is 8.5, which is 50 percent below the 2040 projected regional average daily VMT per employee of 17.1.

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- For the retail uses, the projected 2040 average daily VMT per retail employee is 10, which is 31 percent below the 2040 projected regional average daily VMT per retail employee of 14.6.[44]

Thus, no significant cumulative VMT impacts would occur.

Therefore, for the above reasons, the proposed project or project variants, in combination with cumulative projects in San Francisco, would result in less-than-significant cumulative VMT and induced automobile travel impacts.

Impact C-TR-6: The proposed project or project variants, in combination with cumulative projects, would not result in significant loading impacts. (*Less than Significant*)

Cumulative development projects near the project site are listed in **Table 3.A.1** and illustrated on **Figure 3.A.1** (see pp. 3.A.7 and 3.A.9, respectively). Under cumulative conditions, freight and passenger loading activities on transportation study area streets would increase as a result of development projects; however, these activities would be in the vicinity of their respective sites and would not likely combine with the proposed project's loading demand.

As discussed under **Impact TR-6**, pp. 3.C.64-3.C.68, the proposed project's estimated freight and passenger loading demand would be accommodated within the proposed onsite and on-street commercial loading spaces and would not contribute to impacts from other development projects near the project site. The 1850 Bryant Street project would provide onsite freight loading accessed from Florida Street, and may include passenger loading on Bryant Street adjacent to the 1850 Bryant Street site (i.e., across the street from the project site), depending on the type of office uses that would occupy the building. Because the 1850 Bryant Street project will remove the existing curb cut on Bryant Street (i.e., vehicular access to the site will be via Florida Street), about 180 feet of curb frontage will be available on Bryant Street adjacent to the site to provide on-street passenger loading zones, if needed.

No other cumulative development projects have been identified that would contribute to either commercial vehicle or passenger loading demand on the project block. Thus, cumulative projects would not result in a substantial loading deficit and no significant cumulative loading impacts would occur. Therefore, for the above reasons, the proposed project or project variants, in combination with cumulative development in San Francisco, would result in less-than-significant cumulative loading impacts.

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[44] Retail travel is not explicitly captured in San Francisco chained activity modeling process; rather, there is a generic "Other" purpose which includes retail shopping, medical appointments, visiting friends or family, and all other non-work, non-school tours. The retail efficiency metric captures all of the "Other" purpose travel generated by Bay Area households. The denominator of employment (including retail; cultural, institutional, and educational; and medical employment; school enrollment, and number of households) represents the size, or attraction, of the zone for this type of "Other" purpose travel.

D. NOISE AND VIBRATION

INTRODUCTION

EIR Section 3.D, Noise and Vibration, describes the existing noise environment in the project area; evaluates the potential for construction-related and operational noise and vibration impacts associated with implementation of the proposed project or project variants to adversely affect sensitive land uses; and identifies mitigation measures to avoid or reduce potential adverse impacts.

The analysis is based on ambient noise measurements from a nearby project[1] and review of applicable federal, state, and local noise-related regulations and standards. Noise calculations were prepared to quantitatively assess the noise increases that would be attributable to the proposed project or project variants; this information forms the basis of much of the assessment of noise impacts discussed in this section.

The noise impact methodologies and approaches to the analysis (described under "Approach to Analysis" on pp. 3.D.24-3.D.28) are based on a three-year construction program that would constitute maximum intensity of development on the site. As described in **EIR Chapter 2, Project Description**, p. 2.54, construction is estimated to start in 2023 and continue through 2026, lasting approximately three to four years. For purposes of CEQA, the noise analysis under a three-year timeframe (including potential phase overlaps) is the most reasonably conservative (or worst case) analysis because it assesses continuous construction over a shorter time period (i.e., more concentrated). There would be no change to the construction equipment used and duration of daily use; thus, a four-year construction program would not substantially change the magnitude or severity of any impact.

Issues identified in response to the Notice of Preparation (NOP) of an EIR and Notice of Public Scoping Meeting (**EIR Appendix A**) related to the proposed project's physical environmental impacts were considered in preparing this analysis. NOP comments related to noise and vibration focused on noise effects on nearby sensitive land uses and the noise limits in the San Francisco Noise Ordinance (see **EIR Chapter 1, Introduction**, pp. 1.3-1.5).

ENVIRONMENTAL SETTING

This subsection introduces the key concepts and terms that are used in the evaluation of noise and describes the existing noise environment of the project area.

[1] Due to changes in traffic patterns and reductions in transit use in response to COVID-19 and the subsequent issuance of the Mayor's Executive Directive requiring Shelter at Home protocols and ensuing business opening efforts, long-term and short-term noise measurements immediately adjacent to the project site were not collected. Ambient noise measurements from the 2000-2070 Bryant Street project (approximately 540 feet from the project site) collected prior to City actions taken in response to COVID-19 are used to characterize the existing ambient environment for Potrero Yard.

SOUND FUNDAMENTALS

Sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound. The decibel (dB) scale is used to quantify sound intensity. Noise is sometimes defined as unwanted sound, and the terms "noise" and "sound" are used more or less interchangeably in this analysis. The human ear responds to a very wide range of sound intensities. The dB scale used to describe sound is a logarithmic rating system which accounts for the large differences in audible sound intensities. When addressing the effects of noise on people, it is necessary to consider the frequency response of the human ear, or those frequencies that people hear the best. Noise-measuring instruments are therefore often designed to "weight" noises based on the way people hear. The frequency weighting most often used to evaluate environmental noise is "A weighting" because it best reflects how humans perceive noise. Measurements from instruments using this system, and associated noise levels, are reported in "A weighted decibels," or dBA. Using this scale, a change in noise level of 3 dBA is perceived as barely perceptible, 5 dBA is perceived as readily perceptible, and 10 dBA is perceived as a doubling or halving of noise loudness.[2] Therefore, a 70-dB sound level will sound about twice as loud as a 60-dB sound level. People generally cannot detect differences of 1 to 2 dB in a complex acoustical environment. A 5-dBA change is also required before any noticeable change in community response is expected.[3]

On this scale, a doubling of sound-generating activity (i.e., a doubling of the sound energy) causes a 3-dB increase in average sound produced by that source, not a doubling of the perceived loudness of the sound (which requires a 10-dB increase). For example, if existing traffic on a road is causing a 60-dB sound level at a nearby location, a doubling of the number of vehicles on this same road would cause the sound level at this same location to increase to 63 dB, i.e., a noise level change that is barely perceptible to most people.

For any noise source, several factors affect the efficiency of noise transmission traveling from the source, which in turn affects the potential noise impact at offsite locations. Important factors include distance from the source, frequency of the noise, absorbency and roughness of the intervening ground (or water) surface, the presence or absence of obstructions and their absorbency or reflectivity, and the duration of the noise. Noise transmission is further discussed under "Attenuation of Noise," p. 3.D.4. **Table 3.D.1: Representative Environmental Noise Levels** presents typical noise levels of some familiar noise sources and activities.

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[2] California Department of Transportation (Caltrans), Division of Environmental Analysis, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, pp. 2-43 to 2-46 and Table 2-10, *https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf*, accessed May 5, 2021.

[3] Charles M. Salter Associates, Inc., Acoustics – Architecture, Engineering, the Environment, 1998, p. 63.

Table 3.D.1: Representative Environmental Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Fly-over at 100 feet		
	100	
Gas Lawnmower at 3 feet		
	90	
Diesel Truck going 50 mph at 50 feet		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noise Urban Area during Daytime		
Gas Lawnmower at 100 feet	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Area during Daytime	50	Dishwasher in Next Room
Quiet Urban Area during Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	30	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
	0	

Source: California Department of Transportation, Division of Environmental Analysis, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, p. 2-20.

Although a measured A-weighted noise level will adequately indicate the level of environmental noise at any instant in time, noise levels in populated communities typically vary by time. Several noise descriptors have been developed to characterize community noise by the total acoustical energy content of the noise over defined periods of time or by characterizing the loudest noise levels over a given time interval. Noise metrics used in this analysis are as follows:

L_{eq}: The equivalent sound level is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. An L_{eq} is a single number representing the level of a constant sound containing the same amount of sound energy as the varying sound levels over a specific period. Thus, the L_{eq} is the "energy average" noise level for the measurement time interval.

L_{dn}: A 24-hour sound level metric similar to a 24-hour L_{eq}, except the L_{dn} includes an additional 10 dBA added to sound levels in each hour between 10 p.m. and 7 a.m. to account for increased sensitivity to noise during times when people are typically trying to sleep.

L_{90}: The sound level exceeded 90 percent of a specified time interval, often one hour. The L_{90} may be used as a conservative representation of ambient sound levels.

L_{max}: The instantaneous maximum noise level measured during a defined time interval.

Noise from Multiple Sources

Because the measurement of sound pressure levels in decibels is based on a logarithmic scale, decibels cannot be added or subtracted in the usual arithmetical way. Adding a new noise source to an existing noise source, with both producing noise at the same level, will not double the noise level. For instance, if two identical noise sources each produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.[4]

Attenuation of Noise

Noise levels attenuate (decrease) with distance from the source. Transportation noise sources tend to be arranged linearly, such that roadway traffic attenuates at a rate of 3 to 4.5 dBA per doubling of distance from the source. Point sources of noise, including stationary, fixed, and idle mobile sources, like idling vehicles or construction equipment, can attenuate at a rate of 6 to 7.5 dBA per doubling of distance from the source. The 1.5 dBA variation in attenuation rates for these two noise sources can result from ground-absorption effects, which occur as sound travels over soft surfaces such as soft earth or vegetation versus hard ground such as pavement or very hard-packed earth.[5,6] Meaningful reductions or attenuation of noise levels can also be accomplished by "shielding" a noise source or providing a barrier, which may be in the form of an intervening structure or terrain, between the source and receptor.[7] With respect to the transmission of exterior noise to interior environments, noise attenuation effectiveness depends on exterior wall insulation, a window's sound transmission class rating, and whether windows are closed or open. Sound transmission class ratings indicate how well wall, ceiling, floor, door, and window assemblies attenuate airborne sound. It is not, however, a measurement of how many decibels of sound a wall can stop. For example, an exterior wall with a sound transmission class rating of 45 does not result in a 45 dB reduction of exterior-to-interior sound transmission. Generally, the higher the sound transmission class rating, the more sound is attenuated.[8]

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4 Caltrans, Division of Environmental Analysis, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, p. 2-14, *https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf*, accessed November 6, 2020. Table 2-3 demonstrates the result of adding noise from multiple sources.

5 Caltrans, Division of Environmental Analysis, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, pp. 2-27 to 2-28, *https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf*, accessed November 6, 2020.

6 U.S. Housing and Urban Development, The Noise Guidebook, 1985, p. 24, *https://www.hudexchange.info/onecpd/assets/File/Noise-Guidebook-Chapter-4.pdf*, accessed November 6, 2020.

7 Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006, Appendix A, *http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf*, accessed November 6, 2020.

8 There is not a straightforward linear relationship between increasing STC and a reduction in exterior-to-interior noise because the amount of reduction varies considerably with the frequency range of noise.

EFFECTS OF NOISE ON PEOPLE

The effects of noise on people can be placed into the following categories:

- Interference with activities such as speech, sleep, and learning: Speech interference indoors occurs at about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating.[9] Outdoors, speech interference is generally higher than indoor fluctuating noise by about 15 dBA, or 70 dBA. Interior residential standards for multifamily dwellings are set by the state at 45 dB L_{dn}.[10] The state standard is designed for sleep and speech protection and the same criterion is applied to all residential uses. According to the World Health Organization, sleep disturbance can occur when continuous indoor noise levels exceed 30 dBA (L_{eq}) or when intermittent interior noise levels reach or exceed 45 dBA (L_{max}), particularly if background noise is low. With a bedroom window slightly open (a reduction from outside to inside of 15 dB), the World Health Organization criteria would suggest exterior continuous (ambient) nighttime noise levels should be 45 dBA (L_{eq}) or below, and short-term events should not generate noise in excess of 60 dBA (L_{max}). The organization also notes that maintaining noise levels within the recommended levels during the first part of the night is believed to be effective for the ability to fall asleep. Exposure to noise levels greater than 85 dBA for 8 hours or longer can cause permanent hearing damage.[11]
- Subjective effects of annoyance, nuisance, and dissatisfaction:[12] The main causes for annoyance are interference with speech, radio and television, and house vibrations. The L_{dn} as a measure has been found to provide a valid correlation of noise level and the percentage of people annoyed. Three aspects of community noise are most important in determining subjective response: the level of sound, the frequency composition or spectrum of the sound, and the variation of sound level with time.[13]
- Physiological effects: Physiological effects include interference with sleep and rest, as well as hypertension and heart disease (after many years of constant exposure, often by workers, to high noise levels).[14]
- Hearing loss: Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.[15]

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[9] World Health Organization, Guidelines for Community Noise, Chapter 3, pp. 24-26, April 1999, *http://apps.who.int/iris/bitstream/10665/66217/1/a68672.pdf*, accessed May 5, 2021.

[10] Code of Federal Regulations, Title 24: Housing and Urban Development, Part 51, Environmental Criteria and Standards, Subpart B—Noise Abatement and Control, Section 51.101(a)(9).

[11] World Health Organization, Guidelines for Community Noise, Chapter 3, pp. 26-28, and Chapter 5, p. 65, April 1999, *http://apps.who.int/iris/bitstream/10665/66217/1/a68672.pdf,* accessed May 5, 2021.

[12] Annoyance, nuisance, and dissatisfaction are not environmental impacts under CEQA unless it interferes with sleep.

[13] World Health Organization, Guidelines for Community Noise, Chapter 3, pp. 32-34, and Chapter 4, pp. 38-39 and 42, April 1999, *http://apps.who.int/iris/bitstream/10665/66217/1/a68672.pdf*, accessed May 5, 2021.

[14] World Health Organization, Guidelines for Community Noise, Chapter 3, pp. 29-30, and Chapter 4, pp. 40-41, April 1999, *http://apps.who.int/iris/bitstream/10665/66217/1/a68672.pdf*, accessed May 5, 2021.

[15] World Health Organization, Guidelines for Community Noise, Chapter 3, pp. 21-24, April 1999, *http://apps.who.int/iris/bitstream/10665/66217/1/a68672.pdf*, accessed May 5, 2021.

FUNDAMENTALS OF GROUNDBORNE VIBRATION

Equipment that creates blows or impacts on the ground surface produces vibrational waves, called groundborne vibration, that radiate along the surface of the earth and downward into the earth, potentially resulting in effects that range from annoyance to structural damage. As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate by a few ten-thousandths to a few thousandths of an inch. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. Vibration levels decrease with increasing distance. The maximum rate or velocity of particle movement is the commonly accepted descriptor of the vibration "strength." This is referred to as the peak particle velocity (PPV) and is typically measured in inches per second.

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations reduce much more rapidly than low frequencies, so that low frequencies tend to dominate the spectrum as distance from the source increases. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances. When vibration encounters a building, the transfer of vibration from ground to the building foundation (referred to as "ground-to-foundation coupling") will usually reduce the overall vibration level; however, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls. High levels of vibration can damage fragile buildings or interfere with the operation of sensitive equipment. Depending on the age of the structure and type of vibration (transient, continuous, or frequent intermittent sources), vibration levels as low as 0.5 to 2.0 inches per second PPV (in/sec PPV) can damage a structure.

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below a level that would result in damage to a structure. Except for long-term occupational exposure, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. People may tolerate infrequent, short-duration vibration levels, but human annoyance to vibration becomes more pronounced if the vibration is continuous or occurs frequently. Human response to vibration often is described as the root-mean-square (RMS) velocity level and is denoted in the decibel scale, or VdB. The typical background level in residential areas is about 50 VdB, and most people cannot detect levels below about 65 VdB, and generally do not consider levels below 70 VdB, or approximately 0.1 PPV, to be an annoyance.[16] However, the duration of a vibration event has an effect on human response, as

[16] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, pp. 117-120, *https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf*, accessed May 5, 2021.

does its frequency. Generally, as the duration of a vibration event increases, the potential for adverse human response increases, particularly if the vibration event disturbs sleep. In addition, while people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration.

Vibration in buildings caused by construction activities may be perceived as motion of building surfaces or rattling of windows, items on shelves, and pictures hanging on walls. Vibration of building components can also take the form of an audible low-frequency rumbling noise, which is referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range of vibration frequencies (i.e., 60 to 200 Hertz); when the structure and the construction activity are connected by foundations or utilities, such as sewer and water pipes; or when the airborne noise path is blocked, such as during tunneling activities.

EXISTING CONDITIONS

Existing Noise Sources

The project site is located in a mixed-use urban neighborhood with a variety of residential, commercial, open space, and production/distribution/ repair (PDR) uses (e.g., auto repair) in the immediate vicinity. The existing noise environment is dominated by traffic noise along several area roadways, including Bryant, 17th, Mariposa, and Hampshire streets, and non-revenue bus movements[17] into and within Potrero Yard. Existing noise sources on the project site include bus maintenance activities on the western portion of the site and along its north and west edges (e.g., bus storage, fare collection and running repair stations, and bus wash rack operations) and within the maintenance and operations building when exit and entry bays along Mariposa and 17th streets as well as its west elevation are open. Other noise sources also include miscellaneous neighborhood noises typical of an active urban area, such as voices and occasional car horns.

Ambient Noise Measurements

The San Francisco Planning Department (planning department) has published a map of background noise levels over the entire City.[18] This noise level map is intended to provide an overview of approximate existing noise levels throughout the City and is suitable to define general ambient noise conditions. The map, dated 2009, identifies ambient L_{dn} noise levels, across sound level

[17] Non-revenue bus travel (i.e., buses are not in service picking up and dropping off passengers; they are traveling to or from the facility and a terminus point where revenue service begins or ends) also includes movements within the yard and around the perimeter of the site to access the site from the Mariposa Street or 17th Street entrances.

[18] San Francisco Planning Department, Map 1: Background Noise Levels – 2009, 2009, *http://generalplan.sfplanning.org/images/I6.environmental/ENV_Map1_Background_Noise%20Levels.pdf*, accessed May 5, 2021.

ranges. According to the noise level map, existing noise levels along Bryant, 17th, and Mariposa streets range from about 65 to 70 dBA L_{dn} immediately adjacent to project site, with levels above 70 dBA L_{dn} along 17th Street near the intersections of Bryant and Hampshire streets and Bryant and 17th streets. Along Hampshire Street and on the 4.4-acre project site, the map shows existing noise levels range from about 55 to 65 dBA.

Due to changes in traffic patterns and reductions in transit use in response to the COVID-19 pandemic and the subsequent issuance of the Mayor's Executive Directive requiring Shelter at Home protocols and ensuing business opening efforts, the department directed the impact analysis to use ambient noise measurements taken in the project vicinity before this period of changes in traffic patterns and reductions in transit. Furthermore, the 2009 background noise levels shown on the planning department's map may not represent current ambient noise conditions. Because of this, ambient noise measurements collected for a nearby project (2000-2070 Bryant Street, between 18th and 19th streets) were used to characterize the existing ambient noise environment in the vicinity of the project site for this project analysis.[19] The proxy measurement locations are shown in **Figure 3.D.1: Sensitive Receptors and Noise Measurement Locations**. The department determined that the long- and short-term ambient noise measurements taken in 2013 and located between 540 feet (LT [Long-Term]-2 in **Figure 3.D.1**) and 840 feet (ST [Short-Term]-1 in **Figure 3.D.1**) south of the project site along Bryant and Florida streets provide a reasonably accurate reflection of local traffic conditions prior to the COVID-19 shelter-in-place order. The measurement locations along Bryant and Florida streets also capture ambient noise generated by a similar set of land uses as those adjacent to the project site (except for the Franklin Square open space). Since the project site and its vicinity are well developed and a large increase in growth that could lead to substantial increase in traffic is not anticipated in the area, for the purpose of this analysis, the existing noise levels at the project site and its vicinity are assumed to be similar to those collected in 2013 for the nearby project.

Table 3.D.2: Summary of Long-Term (LT) Noise Monitoring Results in the Project Vicinity and **Table 3.D.3: Summary of Short-Term (ST) Noise Monitoring Results in the Project Vicinity** present the results of the long-term and short-term noise measurement surveys collected for the 2000-2070 Bryant Street project, respectively. Long-term measurements were conducted over a 48-hour period while short-term measurements were conducted for 15-minute periods. Different noise metrics were collected during long-term measurements and short-term measurements to characterize ambient noise. As shown in the tables, long-term measurements range from 69 to 72 dBA L_{dn}, and short-term measurements range from 57 to 65 dBA L_{eq} and 52 to 57 dBA L_{90}.

[19] San Francisco Planning Department, email to San Francisco Planning Department Qualified Environmental Consultant Pool and Acoustical Consultants, re: Noise Monitoring During Shelter In Place, May 14, 2020.

Base: Google Aerial Map, 2020.

Legend

Project Site

ST-1 Short-term noise measurement locations

LT-1 Long-term noise measurement locations

Sensitive Receptors

Preschool

Residential

0 200 Feet N

Source: Baseline Environmental Consulting, 2020

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 3.D.1: SENSITIVE RECEPTORS AND NOISE MEASUREMENT LOCATIONS

Table 3.D.2: Summary of Long-Term (LT) Noise Monitoring Results in the Project Vicinity (dBA)

Site #	Location	Average L_{dn} (dBA)
LT-1	Florida and 18th streets, southeast corner of intersection	69
LT-2	Bryant and 18th streets, southwest corner of intersection	72
LT-3	West side of Bryant Street, 760 feet south of the project site	70

Notes: Measurements began between 10:30 – 11:00 AM on 12/8/2014 and ended at approximately 11 AM on 12/10/2014. All values are in units of dBA.

Source: 2000-2070 Bryant Street Project – Final Noise Study Case No. 2013.0677E, March 26, 2015. See **EIR Appendix F-2, Sound Level Measurement Data**.

Table 3.D.3: Summary of Short-Term (ST) Noise Monitoring Results in the Project Vicinity (dBA)

Site #	Location	L_{eq}	L_{90}
ST-1	681 Florida Street	56.7	51.7
ST-2	650-D Florida Street	57.8	51.6
ST-3	Opposite side of the street from 2828 18th Street	62.4	54.6
ST-4	West side of Bryant Street, 650 feet south of the project site	64.9	57.1

Notes: Measurements were conducted between 11:45 AM and 1:30 PM on 12/10/2014. All values are in units of dBA.

Source: 2000-2070 Bryant Street Project – Final Noise Study Case No. 2013.0677E, March 26, 2015. See **EIR Appendix F-2**.

Existing Groundborne Noise and Vibration Sources

There are no known sources of existing groundborne noise and vibration in the vicinity of the project site. Heavy truck and bus traffic (or rubber-tired traffic) along area roadways generates airborne noise and surface vibration. However, the levels of vibration from these sources are negligible and typical of vibration levels generated along urban roadways. There is no machinery or activity at the adjacent residential, commercial, and PDR uses that generate vibration on the project site.

EXISTING NOISE-SENSITIVE LAND USES

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication; physiological and psychological stress; and, at high levels of noise, hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others.

Land uses are considered noise "sensitive receptors" where low noise levels are necessary to preserve their intended goals such as relaxation, education, health, and general state of well-being.

Noise-sensitive receptors include residents, hospitals, convalescent homes, schools, churches, hotels, and motels.[20]

[20] Governor's Office of Planning and Research, State of California 2017 General Plan Guidelines, 2017, p. 136, *http://www.opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf*, accessed May 5, 2021.

Noise-sensitive land uses in the immediate vicinity of the project site include residential uses and two preschools (see **Table 3.D.4: Existing Sensitive Receptors in the Project Vicinity** and **Figure 3.D.1**, p. 3.D.9). These receptors range in distance to the nearest portion of the site from 50 to 280 feet. There are no existing hospitals or skilled nursing facilities in the project vicinity.

Table 3.D.4: Existing Noise Sensitive Receptors in the Project Vicinity

Receptor ID NOTE A	Type of Sensitive Receptor	Location	Minimum Approximate Distance from Site NOTE B
R1	Residential	2501 Mariposa Street	66 feet south
R2	Residential	475 Hampshire Street	80 feet east
R3	Residential	1800 Bryant Street	80 feet west
R4	Residential	1900 Bryant Street	100 feet southwest
R5	Residential	2445 Mariposa Street	100 feet southeast
R6	Residential	480 Potrero Avenue	185 feet east
R7	Residential	1746 to 1712 Bryant Street and 2401 16th Street, with the closest location at 1746 Bryant Street	200 feet northwest
R8	Residential	2726 17th Street	220 feet northwest
R9	Preschool	2730 17th Street	245 feet northwest
R10	Preschool	1960 Bryant Street	280 feet southwest

Notes:

[A] Receptor locations, proposed buildings, and project construction boundaries were approximated based on existing aerial imagery and drawings provided by the SFMTA. Receptors were selected to represent the variation in noise levels around the project site due to project construction and operation.

[B] Distances between R1, R2, and R3 and project site boundaries provided by the SFMTA on an existing site plan with dimensions based on a site survey by the City's Bureau of Street Use and Mapping. Other measurements are representative of the distance, rounded to the nearest 5 feet, between the receptors and project construction boundaries as illustrated in **Figure 3.D.1**, p. 3.D.9. Measured using a geographic information system software, including locations of building footprints, to calculate the nearest distance between objects (receptors, buildings, etc.).

Source: SFMTA, 2019; Baseline, 2020.

EXISTING VIBRATION-SENSITIVE LAND USES

Vibration-sensitive receptors may include structures (especially older masonry structures), people (especially residents, the elderly, and the sick), and equipment (e.g., magnetic resonance imaging equipment, high resolution lithographic, optical and electron microscopes).[21,22] As noted above, there are no existing hospitals or skilled nursing facilities in the project vicinity. The closest building to the project site is located 66 feet to the south across Mariposa Street (2601 Mariposa Street). There are no adjacent historic resources. The existing historic resource on the site would not be retained. The closest off-site historic resources in the vicinity of the project site are the

[21] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, *https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf*, accessed May 5, 2021.

[22] Preschools are not considered as vibration-sensitive receptors in this analysis.

Leyser-Green Co. Building at 2401-2425 17th Street (80 feet to the east of the project site), the SGI Cultural Center at 2450 17th Street (110 feet to the northeast of the project site), and the Verdi Club at 2424 Mariposa Street (130 feet to the east of the project site).[23] (See **Table 3.D.5: Existing Vibration Sensitive Receptors in the Project Vicinity**.) Nearby residences are listed in **Table 3.D.4**. The closest residence is at 2501 Mariposa Street, directly across from the Mariposa Street bus exit bays.

Table 3.D.5: Existing Vibration Sensitive Receptors in the Project Vicinity

Location	Type of Sensitive Receptor	Minimum Approximate Distance from Site NOTE A
2601 Mariposa Street (KQED Building)	Broadcasting and Recording Studios	66 feet south
2401-2425 17th Street (Leyser-Green Co. Building)	Historic Structure	80 feet east
2450 17th Street (SGI Cultural Center)	Historic Structure	110 feet northeast
2424 Mariposa Street (Verdi Club)	Historic Structure	130 feet east

Notes:
[A] Distances between the receptors and project construction boundaries provided by the SFMTA on an existing site plan with dimensions based on a site survey by the City's Bureau of Street Use and Mapping. Other measurements are representative of the distance, rounded to the nearest 5 feet, as illustrated in **Figure 3.D.1**, p. 3.D.9. Measured using a geographic information system software, including locations of building footprints, to calculate the nearest distance between objects (receptors, buildings, etc.).

Source: SFMTA, 2019; Baseline, 2020.

The building at 2601 Mariposa Street (66 feet to the south of the project site) is the headquarters for KQED, which is a public media station that includes recording studios. According to the most current information from outreach efforts conducted for this analysis, the KQED building contains vibration-sensitive equipment related to audio, visual, and digital production processes for television and radio broadcasting and related on-site operations.[24] It should be noted that the KQED building was recently seismically upgraded and therefore is considered a modern commercial building. Based on review of a geotechnical report prepared for the proposed upgrades to the KQED building, the subsurface condition of the building would allow an approximately 10 VdB of vibration attenuation (coupling to building foundation).[25,26]

[23] VerPlanck Historic Preservation Consulting, Historic Resource Evaluation, Potrero Trolley Coach Division Facility, San Francisco, October 2, 2017 (see **EIR Appendix D-1**).
[24] Scott Lewis, KQED, telephone conversation with Chelsea Fordham-Principal Planner at San Francisco Planning Department, Peter Mye-Senior Planner at SWCA, and Lisa Luo-Environmental Engineer at Baseline Environmental Consulting, December 4, 2020.
[25] Langan, Geotechnical Investigation, KQED, 2601 Mariposa Street, San Francisco, California, October 30, 2018.
[26] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, *https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf*, accessed May 5, 2021.

REGULATORY FRAMEWORK

FEDERAL REGULATIONS AND GUIDELINES

This section identifies applicable federal regulations and guidelines related to noise and vibration.

United States Environmental Protection Agency

In 1972, the Noise Control Act (42 United States Code [U.S.C.] section 4901 et seq.) was passed by Congress to promote noise environments in support of public health and welfare. It also established the U.S. Environmental Protection Agency Office of Noise Abatement and Control to coordinate federal noise control activities. The Office of Noise Abatement and Control established guidelines for noise levels that would be considered safe for community exposure without the risk of adverse health or welfare effects. However, in 1982, the agency phased out the office's funding as part of a shift in federal noise control policy that transferred the primary responsibility of regulating noise to state and local governments.

Based on the agency's recommendations for noise-sensitive areas, to prevent measurable hearing loss over the lifetime of a receptor the yearly average (L_{eq}) should not exceed 70 dBA. Additionally, to prevent substantial interference of activities and annoyance in noise-sensitive areas, the daily average (L_{dn}) should not exceed 55 dBA outdoors or 45 dBA indoors. Based on attitudinal surveys, the agency determined that, relative to a baseline noise exposure level of 55 dBA L_{dn}, a 5 dBA increase in L_{dn} is the minimum required for a change in community reaction.[27] These criteria are consistent with the City's noise ordinance section 2909(d), which establish residential interior noise limits from fixed noise sources of 45 and 55 dBA during the night and daytime, respectively (discussed below under "Other Local Regulations," pp. 3.D.21-3.D.23).

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under Title 40 of the Code of Federal Regulations, Part 205, Subpart B. The federal truck passby noise standard is 80 dBA at 50 feet from the vehicle pathway centerline, under specified test procedures. These requirements are implemented through regulatory controls on truck manufacturers. There are no comparable standards for vibration, which tend to be specific to the roadway surface, the vehicle load, and other factors.

The Noise Control Act also directed federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. Although the agency was given a major role in disseminating information to the public and coordinating with federal agencies, each federal agency retained authority to adopt noise regulations pertaining to agency programs. The Environmental

[27] U.S. Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974, p. 3.

Protection Agency can, however, require federal agencies to justify their noise regulations in terms of Noise Control Act policy requirements.

United States Federal Transit Administration

The United States Federal Transit Administration's (FTA's) Transit Noise and Vibration Impact Assessment Manual establishes general methodology guidelines and impact criteria for assessment of construction noise impacts for transit projects. It is not a regulation but does function as one of the few federal sources that suggest both a methodology and guidelines for assessing noise impacts from construction activities.[28] The FTA Manual does not contain standardized criteria for assessing construction noise impacts but includes noise limit thresholds at land uses that, when exceeded, may result in an adverse community reaction. Guidelines are provided for both general assessment and detailed assessments of construction noise. As a reasonable worst-case scenario, this methodology calls for estimating a combined noise level from the simultaneous and side-by-side operation of the two noisiest pieces of equipment expected to be used in each construction phase.

When using the above method to estimate construction sound levels, in general, no substantial adverse reaction would be expected if the calculated hourly L_{eq} were to remain at or below 90 dBA L_{eq} at the nearest noise-sensitive residential receptors during daytime hours and 80 dBA at night (see **Table 3.D.6: FTA General Assessment Construction Noise Impact Criteria**).[29] These criteria are absolute contribution values from construction activity, and are independent of existing background noise levels. If the FTA criteria are exceeded, adverse noise impacts could occur.

Table 3.D.6: FTA General Assessment Construction Noise Impact Criteria

Land Use	Maximum 1-Hour dBA L_{eq} NOTE A	
	Day NOTE B	Night NOTE C
Residential	90	80
Commercial	100	100
Industrial	100	100

Notes:
A dBA = A-weighted decibels; Leq = average or constant sound level.
B Day = 7 a.m. to 10 p.m.
C Night = 10 p.m. to 7 a.m.
Source: Federal Transit Administration. Transit Noise and Vibration Impact Assessment Manual, September 2018, Table 7-2, p. 179.

Although not a regulation, the FTA's Transit Noise and Vibration Impact Assessment Manual also provides guidance on the evaluation of building damage and human response to different levels of

28 Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, *https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf*, accessed May 5, 2021.
29 Although this Federal Transit Administration standard is specifically applicable to residential receptors, this standard can be applied to other noise-sensitive receptors including school students.

construction-related groundborne vibration.[30] It functions as one of the few federal sources that provide guidance on the evaluation and assessment procedures and impact criteria for groundborne vibration induced by construction equipment. **Table 3.D.7: FTA Vibration Threshold Guidelines for Potential Damage to Structures** summarizes the FTA vibration guidelines used to assess the potential for damage to structures, based on vibration PPV levels, with the potential for damage based on building category types (i.e., the fragility or strength of a building structure).

Table 3.D.7: FTA Vibration Threshold Guidelines for Potential Damage to Structures

Building Category	Peak Particle Velocity (in/sec)
I. Reinforced-concrete, steel, or timber buildings (no plaster)	0.08
II. Engineered concrete and masonry buildings (no plaster)	0.1
III. Non-engineered timber and masonry buildings	0.25
IV. Buildings that are extremely susceptible to vibration damage	0.3

Notes: in/sec = inches per second

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, Table 7-5, p. 186.

To avoid temporary annoyances for building occupants or interference with vibration-sensitive equipment inside special-use buildings during construction, the FTA recommends using the vibration criteria from the guidance manual for a groundborne vibration assessments. **Table 3.D.8: Indoor FTA Groundborne Vibration Impact Criteria** summarizes the FTA's general assessment criteria used to evaluate potential interference to building operations by different levels of construction-generated ground-borne vibration and ground-borne noise (e.g., vibration that causes a structure to vibrate and re-radiate noise into a room). The criteria address annoyance related to interference with interior operations, sleep, and institutional daytime use as a function of the frequency of the vibration event according to the three land use categories, with particular attention to special buildings such as special-use facilities that are very sensitive to groundborne vibration.

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[30] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, *https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf*, accessed May 5, 2021.

Table 3.D.8: Indoor FTA Groundborne Vibration Impact Criteria

Land Use Category	Impact Levels (VdB relative to 1 micro-inch/sec) NOTE A		
	Frequent Events NOTE B	Occasional Events NOTE C	Infrequent Events NOTE D
Category 1: Buildings where vibration would interfere with interior operations	65 NOTE E	65 NOTE E	65 NOTE E
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime use	75	78	83
Special Buildings NOTE F	65-72	65-80	65-80

Notes:
[A] The standard reference quantity for vibration velocity in the USA and used by the U.S. Department of Transportation is 1 x 10^{-6} inches/second, or 1 micro-inch/second.
[B] Frequent: More than 70 vibration events of the same source per day.
[C] Occasional: Between 30 and 70 vibration events of the same source per day.
[D] Infrequent: Less than 30 vibration events of the same source per day.
[E] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define the acceptable vibration levels.
[F] This category includes special-use facilities that are very sensitive to vibration and noise that are not included in the categories above and require special consideration. However, if the building will rarely be occupied when the source of the vibration (e.g., the train) is operating, there is no need to evaluate for impact. Examples of these facilities include concert halls, TV and recording studios, and theaters.

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, Tables 6-3 and 6-4, p. 126.

STATE REGULATIONS AND GUIDELINES

This section identifies applicable state regulations and guidelines related to noise and vibration.

General Plans

California Government Code section 65302 encourages each local government entity to implement a noise element as part of its general plan.[31] In addition, the California Governor's Office of Planning and Research has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The City and County of San Francisco has developed guidelines that are described below in "Local Regulations and Guidelines," pp. 3.D.19-3.D.23.

[31] California Government Code, Title 7, Division 1, Chapter 3, Section 65302(f)(1), June 27, 2017, *https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=GOV&sectionNum=65302.*, accessed May 5, 2021.

California Noise Insulation Standards

The 2019 California Building Code (California Code of Regulations title 24, part 2) requires that walls and floor/ceiling assemblies separating dwelling units from each other, or from public or service areas, have a sound transmission class (STC) of at least 50, meaning they can reduce noise by a minimum of 50 dB.[32] Building Code section 1206.4, Allowable Interior Noise Levels, also specifies a maximum interior noise limit of 45 dBA (L_{dn} or Community Noise Equivalent Level [CNEL]) in habitable rooms, and requires that common interior walls and floor/ceiling assemblies meet a minimum STC rating of 50 for airborne noise.

San Francisco has adopted the 2019 Green Building Standards Code (also part of the State Building Code; California Code of Regulations title 24, part 11, more commonly known as "Title 24"), which specifies the following insulation standards for Environmental Comfort (section 5.507) to minimize exterior noise transmission into interior spaces for nonresidential buildings:

- Section 5.507.4.1, Exterior Noise Transmission, requires wall and roof-ceiling assemblies to have an STC of at least 50 and exterior windows to have a minimum STC of 30 for any of the following building locations: (1) within the 65 dBA, L_{dn}, noise contour of a freeway, expressway, railroad, or industrial source; and (2) within the 65 dBA noise contour of an airport. Exceptions include buildings with few or no occupants and where occupants are not likely to be affected by exterior noise, such as factories, stadiums, parking structures, and storage or utility buildings.
- Sections 5.507.4.1.1 and 5.507.4.3 require nonresidential buildings to be designed with exterior walls and roof-ceiling assemblies that have an STC rating of at least 45 to provide an acceptable interior noise level of 50 dBA (L_{eq}) in occupied areas during any hour of operation.
- Section 5.507.4.2, Interior Sound, requires wall and floor-ceiling assemblies separating tenant spaces and separating tenant spaces and public places to have an STC of at least 40.

These requirements are collectively known as the California Noise Insulation Standards and are enforced by the San Francisco Department of Building Inspection.

California Department of Transportation

The California Department of Transportation (Caltrans) has published several documents characterizing assessment procedures and impact criteria related to traffic noise and groundborne vibration. Caltrans published the Technical Noise Supplement to the Traffic Noise Analysis Protocol in September 2013, which describes the measurement, modeling, and noise impact assessment procedures for evaluating noise from traffic. The document states the following:

[32] State Building Code section 1206.3.

> "Changes in noise levels are perceived as follows: 3 dBA as barely perceptible, 5 dBA as readily perceptible, and 10 dBA as a doubling or halving of noise."[33]

There are no state regulations related to construction-induced groundborne vibration; however, Caltrans has provided guidance on the evaluation and impact criteria related to groundborne vibration induced by construction equipment, as documented in the Transportation and Construction Vibration Guidance Manual dated April 2020.[34] **Table 3.D.9: Caltrans Vibration Guidelines for Potential Damage to Structures** summarizes the Caltrans vibration guidelines used to assess the potential for damage to structures, based on vibration PPV levels, with the potential for damage based on building types (i.e., the fragility or strength of a building structure) and whether the vibration is transient or continuous or frequent.

Table 3.D.9: Caltrans Vibration Guidelines for Potential Damage to Structures

Structure Type and Condition	Maximum Peak Particle Velocity (in/sec)	
	Transient Sources NOTE A	Continuous/Frequent Intermittent Sources NOTE B
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Notes: in/sec = inches per second
A Transient sources create a single, isolated vibration event, such as blasting or drop balls.
B Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: Caltrans, Transportation and Construction Vibration Guidance Manual, 2020 Update, April 2020, Table 19, p. 38.

As indicated **Table 3.D.9**, the building damage criteria for continuous vibration sources are about half of the criteria for transient sources. These criteria differ from the FTA criteria shown in **Table 3.D.7**, p. 3.D.15, in that all construction activities are treated the same by the FTA, while the Caltrans criteria consider continuous or frequent intermittent sources that could increase the risk of building damage.

Ground-borne vibration and noise can also disturb people, who are generally more sensitive to vibration during nighttime (sleeping) hours than during daytime (waking) hours. Numerous studies have been conducted to characterize the human response to vibration. **Table 3.D.10: Caltrans**

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33 Caltrans, Division of Environmental Analysis, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, p. 6-5, *https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf*, accessed May 5, 2021.

34 Caltrans, Division of Environmental Analysis, Transportation and Construction Vibration Manual, 2020 Update, April 2020, p. 38, *https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf*, accessed May 24, 2021.

Guidelines for Vibration Annoyance Potential provides Caltrans' guidelines regarding vibration annoyance potential (expressed here as PPV).

Table 3.D.10: Caltrans Guidelines for Vibration Annoyance Potential

Human Response	Maximum Peak Particle Velocity (in/sec)	
	Transient Sources NOTE A	Continuous/Frequent Intermittent Sources NOTE B
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Notes: in/sec = inches per second
A Transient sources create a single, isolated vibration event, such as blasting or drop balls.
B Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: Caltrans, Transportation and Construction Vibration Guidance Manual, 2020 Update, April 2020, Table 20, p. 38.

LOCAL REGULATIONS AND GUIDELINES

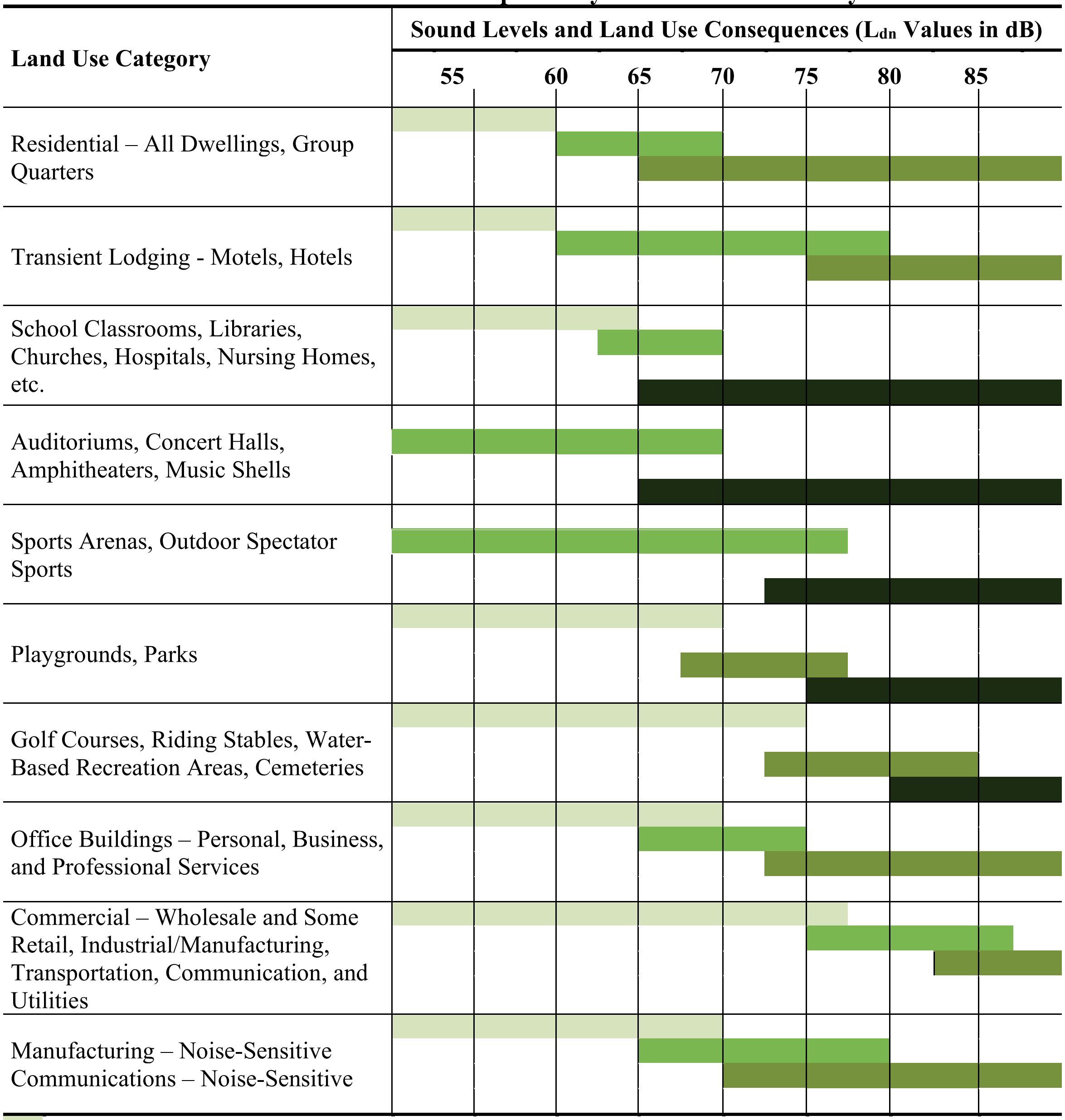
San Francisco General Plan

Environmental Protection Element

The Environmental Protection Element of the San Francisco General Plan contains a "Land Use Compatibility Guidelines for Community Noise" figure for determining the compatibility of various new uses with different noise levels. These guidelines, which are similar to state guidelines set forth by the Governor's Office of Planning and Research, indicate maximum acceptable noise levels for various land uses, which are presented in **Table 3.D.11: San Francisco Land Use Compatibility Chart for Community Noise**. Although this table presents a range of noise levels that are considered compatible or incompatible with new uses, the maximum "satisfactory, with no special insulation requirements" exterior noise level is 60 dBA (L_{dn}) for residential and hotel uses; 65 dBA (L_{dn}) for school classrooms, libraries, churches, and hospitals; 70 dBA (L_{dn}) for playgrounds, parks, office uses, retail commercial uses, and noise-sensitive manufacturing/ communications uses; and 77 dBA (L_{dn}) for other commercial uses such as wholesale, some retail, industrial/manufacturing, transportation, communications, and utilities.

The Environmental Protection Element includes the following objectives and policies that pertain to noise: impose traffic restrictions to reduce transportation noise; discourage changes in streets which will result in greater traffic noise in noise-sensitive areas; minimize impact of noise on affected areas; promote site planning, building orientation and design, and interior layout that lessen noise intrusion; promote the incorporation of noise insulation materials in new construction; construct physical barriers to reduce noise transmission from heavy traffic carriers; and promote land uses that are compatible with various transportation noise levels.

Table 3.D.11: San Francisco Land Use Compatibility Chart for Community Noise



Satisfactory, with no special noise insulation requirements. Noise levels in this range are considered "**Acceptable**."

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Noise levels in this range are considered "**Conditionally Acceptable**."

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Noise levels in this range are considered "**Conditionally Unacceptable**."

New construction or development should generally not be undertaken. Noise levels in this range are considered "**Unacceptable**."

Mission Area Plan

The area plan contains general objectives and policies to ensure the compatibility of land uses within the plan area requiring that general plan noise requirements be met (Objective 1.5) and acknowledge that existing PDR uses along with traffic are sources of noise within the plan area. Area plan policies 1.5.1 and 1.5.2 point out the importance of accurate background noise level data collection and thoughtful siting of sensitive land uses and noise-generating land uses. The site is in an area formerly known as the Northeast Mission Industrial Zone, which has a larger proportion of PDR uses than other geographies of the area plan.

Other Local Regulations

San Francisco Noise Ordinance

The City regulates noise through Article 29 of the San Francisco Police Code, which states that the City's policy is to prohibit unnecessary, excessive, and offensive noises from all sources subject to police power.[35] Police Code section 2900 makes the following declaration with regard to community noise levels: "It shall be the policy of San Francisco to maintain noise levels in areas with existing healthful and acceptable levels of noise and to reduce noise levels, through all practicable means, in those areas of San Francisco where noise levels are above acceptable levels as defined by the World Health Organization's Guidelines on Community Noise."

Police Code article 29, sections 2907 and 2908, regulate construction equipment and construction work at night, while section 2909 provides for limits on any machine, or device, music or entertainment, or any combination of such sources. Sections 2907 and 2908 are enforced by the San Francisco Department of Building Inspection, and section 2909 is enforced by the San Francisco Department of Public Health. Summaries of these and other relevant sections are presented below.

Noise limits specific to construction activities are described in sections 2907(a) and 2908:

- Section 2907(a) limits noise from construction equipment to 80 dBA when measured at a distance of 100 feet from such equipment, or an equivalent sound level at some other convenient distance. Exemptions from this requirement include impact tools with approved mufflers, pavement breakers and jackhammers with approved acoustic shields, and construction equipment used in connection with emergency work.
- Section 2908 prohibits nighttime construction (between 8 p.m. and 7 a.m.) that generates noise exceeding the ambient noise level by 5 dBA at the nearest property line unless a special permit has been issued by the City.

[35] City and County of San Francisco, San Francisco Police Code Article 29: Regulation of Noise Guidelines for Noise Control Ordinance Monitoring and Enforcement, December 2014 Guidance, *https://www.sfdph.org/dph/files/EHSdocs/ehsNoise/GuidelinesNoiseEnforcement.pdf*, accessed November 6, 2020.

Noise limits specific to operational activities are described in section 2909:

- Section 2909(a) establishes a limit of 5 dBA above the local ambient noise level at the property plane of residential or within multi-unit residential properties.
- Section 2909(b) establishes a limit of 8 dBA above the local ambient noise level at the property plane of commercial, mixed use, or industrial properties.
- Section 2909(c) establishes a limit of 10 dBA above the local ambient noise level at a distance of 25 feet or more from public property, unless the machine or device is being operated to serve or maintain the property or as otherwise provided in the noise ordinance.
- Section 2909(d) establishes an interior noise limit for fixed noise sources at the nearest sensitive receptor of 45 dBA at night (10 p.m. to 7 a.m.) or 55 dBA during the day (7 a.m. to 10 p.m.) inside any sleeping or living room in any dwelling unit located on residential property to prevent sleep disturbance, with windows open, except where building ventilation is achieved through mechanical systems that allow windows to remain closed.

Noise limits specific to waste disposal services are described in section 2904:

- Section 2904: Noise from waste disposal services, including from garbage trucks, shall be limited to a sound level of 75 dBA at a distance of 50 feet. This limit does not apply to crushing, impacting, dropping, or moving garbage on the truck, but only to the truck's mechanical processing system.

The City's Guidelines for Noise Control Ordinance Monitoring and Enforcement, revised in December 2014, clarifies the definition of *ambient* as the L_{90} (the level of noise exceeded 90 percent of the time), and this noise descriptor is considered to be a conservative representation of the ambient noise level under most conditions. Ordinance compliance is determined by measuring the L_{90} for 10 minutes, with and without the noise source at issue. Use of the L_{90} descriptor is appropriate when determining code compliance of a fixed noise source (such as mechanical equipment). It is not appropriate for other aspects of a CEQA noise impact analysis such as noise created by automobile traffic, which determines noise compatibility based on L_{dn} or CNEL, a different noise descriptor (as described above under "Sound Fundamentals," starting on p. 3.D.2).

San Francisco Public Works Standard Construction Measures

As discussed in **EIR Chapter 2, Project Description**, p. 2.49, the proposed project or project variants would be subject to public works' standard construction measures (SCMs) (see **Table 2.3: San Francisco Public Works Standard Construction Measures**, pp. 2.50-2.53, and **EIR Appendix C**). The SFMTA or private project co-sponsor would implement **SCM #5, Noise**, and **SCM #9, Cultural Resources**, as part of the proposed project or project variants, including the following applicable to construction noise and vibration:

- All projects will comply with local noise ordinances regulating construction noise. Public Works shall undertake measures to minimize noise disruption to nearby neighbors and sensitive receptors during construction. These efforts could include using best available noise control technologies on equipment (i.e., mufflers, ducts, and acoustically attenuating shields), locating stationary noise sources (i.e., pumps and generators) away from sensitive receptors, erecting temporary noise barriers, and other such measures.

- During nighttime construction activities, the following shall apply: impact tools and vibratory pile drivers shall have intake exhaust mufflers and/or acoustically attenuating shields or shrouds recommended by the manufacturers and approved by the Director of Public Works; the construction contractor shall avoid using water blasters; the use of vehicles that are legally required to be equipped with backing warning alarms will be reduced to the extent feasible; and administrative controls as defined in the California Code of Regulations, Title 8 section 1592 will be used for worker protection for backing movements by other vehicles. Hours of vibration-intensive activities, such as vibratory pile driving, shall be restricted to between 7 a.m. and 8 p.m.

SCM #9, Cultural Resources, also includes construction-related vibration control procedures (see Vibration Control Procedures for Inclusion in Construction Contracts in **EIR Appendix C**), which are refined to be project specific. These vibration control procedures require a vibration control plan to be prepared, submitted, and approved at least 30 days prior to the start of construction. At a minimum, the vibration control plan must identify vibration-sensitive resources; standards for vibration thresholds that are not to be exceeded by construction activities; real-time activity monitoring to identify when vibration levels approach the predetermined value at which damage could occur; requirements to immediately cease construction activities when vibration levels reach levels at which damage could occur; and procedures for restoring resources to their pre-construction condition should damage occur as a result of construction-related vibration. Vibration-sensitive resources are identified in consultation with the planning department. Such resources could include buildings of modern construction, historic buildings, structures, or resources identified as vibration-sensitive given the types of construction activities and the distance between such activities and the resource.

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The department uses criteria for determining the significance of impacts in this analysis consistent with the environmental checklist in Appendix G of the State CEQA Guidelines. A project would have a significant effect related to noise and vibration if implementation of the project would do any of the following:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; or
- Generate excessive groundborne vibration or groundborne noise levels.

APPROACH TO ANALYSIS

This analysis evaluates the noise and vibration impacts associated with construction and operation of the proposed project or project variants. Two types of noise and vibration impacts were considered: short-term, temporary impacts resulting from project construction activities, and impacts due to long-term operational changes in the noise environment. The analysis assumes that requirements of public works' SCMs are included in contracts for construction contractors working on the project (see **EIR Appendix C**).

During construction, noise from construction activities and equipment could expose nearby existing offsite sensitive receptors to temporary increases in noise levels that exceed ambient levels. Construction noise levels would vary from day to day, depending on a number of factors, including the quantity and condition of the equipment being used, the types and duration of activity being performed, the distance between the noise source and the receptor, and the presence or absence of barriers, if any, between the noise source and the receptor. In addition to onsite construction activities, trucks hauling materials to and from the project site may result in increased levels of offsite noise. Construction activities can also result in varying degrees of groundborne noise and groundborne vibration, depending on the equipment, activity, and soil conditions.

Operational noise from the proposed project would result primarily from onsite stationary sources, other onsite sources associated with the proposed project (i.e., bus maintenance activities, vehicle movements, noise from garbage trucks and delivery trucks), and offsite project-generated traffic.

Project Features

Prior to the demolition of the existing bus yard and maintenance and operations building, all uses would be relocated to the SFMTA's Muni Metro East Light Rail Vehicle Facility at Illinois and 25th streets and the 1399 Marin Facility at Marin and Indiana streets, or other SFMTA facilities, as described in **EIR Chapter 2, Project Description**, p. 2.23.

Proposed Construction

For purposes of the construction noise analysis, the proposed project would be constructed over a period of three years. Demolition would last about two months and site preparation, grading, and piling would last about six months. Installation of the foundation system and basement construction would last about two months. Above-ground construction (i.e., building construction, paving, and architectural coating) would take a total of about 28 months, with some work overlap (see **Table 2.2: Summary of Existing and Proposed Project Characteristics** in **EIR Chapter 2, Project Description**, p. 2.22). A list of construction equipment (e.g., impact pile driver, pavement breaker, jackhammer) expected to be used for the construction activities is shown in **EIR Appendix F-1, Noise and Vibration Assessment Methodology,** (see Appendix A of the Noise and Vibration Assessment Methodology). Nighttime construction would be limited to major concrete pours and urgent unplanned work. If pouring concrete during nighttime is necessary, each nighttime concrete pour would not last longer than two successive nights and would require a permit.

Proposed Operation

The proposed replacement transit facility and residential component of the joint development would include emergency generators, heating/ventilation/air conditioning (HVAC) systems, and cooling towers. The analysis also evaluates the net increase in traffic from project operations.

Project Variants

The SFMTA is considering four proposed variations on features of the proposed project:

- **Emergency Exit Relocation Variant:** Relocation of the proposed emergency exit from 17th Street west of Hampshire Street to Hampshire Street south of 17th Street.
- **Joint Development Lobby Relocation Variant:** Relocation of joint development lobby off Mariposa Street to Hampshire Street.
- **Active 17th Street Variant:** Relocation of internal bus ramps from the north to south sides to allow the mix of joint development uses along 17th Street.
- **Employee and Family Support Variant:** Site program revision to include childcare, or related use, in a portion of the space identified in the proposed project for ground-floor commercial use.

The analysis of the proposed project adequately addresses the noise and vibration impacts from the project variants because the variants are minor relocations and site programming changes which do not affect the building construction or operations. Therefore, these variants would not change the project-generated noise or vibration levels during construction or operation. See **EIR Chapter 2, Project Description**, pp. 2.56-2.58, for more detail descriptions of the project variants.

Methodology for Analysis of Noise Impacts

Table 3.D.12: Limits and Performance Standards and Qualitative Factors for Construction and Operational Noise Impact Analyses and Construction Vibration Analyses summarizes the City's construction and operational noise and vibration limits and performance standards as well as qualitative factors applied in the analysis to identify potentially significant noise and vibration impacts.

Table 3.D.12: Limits and Performance Standards and Qualitative Factors for Construction and Operational Noise Impact Analyses and Construction Vibration Analyses

<table>
<tr><th>NOISE AND VIBRATION
LIMITS AND PERFORMANCE STANDARDS</th><th>QUALITATIVE FACTORS</th></tr>
<tr><td colspan="2">Construction Noise</td></tr>
<tr><td><u>Daytime Construction Noise Limits</u>
Project construction noise was evaluated at the nearest noise-sensitive receptors to determine whether the noise level resulting from the simultaneous operation of the two loudest pieces of equipment (including impact equipment) during each phase of construction would be greater than 90 dBA L_{eq} or 10 dBA above the ambient noise level (which is 67 dBA L_{eq}).
Section 2907(a) of the noise ordinance limits noise from any individual piece of non-impact construction equipment to 80 dBA at 100 feet, which is equivalent to 86 dBA at 50 feet.</td><td rowspan="3">severity of the exceedance at the nearest sensitive receptors
the duration of the exceedance
the affected noise sensitive receptors</td></tr>
<tr><td><u>Nighttime Construction Noise Limits</u>
Section 2908 of the noise ordinance prohibits nighttime construction (between 8 p.m. and 7 a.m.) that generates noise exceeding the ambient noise level by 5 dBA (which is 62 dBA L_{eq}) at the nearest property line unless a special permit has been issued.
If noise levels were estimated to exceed this threshold, the potential for sleep disturbance was then evaluated based on whether nighttime construction activities would result in indoor noise levels of 45 dBA or more per the San Francisco Noise Ordinance. This assumes a typical attenuation for exterior noise inside of a building with windows closed is 25 dBA.</td></tr>
<tr><td><u>Construction Truck Traffic</u>
Qualitative analysis of noise effects of construction trucks along haul routes.</td></tr>
<tr><td colspan="2">Operational Noise</td></tr>
<tr><td>Onsite Stationary Sources
The analysis evaluates noise from stationary sources relative to the allowed operational noise limit of section 2909(b) (8 dBA above ambient at the property plane of a commercial property) and section 2909(d) of the noise ordinance (i.e., interior noise limits of 45 dBA between the hours of 10 p.m. to 7 a.m. or 55 dBA between the hours of 7 a.m. to 10 p.m. at the nearest sensitive receptor, as discussed on p. 3.D.22). Existing ambient noise levels range from 52 to 57 dBA L_{90} in the vicinity of the project site.</td><td rowspan="3">severity of the exceedance at the nearest noise sensitive receptors
the duration of the exceedance
the affected noise sensitive receptors</td></tr>
<tr><td>Other Onsite Sources
The analysis discusses the noise effects of other onsite sources related to bus maintenance activities (i.e., repair and wash), vehicle movements, and noise from garbage trucks and delivery trucks qualitatively.</td></tr>
<tr><td>Operational Traffic
This standard, which assumes a substantial permanent increase in traffic noise levels of 3 dBA L_{dn} or more.</td></tr>
</table>

NOISE AND VIBRATION LIMITS AND PERFORMANCE STANDARDS	QUALITATIVE FACTORS
Construction-Related Groundborne Vibration	
Generation of construction-related groundborne vibration levels exceeding the FTA “Occasional Events” level of 65 RMS VdB at building with vibration sensitive equipment during both daytime and nighttime construction (see **Table 3.D.8**, p. 3.D.16).	• severity of the exceedance at the nearest vibration sensitive receptors • the duration of the vibration sensitive receptors • the affected vibration sensitive receptors
Generation of construction-related groundborne vibration levels exceeding the “Occasional Events” level of 75 RMS VdB at residential buildings during nighttime construction (see **Table 3.D.8**).	
Generation of construction-related groundborne vibration levels exceeding the Caltrans damage standards at offsite structures based on building classes identified in **Table 3.D.9**, p. 3.D.18 (i.e., structural damage). Thresholds for “Historic and some old buildings” were used for nearby historic buildings and thresholds for “Older residential structures” were conservatively used for other nearby buildings.	

Methodology for Analysis of Construction Noise Impacts

Implementation of the proposed project or project variants would include the use of heavy equipment on the project site for demolition of existing structures and construction of new structures. This assessment includes an evaluation of noise generated by the construction equipment identified by the project sponsor, SFMTA, and likely to be used during project construction (see the Noise and Vibration Assessment Methodology in **EIR Appendix F-1**). Noise from construction activity typically varies depending on the type of equipment in use, how many pieces of equipment are operating at any one time, the proximity of equipment to a noise receptor location (i.e., mobile equipment can be moved around a construction site), and the duration of equipment use. In addition, some equipment, such as an excavator with a hoe ram or an impact pile driver, may generate “impulsive noise emissions” (i.e., impact noise).

Construction activities would occur intermittently on the project site over the three-year construction program and could expose noise-sensitive receptors to temporary increases in noise levels exceeding ambient levels. Project construction would also result in temporary increases in truck traffic noise along haul routes as trucks haul excavated materials away, arrive at and leave the site during concrete pours, and deliver materials to the site. Because construction noise is inherently variable, qualitative factors (e.g., duration and frequency of the noise, proximity to sensitive receptors) were also taken into consideration in the construction noise analysis for the proposed project, as applicable. Therefore, quantitative noise levels (i.e., the standards established in the local general plan or noise ordinance, or applicable standards of other agencies) are considered in combination with qualitative factors to determine the significance of project-generated noise.

Noise emitted from operation of construction equipment was estimated based on construction equipment noise data published by the United States Federal Highway Administration and the FTA.

The agencies' construction equipment sound levels assuming peak operation over a full hour are shown in **Table 3.D.13: Representative Construction Equipment Noise Levels – Peak Hourly Use**.

Table 3.D.13: Representative Construction Equipment Noise Levels – Peak Hourly Use

Equipment	Peak Hourly L_{eq} at 50 feet (dBA) NOTE A	Peak Hourly L_{eq} at 100 feet (dBA) NOTE A
Impact Equipment		
Excavators with Hoe Ram	**90**	**84**
Impact Pile Driver NOTE B	**101**	**95**
Non-Impact Equipment NOTE C		
Air Compressors	80	74
Bore/Drill Rigs	85	79
Cement and Mortar Mixers	85	79
Concrete/Industrial Saws	**90**	**84**
Cranes	85	79
Excavators	85	79
Generator Sets	82	76
Graders	85	79
Other Construction Equipment	85	79
Other General Industrial Equipment	85	79
Other Material Handling Equipment	85	79
Pavers	85	79
Paving Equipment	85	79
Plate Compactors	83	77
Pressure Washers	85	79
Pumps	81	75
Rollers	85	79
Rough Terrain Forklifts	85	79
Rubber-Tired Dozers	85	79
Rubber-Tired Loaders	80	74
Scrapers	85	79
Skid Steer Loaders	80	74
Tractors/Loaders/Backhoes	84	78
Trenchers	85	79
Welders	74	68
Slant Pile Drill	85	79
Soil Mix Drill Rig	85	79
Grout Plant	80	74
Tie Back Drill	85	79
Air Compressor for Tie Back Rig	80	74
Concrete Truck	82	76
Concrete Boom Pump	82	76
Tower Crane	85	79
Hoist (Construction Elevator)	85	79
Recycling Plant	85	79

Notes: **Boldface values** indicate an exceedance of the noise ordinance limit of 80 dBA at a distance of 100 feet, or 86 dBA at 50 feet.

[A] Based on highest anticipated noise level, assuming 100 percent use during any one-hour period.

[B] The original equipment listed is a soldier pile rig. It is assumed that impact pile driving methods will be used for pile installations. Therefore, noise emissions are assumed identical to an impact pile driver.

[C] Forklifts, signal boards, scissor lift, and light plant are not considered heavy construction equipment and therefore are not presented in the table.

Source: Federal Highway Administration, FHWA Highway Construction Noise Handbook, August 2006, Table 9.1, p. 91.

DAYTIME CONSTRUCTION

For daytime construction, the analysis evaluated temporary noise emissions from construction equipment and related noise levels at the nearest noise-sensitive receptors per the FTA's guidelines for assessing noise impact and relative to the existing noise environment. Specifically, the assessment determined if the noise level resulting from the simultaneous operation of the two loudest pieces of equipment (including impact equipment) would be greater than 90 dBA L_{eq}. The planning department also evaluates whether construction noise would result in an increase of 10 dBA over existing noise levels ("Ambient + 10 dBA") at sensitive receptors, which generally represents a perceived doubling of loudness. As discussed under "Existing Conditions," ambient noise levels range from 57 to 65 dBA L_{eq} in the vicinity of the project site. This analysis conservatively assumed ambient noise levels of 57 dBA L_{eq} in the vicinity of the project site. As a result, the daytime construction noise threshold would be greater than 90 dBA L_{eq} or 67 dBA L_{eq} at the nearest noise-sensitive receptors in combination with qualitative factors. Section 2907(a) of the San Francisco Noise Ordinance limits non-impact[36] construction equipment noise to 80 dBA at a distance of 100 feet from equipment, or an equivalent sound level at some other convenient distance (e.g., 50 feet from the source).[37] For this analysis, the noise limit was compared to the sound level of the loudest non-impact equipment assumed to operate at peak capacity over a full hour.[38]

A usage factor was applied to each piece of equipment analyzed to account for the time that the equipment would likely be in use over the specified time period. The construction equipment sound levels are shown in **Table 3.D.14: Representative Construction Equipment Noise Levels – Average Hourly Use**. Construction noise sources were grouped according to construction phase, and the maximum hourly L_{eq} was determined using the two noisiest pieces of equipment which could be operated simultaneously in any given hour. These two noise sources were added together at the same location, and the corresponding noise levels at the nearest receptors to the project site were then predicted based on quantitative calculations that considered the approximate distance between the nearest receptors and the noise sources. The assessment was completed for the nearest noise-sensitive receptors (see **Figure 3.D.1**, p. 3.D.9). The estimated noise levels at the nearest noise-sensitive receptors were based on the attenuation of noise with distance, which decrease by 6 dB for each doubling of distance from the source. The calculations did not consider the attenuation potentially provided by barriers (e.g., intervening walls, buildings, and other structures) due to variations in the height and composition of such barriers. Therefore, this analysis provided

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[36] Non-impact tools are any powered construction equipment except impact tools that are designed to deliver high torque output, such as jackhammers and impact pile drivers.

[37] Equals 86 dBA at 50 feet, based on a 6-dB increase per halving of distance to "point" source of noise.

[38] As noted on p. 3.D.21, section 2907(a) exempts impact tools and equipment provided that such impact tools and equipment have intake and exhaust mufflers recommended by the manufacturer, and that pavement breakers and jackhammers are equipped with acoustically attenuating shields or shrouds recommended by the manufacturer.

conservative results by excluding the noise attenuation benefits that intervening structures may provide.

Table 3.D.14: Representative Construction Equipment Noise Levels – Average Hourly Use

Equipment NOTE A	**Average Hourly L_{eq} at 50 feet (dBA)** NOTE B
Air Compressors	76
Bore/Drill Rigs	78
Cement and Mortar Mixers	81
Concrete/Industrial Saws	83
Cranes	77
Excavators with Hoe Ram	83
Excavators	81
Generator Sets	79
Graders	81
Other Construction Equipment	82
Other General Industrial Equipment	82
Other Material Handling Equipment	82
Pavers	82
Paving Equipment	82
Plate Compactors	76
Pressure Washers	82
Pumps	78
Rollers	78
Rough Terrain Forklifts	78
Rubber-Tired Dozers	81
Rubber-Tired Loaders	76
Scrapers	81
Skid Steer Loaders	76
Tractors/Loaders/Backhoes	80
Trenchers	82
Welders	70
Slant Pile Drill	78
Soil Mix Drill Rig	78
Grout Plant	77
Impact Pile Driver NOTE C	94
Tie Back Drill	78
Air Compressor for Tie Back Rig	76
Concrete Truck	75
Concrete Boom Pump	75
Tower Crane	77
Hoist (Construction Elevator)	78
Recycling Plant	82

Notes:

[A] Forklifts, signal boards, scissor lift, and light plant are not considered heavy construction equipment and therefore are not presented in the table.

[B] Based on average hourly noise level, assuming typical equipment operating capacities and usage factors.

[C] The original equipment listed is a soldier pile rig. It is assumed that impact pile driving methods will be used for pile installations. Therefore, noise emissions are assumed identical to an impact pile driver.

Source: Federal Highway Administration, FHWA Highway Construction Noise Handbook, August 2006, Table 9.1, p. 91.

NIGHTTIME CONSTRUCTION

Nighttime construction would be limited to major concrete pours and urgent unplanned work. If pouring concrete during nighttime is necessary, each nighttime concrete pour would not last longer than two successive nights. It is also assumed that urgent unplanned work during nighttime would be completed within two weeks. Section 2908 of San Francisco Noise Ordinance prohibits nighttime construction (between 8 p.m. and 7 a.m.) that generates noise exceeding the ambient noise level by 5 dBA at the nearest property line unless a special permit has been issued.

As discussed under "Existing Conditions" on p. 3.D.10, ambient noise levels range from 57 to 65 dBA L_{eq} in the vicinity of the project site. This analysis conservatively assumed ambient noise levels of 57 dBA L_{eq}. As a result, the nighttime construction noise threshold would be 62 dBA L_{eq}, which is 5 dBA above the ambient noise level, in combination with qualitative factors.

If noise levels were estimated to exceed this threshold, the potential for sleep disturbance was then evaluated at the nearest residential receptors based on whether nighttime construction activities would result in indoor noise levels of 45 dBA or more per the San Francisco Noise and Vibration Impact Analysis Guidelines. This assumed a typical attenuation for exterior noise inside of a building with windows closed is 25 dBA.

CONSTRUCTION TRUCK TRAFFIC

This analysis discusses the noise effects of construction trucks along haul routes qualitatively in accordance with the approved Noise and Vibration Assessment Methodology (see **EIR Appendix F-1**).

Methodology for Analysis of Operational Noise Impacts

Operational noise from the proposed project or project variants would result from onsite stationary sources, other sources associated with activities onsite (i.e., noise from bus maintenance activities, vehicle movements, garbage trucks, and delivery trucks), and offsite project-generated traffic.

ONSITE STATIONARY SOURCES

The primary onsite sources are stationary sources such as HVAC systems, cooling towers, and generators. The analysis evaluated noise from stationary sources relative to the allowed operational noise limit of section 2909(b) (8 dBA above ambient at the property plane of a commercial property) and section 2909(d) of the noise ordinance (i.e., interior noise limits of 45 dBA between the hours of 10 p.m. to 7 a.m. or 55 dBA between the hours of 7 a.m. to 10 p.m., as discussed on p. 3.D.22). The limits are based on both absolute permanent increases over existing conditions due to operation of stationary sources (section 2909 [b]) and interior sound level limits at residential receptors (section 2909[d]). As discussed under "Existing Conditions" on p. 3.D.10, ambient noise levels range from 52 to 57 dBA L_{90} in the vicinity of the project site.

OTHER ONSITE SOURCES

Other onsite sources associated with replacement transit facility and joint development uses include bus maintenance activities (i.e., repair and wash), vehicle movements, and noise from garbage trucks and delivery trucks. This analysis discusses the noise effects of other onsite sources qualitatively, in accordance with the approved Noise and Vibration Assessment Methodology (see **EIR Appendix F-1**).

OFFSITE TRAFFIC

The traffic noise assessment evaluated traffic conditions with and without the proposed project or project variants to determine whether increases in traffic-related noise are expected to result in a significant impact. To assess traffic noise impacts from the proposed project or project variants, traffic sound levels were calculated for existing volumes and for the increased traffic volumes under existing plus project conditions. To assess cumulative traffic noise impacts in the future from the proposed project or project variants, expected growth in traffic, and cumulative projects in the vicinity, traffic sound levels were calculated from horizon year (2040) volume estimates, including project traffic volumes.

The proposed project or project variants would generate the highest trips during the PM peak hour between 4:30 PM and 5:30 PM, and therefore traffic noise levels were calculated during the PM peak hour to represent the highest traffic noise increase during project operation. Specifically, traffic noise levels in the project vicinity were calculated for 22 roadway segments using traffic data provided for the intersections closest to the project site. The selected roadway segments were considered to have the highest potential for impact from traffic generated by the proposed project or project variants. Vehicle speed was assumed to be same as the speed limits that were identified through review of readily available online street images (i.e., Google Streetview). Traffic volumes during the PM peak hour and associated traffic composition provided by the transportation consultant were used in the Federal Highway Administration Traffic Noise Model (TNM) Lookup tool, version 2.5 (TNM Lookup) to estimate traffic noise levels (see **EIR Appendices F-3** and **F-4**).

This analysis evaluated if the proposed project or project variants would result in a substantial permanent increase in traffic noise levels based on the noise criteria from Caltrans's Technical Noise Supplement: 3 dBA is perceived as barely perceptible and 5 dBA is perceived as readily perceptible.[39] The proposed

[39] Caltrans, Division of Environmental Analysis, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, pp. 2-43 to 2-46 and Table 2-10, *https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf*, accessed November 24, 2020.

project and each of the project variants, except the Employee and Family Support Variant, would generate 226 net-new PM peak hour vehicle trips. Under the Employee and Family Support Variant 278 net-new PM peak hour vehicle trips would be generated (an increase of 54 net-new PM peak hour vehicle trips over the proposed project and other project variants). This incremental change would not generate a noticeable variance from the findings for the proposed project; thus, the operational noise analysis for the proposed project would be applicable to all project variants.

As discussed under "Existing Conditions" on p. 3.D.10, ambient noise levels range from 69 to 72 dBA L_{dn} in the vicinity of the project site. Because adjacent receptors include residences and schools, ambient noise levels ranging from 69 to 72 dBA L_{dn} exceed the maximum "satisfactory, with no special insulation requirements" exterior noise level of 60 dBA (L_{dn}) for residential uses and 65 dBA (L_{dn}) for school classrooms (see **Table 3.D.11**, p. 3.D.20). Because the existing noise environment is already degraded (i.e., exceeds the maximum "satisfactory" category), a lower standard is necessary to ensure that there would not be a significant increase in ambient noise levels. Therefore, a significant impact would be identified if the proposed project or project variants would increase the traffic noise levels by 3 dBA L_{dn} or more.

Methodology for Analysis of Vibration Impacts

The following summarizes the methodology applied in this assessment to evaluate vibration-related impacts due to construction of the proposed project or project variants.

Most traffic anticipated during operation of the proposed project or project variants would be rubber-tired and operating on pavement that is in good condition. No major sources of vibration are anticipated within the new structure. Therefore, operation of the proposed project or project variants is not anticipated to generate perceptible levels of vibration at offsite receptors. For these reasons, operational vibration is not considered further.

Methodology for Analysis of Construction Vibration Impacts

Project-related construction vibration was evaluated relative to the limits identified in the FTA's guidelines for assessing vibration disturbance to people for nighttime construction (because this is when construction could cause sleep disturbance) or interference with vibration-sensitive equipment,[40] and relative to the limits identified in the Caltrans guidelines for assessing vibration damage to buildings. Vibration levels for typical construction equipment are shown in **Table 3.D.15: Vibration Source Levels for Construction Equipment**.

[40] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, *https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf*, accessed May 5, 2021.

Table 3.D.15: Vibration Source Levels for Construction Equipment

Equipment	PPV_{ref} at 25 ft (in/sec) NOTE A	RMS_{ref} at 25 ft (in/sec) NOTE B
Impact Pile Driver (typical)	0.644	104
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Notes:
[A] PPV_{ref} – reference Peak Particle Velocity. PPV is appropriate for evaluating potential damage to buildings.
[B] RMS_{ref} – reference Root Mean Square. RMS is appropriate for evaluating response of the human body to vibration.
Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

The assessment of construction vibration impacts used the following assumption:

- The vibration level at people or vibration-sensitive equipment is equal to $RMS_{ref} - 30\times\text{Log10}(D/25)$ where RMS_{ref} is the reference vibration level identified in **Table 3.D.14**, and D is the distance from the equipment to the receptor.
- The vibration level at a nearby building is equal to $PPV_{ref} \times (25/D)^{1.5}$ where PPV_{ref} is the reference vibration level identified in **Table 3.D.14**, and D is the distance from the equipment to the receptor.

FTA recommends that disturbance and damage potential for each piece of equipment be assessed individually. For each piece of equipment, this analysis calculated the buffer distances at which vibration levels would be reduced below the disturbance threshold for sensitive receptors (based on the Indoor FTA Groundborne Vibration Impact Criteria in **Table 3.D.8**, p. 3.D.16) and below the damage thresholds for structures (based on the Caltrans Vibration Guidelines for Potential Damage to Structures in **Table 3.D.9**, p. 3.D.18). This analysis then evaluated whether vibration-sensitive receptors would be located within the buffer distances.

IMPACT EVALUATION

Construction Noise Impacts

Impact NO-1: Construction of the proposed project or project variants would generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the San Francisco Noise Ordinance or applicable standards of other agencies. (*Less than Significant with Mitigation)*

Daytime Construction Noise

The noise limit for non-impact construction equipment, as summarized in section 2907(a) of the noise ordinance, is 80 dBA when measured at a distance of 100 feet from the source, which equates to 86 dBA at 50 feet.[41] To assess compliance with section 2907, noise levels from construction equipment were calculated at a distance of 100 feet from the location of individual operating pieces of equipment. As indicated, impact equipment (e.g., pile drivers, hoe rams, jackhammers, etc.) was not considered in this assessment, per the conditional exemption provided in section 2907(b).

Noise levels used for this evaluation of potential noise levels during construction were based on the highest (i.e., peak) L_{eq} noise levels during any one hour, assuming continuous equipment operation.

As shown in **Table 3.D.14**, p. 3.D.30, the estimated noise levels for all non-impact construction equipment (except for concrete/industrial saws) are expected to be less than 80 dBA at 100 feet (or 86 dBA at 50 feet) and would comply with the limits in section 2907(a) of the noise ordinance. However, a concrete/industrial saw could reach 84 dBA at 100 feet (90 dBA at 50 feet), which exceeds the noise ordinance standard. A concrete/industrial saw would be used for relatively detailed demolition work, such as removing or opening up a specific area of roadway or sidewalk. As such, the duration and frequency of their use would not be extensive (typically less than a few hours at a time) and would occur during normal daytime construction hours. For these reasons, if a concrete/industrial saw would be necessary to complete construction, there would be temporary exceedance of the noise standards in section 2907(a).

Offsite noise-sensitive receptors around the perimeter of the project site are listed in **Table 3.D.4**, p. 3.D.11, and shown in **Figure 3.D.1**, p. 3.D.9. Estimated construction noise levels from the two noisiest pieces of construction equipment at the nearest noise-sensitive receptors for each phase of construction are presented in **Table 3.D.16: Estimated Daytime Construction Noise Levels at Offsite Receptors**. As shown in **Table 3.D.16**, construction noise levels would exceed the daytime noise threshold of "10 dBA L_{eq} above the ambient noise level" at all the nearest noise-sensitive receptors during all phases of construction. Specifically, construction noise would exceed the noise threshold of "10 dBA L_{eq} above the ambient noise level" by a range of 2 to 23 dBA. The highest exceedance of 23 dBA would occur when an impact pile driver and any other piece of equipment is used during site preparation, grading, and piling at the nearest noise-sensitive receptor (1800 Bryant Street).[42]

[41] Based on a standard noise level increase from a point source of 6 dBA per halving of distance to the stationary noise source.

[42] An impact pile driver would generate at least 10 dBA higher than any other piece of equipment at 1800 Bryant Street. When the difference between two sources of noise is 10 dBA or more, the higher noise source dominates, and the lower noise source makes no perceptible difference in what can be heard or measured. Therefore, the combined noise level from an impact pile driver and any other piece of equipment would be the same as the noise level from an impact pile driver.

Table 3.D.16: Estimated Daytime Construction Noise Levels at Offsite Receptors

Receptor NOTE A	Primary Use (Location)	Construction Phase	Noise from Two Noisiest Pieces of Equipment (dBA L_{eq}) NOTE B, NOTE C	Does Noise Level Exceed Daytime Noise Threshold of 67 dBA Leq (10 dBA Leq above the ambient noise level)?	Does Noise Level Exceed 90 dBA L_{eq} Noise Threshold?
R1	Residential (2501 Mariposa Street)	Demolition	84	**Yes**	No
		Site Preparation, Grading, and Piling	85	**Yes**	No
		Foundation	84	**Yes**	No
		Building Construction	83	**Yes**	No
		Paving	83	**Yes**	No
		Architectural Coating	82	**Yes**	No
R2	Residential (475 Hampshire Street)	Demolition	82	**Yes**	No
		Site Preparation, Grading, and Piling	82	**Yes**	No
		Foundation	82	**Yes**	No
		Building Construction	81	**Yes**	No
		Paving	81	**Yes**	No
		Architectural Coating	80	**Yes**	No
R3	Residential (1800 Bryant Street)	Demolition	82	**Yes**	No
		Site Preparation, Grading, and Piling	90	**Yes**	No
		Foundation	82	**Yes**	No
		Building Construction	81	**Yes**	No
		Paving	81	**Yes**	No
		Architectural Coating	80	**Yes**	No
R4	Residential (1900 Bryant Street)	Demolition	80	**Yes**	No
		Site Preparation, Grading, and Piling	88	**Yes**	No
		Foundation	80	**Yes**	No
		Building Construction	79	**Yes**	No
		Paving	79	**Yes**	No
		Architectural Coating	78	**Yes**	No

Receptor NOTE A	**Primary Use (Location)**	**Construction Phase**	**Noise from Two Noisiest Pieces of Equipment (dBA L_{eq})** NOTE B, NOTE C	**Does Noise Level Exceed Daytime Noise Threshold of 67 dBA Leq (10 dBA Leq above the ambient noise level)?**	**Does Noise Level Exceed 90 dBA L_{eq} Noise Threshold?**
R5	Residential (2445 Mariposa Street)	Demolition	80	**Yes**	No
		Site Preparation, Grading, and Piling	80	**Yes**	No
		Foundation	80	**Yes**	No
		Building Construction	79	**Yes**	No
		Paving	79	**Yes**	No
		Architectural Coating	78	**Yes**	No
R6	Residential (480 Potrero Avenue)	Demolition	75	**Yes**	No
		Site Preparation, Grading, and Piling	77	**Yes**	No
		Foundation	75	**Yes**	No
		Building Construction	74	**Yes**	No
		Paving	74	**Yes**	No
		Architectural Coating	73	**Yes**	No
R7	Residential (1746-1712 Bryant Street, 2401 16th Street)	Demolition	74	**Yes**	No
		Site Preparation, Grading, and Piling	82	**Yes**	No
		Foundation	74	**Yes**	No
		Building Construction	73	**Yes**	No
		Paving	73	**Yes**	No
		Architectural Coating	72	**Yes**	No
R8	Residential (2726 17th Street)	Demolition	73	**Yes**	No
		Site Preparation, Grading, and Piling	81	**Yes**	No
		Foundation	73	**Yes**	No
		Building Construction	72	**Yes**	No
		Paving	72	**Yes**	No
		Architectural Coating	71	**Yes**	No

(Table 3.D.16 continued)

Receptor NOTE A	**Primary Use (Location)**	**Construction Phase**	**Noise from Two Noisiest Pieces of Equipment (dBA L_{eq})** NOTE B, NOTE C	**Does Noise Level Exceed Daytime Noise Threshold of 67 dBA Leq (10 dBA Leq above the ambient noise level)?**	**Does Noise Level Exceed 90 dBA L_{eq} Noise Threshold?**
R9	Preschool (2730 17th Street)	Demolition	72	**Yes**	No
		Site Preparation, Grading, and Piling	80	**Yes**	No
		Foundation	72	**Yes**	No
		Building Construction	71	**Yes**	No
		Paving	71	**Yes**	No
		Architectural Coating	70	**Yes**	No
R10	Preschool (1960 Bryant Street)	Demolition	71	**Yes**	No
		Site Preparation, Grading, and Piling	79	**Yes**	No
		Foundation	71	**Yes**	No
		Building Construction	70	**Yes**	No
		Paving	70	**Yes**	No
		Architectural Coating	69	**Yes**	No

Notes: **Boldface** values indicate an exceedance of the significance threshold criterion.

[A] Receptor locations are shown on **Figure 3.D.1**, p. 3.D.9.

[B] The two noisiest pieces of equipment for each construction phase are as follows: a concrete/industrial saw and one of the other construction equipment or recycling plant during demolition; two excavators with hoe ram at R1 and R2, and an impact pile driver and any other piece of equipment at all the other receptors during site preparation, grading, and piling; a concrete/industrial saw and one of the other construction equipment, other general industrial equipment, or other material handling equipment during foundation; two of the other construction equipment, other material handling equipment, or pressure washer during building construction; two of the other material handling equipment, pavers, or paving equipment during paving; one pressure washer and one hoist during architectural coating.

[C] According to the geotechnical engineering report prepared for this project, excavators with hoe ram would likely be used in the eastern portion of the project site to break up bedrock, and an impact pile driver would likely be used in the western portion of the project site to provide the necessary support for the foundation.

Source: Baseline, 2020. ARUP/RYCG, SFMTA Potrero Facility Rebuild Geotechnical Engineering Report. November 11, 2019.

As shown in **Table 3.D.16**, construction noise levels would not exceed the 90 dBA L_{eq} threshold at any of the nearest noise-sensitive receptors during any of the phases of construction. However, construction noise levels would exceed the daytime noise threshold of "10 dBA L_{eq} above the ambient noise level."

Nighttime Construction Noise

Major concrete pours could occur during nighttime and could involve the use of concrete pump trucks, concrete mixer trucks, and cranes, which could generate noise levels of 75 dBA L_{eq}, 81 dBA L_{eq}, and 77 dBA L_{eq} at 50 feet, respectively (see **Table 3.D.14**, p. 3.D.30).[43] The two noisiest pieces of equipment (assuming two concrete mixer trucks) could generate noise levels of 84 dBA L_{eq}. Such noise levels would exceed the nighttime construction noise limits of 62 dBA L_{eq} (5 dBA above the ambient noise level) at project boundaries (as specified in section 2908 of the noise ordinance) when equipment is operated near the project site boundaries. As indicated in section 2908 of the noise ordinance, a nighttime permit is required if any activity is anticipated outside of work hours and has the potential to exceed nighttime construction noise limits. **Table 3.D.17: Estimated Nighttime Construction Noise Levels at Residential Receptors** presents the estimated interior noise levels during construction from the two noisiest pieces of construction equipment at the nearest residential receptors. As shown in **Table 3.D.17**, noise levels could exceed the nighttime interior noise threshold at all nearby residential receptors.

Offsite Haul Traffic

During construction, secondary sources of noise would include trucks hauling materials to and from the project site. It is anticipated that the proposed project's or project variants' construction-related truck trips would travel on City-designated truck routes to minimize impacts related to construction traffic such as the U.S. 101 and I-280 highways and surface streets including 16th Street, portions of 17th Street, Bryant Street, and Mariposa Street.[44] Therefore, noise associated with truck traffic would not increase ambient noise substantially. In addition, construction duration would not exceed five years and therefore this activity would be limited in duration.

As discussed above, construction noise levels would: 1) temporarily exceed the standards in section 2907(a) of the noise ordinance; 2) exceed the daytime noise threshold of "10 dBA L_{eq} above the ambient noise level"; and 3) exceed the nighttime interior noise threshold of 45 dBA L_{eq} at all nearby residential receptors.

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[43] Noise levels generated from construction mixer trucks are estimated to be similar to cement and mortar mixers.

[44] Construction trucks would follow the routes identified in the Vehicles and Parking – Truck Routes section of the SF Transportation Information Map, *https://sfplanninggis.org/TIM/*, accessed May 5, 2021.

Table 3.D.17: Estimated Nighttime Construction Noise Levels at Residential Receptors

Receptor NOTE A	Location	Construction Phase	Noise from Two Noisiest Pieces of Equipment (dBA L_{eq}) NOTE B	Estimated Interior Noise (dBA L_{eq})	Does Noise Level Exceed Nighttime Interior Noise Threshold of 45 dBA L_{eq}?
R1	2501 Mariposa Street	Nighttime	82	57	**Yes**
R2	475 Hampshire Street	Nighttime	80	55	**Yes**
R3	1800 Bryant Street	Nighttime	80	55	**Yes**
R4	1900 Bryant	Nighttime	78	53	**Yes**
R5	2445 Mariposa Street	Nighttime	78	53	**Yes**
R6	480 Potrero Avenue	Nighttime	73	48	**Yes**
R7	1746-1712 Bryant Street, 2401 16th Street	Nighttime	72	47	**Yes**
R8	2726 17th Street	Nighttime	71	46	**Yes**

Notes: **Boldface** values indicate an exceedance of the significance threshold criterion.

[A] Receptor locations are shown on **Figure 3.D.1**, p. 3.D.9.

[B] The two noisiest pieces of equipment are two concrete mixer trucks.

Source: Baseline, 2020.

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Mitigation Measure M-NO-1: Construction Noise Control, described below, requires implementation of noise control measures in accordance with a noise control plan approved by the planning department during all construction activities.

Mitigation Measure M-NO-1: Construction Noise Control

The SFMTA and a private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall prepare construction noise control documentation as detailed below.

Prior to issuance of any demolition or building permit, the project sponsor team shall submit a project-specific construction noise control plan to the Environmental Review Officer (ERO) or the ERO's designee for approval. The construction noise control plan shall be prepared by a qualified acoustical engineer, with input from the construction contractor, and include all feasible measures to reduce construction noise. The construction noise control plan shall identify noise control measures to meet a performance target of construction activities not resulting in a noise level greater than 90 dBA at noise-sensitive receptors and 10 dBA above the ambient noise level at noise-sensitive receptors. The project sponsor team shall ensure that requirements of the construction noise control plan are included in contract specifications. If nighttime construction is required, the plan shall include specific measures to reduce nighttime construction noise. The plan shall also include measures for notifying the public of construction activities, complaint procedures, and a plan for monitoring construction noise levels in the event complaints are received. The construction noise control plan shall include the following measures to the degree feasible, or other effective measures, to reduce construction noise levels:

- Use construction equipment that is in good working order, and inspect mufflers for proper functionality;
- Select "quiet" construction methods and equipment (e.g., improved mufflers, use of intake silencers, engine enclosures);
- Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors;
- Prohibit the idling of inactive construction equipment for more than five minutes;
- Locate stationary noise sources (such as compressors) as far from nearby noise-sensitive receptors as possible, muffle such noise sources, and construct barriers around such sources and/or the construction site;
- Avoid placing stationary noise-generating equipment (e.g., generators, compressors) within noise-sensitive buffer areas (as determined by the acoustical engineer) immediately adjacent to neighbors;
- Enclose or shield stationary noise sources from neighboring noise-sensitive properties with noise barriers to the extent feasible. To further reduce noise, locate stationary equipment in pit areas or excavated areas, if feasible; and
- Install temporary barriers, barrier-backed sound curtains and/or acoustical panels around working powered impact equipment and, if necessary, around the project site perimeter. When temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of

the barrier panels and the ground, shall be closed with material that completely closes the gaps, and dense enough to attenuate noise.

The construction noise control plan shall include the following measures for notifying the public of construction activities, complaint procedures, and monitoring construction noise levels:

- Designate an on-site construction noise manager for the project;
- Notify neighboring noise-sensitive receptors within 300 feet of the project construction area at least 30 days in advance of high-intensity noise-generating activities (e.g., pier drilling, pile driving, and other activities that may generate noise levels greater than 90 dBA at noise-sensitive receptors) about the estimated duration of the activity;
- Post a sign onsite describing noise complaint procedures and a complaint hotline number that shall always be answered during construction;
- Implement a procedure for notifying the planning department of any noise complaints within one week of receiving a complaint;
- Establish a list of measures for responding to and tracking complaints pertaining to construction noise. Such measures may include the evaluation and implementation of additional noise controls at sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat); and
- Conduct noise monitoring (measurements) at the beginning of major construction phases (e.g., demolition, grading, excavation) and during high-intensity construction activities to determine the effectiveness of noise attenuation measures and, if necessary, implement additional noise control measures.

The construction noise control plan shall include the following additional measures in the event of pile-driving activities:

- When pile driving is to occur within 600 feet of a noise-sensitive receptor, implement "quiet" pile-driving technology (such as pre-drilling of piles, sonic pile drivers, auger cast-in-place, or drilled-displacement, or the use of more than one pile driver to shorten the total pile-driving duration [only if such measure is preferable to reduce impacts to sensitive receptors]) where feasible, in consideration of geotechnical and structural requirements and conditions;
- Where the use of driven impact piles cannot be avoided, properly fit impact pile driving equipment with an intake and exhaust muffler and a sound-attenuating shroud, as specified by the manufacturer; and
- Conduct noise monitoring (measurements) before, during, and after the pile-driving activity.

For daytime construction, construction would comply with public works' **SCM #5, Noise**, which require measures to minimize noise disruption to nearby neighbors and sensitive receptors during construction. Implementation of **Mitigation Measure M-NO-1** would reduce construction noise impacts from the proposed project or project variants by requiring the project sponsor team to develop and implement a list of feasible noise control measures to be employed during construction, considering site constraints. The construction noise control plan shall be developed with a performance target of reducing construction noise levels to below 90 dBA and 10 dBA above ambient noise levels at sensitive receptor locations. The construction noise control plan must be reviewed and approved by the planning department. Measures in the construction noise control plan would directly lessen construction noise through various methods including, but not limited to, the following: (1) place a barrier (or barriers) between the sensitive receptor(s) and the noise source; (2) ensure that equipment (and trucks) used for project construction use the best available noise control techniques (e.g., improved mufflers, equipment redesign, intake silencers, ducts, engine enclosures, acoustically attenuating shields or shrouds); and (3) operate noisy equipment as far as possible from sensitive receptors. Additional measures include requirements to identify a construction noise manager, track and respond to complaints, and noise monitoring at the beginning of major construction phases. These measures would serve to lessen construction noise increases at sensitive receptor locations.

As discussed above, the highest exceedance of 23 dBA would occur when an impact pile driver and any other piece of equipment are used during site preparation, grading, and piling at the nearest noise-sensitive receptor (1800 Bryant Street). The implementation of **Mitigation Measure M-NO-1** requires the implementation of "quiet" pile-driving technology (such as pre-drilling of piles, sonic pile drivers, auger cast-in-place, or drilled-displacement, or the use of more than one pile driver to shorten the total pile-driving duration [only if such measure is preferable to reduce impacts to sensitive receptors]) where feasible. As discussed in the geotechnical engineering report prepared for this project,[45] alternative options could involve auger-cast-in-place piles or torque-down piles, which would generate much lower noise levels. If impact pile driving is unavoidable, **Mitigation Measure M-NO-1** requires fitting impact pile driving equipment with an intake and exhaust muffler and a sound-attenuating shroud, as specified by the manufacturer. **Mitigation Measure M-NO-1** also requires noise monitoring before, during, and after the pile driving activity. Although it is possible that despite application of this standard requirement, construction activities may result in noise levels of 90 dBA at noise-sensitive receptors, or increase noise levels by 10 dBA above ambient levels at noise-sensitive receptors, with application of **Mitigation Measure M-NO-1**, the expected frequency, duration, and intensity of construction noise above these levels would be substantially reduced. Specifically, installation of the foundation system would last about two months and therefore the exceedance of the daytime noise threshold would be temporary.

Nighttime construction would be limited to major concrete pours and urgent unplanned work. If pouring concrete during nighttime is necessary, a nighttime permit would be required, and each nighttime concrete pour would not last longer than two successive nights. Urgent unplanned work during nighttime would also be completed within two weeks. Construction contractors would comply with public works' **SCM #5, Noise**, for nighttime construction activities, which requires using intake exhaust mufflers and/or acoustically attenuating shields or shrouds on impact tools,

[45] ARUP/RYCG, SFMTA Potrero Facility Rebuild Geotechnical Engineering Report, November 11, 2019.

avoiding the use of water blasters, reducing the use of backup warning alarms to the extent feasible, and implementing administrative controls for worker protection from backing movements by vehicles. Implementation of **Mitigation Measure M-NO-1** would require specific measures included in the construction noise control plan to reduce nighttime construction noise. Given the limited duration of exceedance, the potential impact related to noise from nighttime construction work would be less than significant.

Because **Mitigation Measure M-NO-1** would reduce the proposed project's or project variants' temporary increases in ambient noise levels from construction to the maximum extent feasible and because the exceedance of both daytime and nighttime construction thresholds would be limited in time, the potential for construction of the proposed project or project variants to generate a substantial temporary increase in noise, as described above, would be less than significant.

Construction Vibration Impacts

Impact NO-2: Construction of the proposed project or project variants would generate excessive groundborne vibration or groundborne noise levels. (*Less than Significant with Mitigation)*

Generation of Excessive Groundborne Noise

Vibration in buildings caused by construction activities may be perceived as motion of building surfaces or rattling of windows, items on shelves, and pictures hanging on walls. Vibration of building components can also take the form of an audible low-frequency rumbling noise, which is referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range of vibration frequencies (i.e., 60 to 200 Hertz), when the structure and the construction activity are connected by foundations or utilities, such as sewer and water pipes, or when the airborne noise path is blocked, such as during tunneling activities. Construction activities related to the proposed project or project variants, including excavation activities where the highest levels of vibration are anticipated, would not include vibration of foundations or utilities that are connected to existing structures, and would not include tunneling operations. Therefore, impacts due to groundborne noise would be less than significant.

Table 3.D.18: Building Damage and Vibration Disturbance Buffer Distances presents the buffer distances at which vibration levels would be reduced below the disturbance threshold for sensitive receptors and below the damage thresholds for structures.

Table 3.D.28: Building Damage and Vibration Disturbance Buffer Distances

Vibration-Generating Equipment	Peak Particle Velocity at 25 feet	Root Mean Square at 25 Feet	Source Character	Buffer Distance in Feet (Distance Beyond Which Effect Not Expected)			
				Historic and Some Old Buildings Damage Thresholds (0.25 in/sec PPV for Continuous/Frequent Intermittent sources; 0.5 in/sec PPV for transient sources) NOTE A	Older Residential Structures Damage Thresholds (0.3 in/sec PPV for Continuous/Frequent Intermittent sources; 0.5 in/sec PPV for Transient sources) NOTE B	Disturbance Threshold of 75-RMS VdB for Residential Buildings During Nighttime Construction	Disturbance Threshold of 65-RMS VdB for KQED Building During Both Daytime and Nighttime Construction NOTE C
Impact Pile Driver (typical)	0.644	104	Continuous/Frequent Intermittent Sources	47	42	--	232
Vibratory Roller	0.21	94	Continuous/Frequent Intermittent Sources	22	20	--	107
Hoe Ram	0.089	87	Continuous/Frequent Intermittent Sources	13	11	--	63
Caisson Drilling	0.089	87	Continuous/Frequent Intermittent Sources	13	11	--	63
Large Bulldozer	0.089	87	Transient Sources	8	8	--	63
Loaded Trucks	0.076	86	Transient Sources	7	7	58	58
Jackhammer	0.035	79	Transient Sources	4	4	--	34
Small Bulldozer	0.003	58	Transient Sources	1	1	--	7

Notes: -- Not calculated because they are not anticipated to be used during nighttime construction.

[A] Historic resources in the vicinity of the project site are the Verdi Club at 2424 Mariposa Street (130 feet to the east of the project site), the SGI Cultural Center at 2450 17th Street (110 feet to the northeast of the project site), and the Leyser-Green Co. Building at 2401-2425 17th Street (80 feet to the east of the project site).

[B] Thresholds for "Older residential structures" were conservatively used for other nearby buildings.

[C] After consideration of 10 VdB of vibration attenuation due to ground-to-building vibration coupling loss.

Source: Baseline, 2020.

All of the historic buildings surrounding the project site would be located outside of the 47-foot buffer and all the other buildings would be located outside of the 42-foot buffer where vibration damage could occur (see **Tables 3.D.4** and **3.D.5**, pp. 3.D.11-3-D.12). Therefore, impacts related to vibration damage to historic buildings in the vicinity of the project site would be less than significant.

Nighttime construction would be limited to major concrete pours and urgent unplanned work (e.g., installation of electrical and security components). It is anticipated that loaded trucks could be used during nighttime construction. Based on the vibration disturbance buffer distance information shown in **Table 3.D.17**, p. 3.D.40, residential receptors located at 2501 Mariposa Street could be exposed to vibration in excess of the disturbance threshold, indicating that nighttime construction could annoy these residential receptors temporarily. No other residential receptors would be exposed to vibration in excess of the threshold. Each nighttime concrete pour would not last longer than two successive nights and any urgent unplanned work during nighttime would also be completed within two weeks. Given the limited duration of exceedances, the potential impact on residential receptors from vibration disturbance during nighttime would be less than significant.

As indicated in **Table 3.D.17**, the use of an impact pile driver or a vibratory roller could interfere with vibration-sensitive equipment located at the KQED building at 2601 Mariposa Street if this construction equipment is operated within the vibration disturbance buffer distance, as shown in **Table 3.D.17**.

Public works' **SCM #9, Cultural Resources**, does not provide a specific performance threshold to limit vibration-intensive activities or equipment for vibration sensitive equipment. It is possible that construction activities conducted within the vibration disturbance buffer distance as shown in **Table 3.D.17** could generate levels of vibration that would result in interference with nearby vibration-sensitive equipment and the impact would be significant.

Mitigation Measure M-NO-2: Vibration-Sensitive Equipment at 2601 Mariposa Street (KQED) Building, described below, would reduce the potential to interfere with vibration-sensitive equipment as a result of project construction by verifying the locations of vibration-sensitive equipment (if any) and requiring the appropriate outreach prior to the planned construction activities.

Mitigation Measure M-NO-2: Vibration-Sensitive Equipment at 2601 Mariposa Street (KQED) Building

Prior to construction, the SFMTA and a private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall designate and make available a community liaison to respond to vibration complaints from building occupants at the KQED building located at 2601 Mariposa Street.

Contact information for the community liaison shall be posted in a conspicuous location so that it is clearly visible to building occupants most likely to be disturbed. Through the community liaison, the project sponsor team shall provide notification to property owners and occupants of 2601 Mariposa Street at least 10 days prior to construction activities involving equipment that can generate vibration capable of interfering with vibration-sensitive equipment, informing them of the estimated start date and duration of vibration-generating construction activities. Equipment types capable of generating such vibration include an impact pile driver, or similar equipment, operating within 250 feet of the building or a vibratory roller, or similar equipment, operating within 125 feet of the building. If feasible, the project sponsor team shall identify potential alternative equipment and techniques that could reduce construction vibration levels. Alternative equipment and techniques may include, but are not limited to:

- pre-drilled piles,
- caisson drilling,
- oscillating or rotating pile installation,
- jetting piles into place using a water injection at the tip of the pile could be substituted for driven piles, if feasible, based on soil conditions
- static rollers could be substituted for vibratory rollers in some cases.

If concerns prior to construction or complaints during construction related to equipment interference are identified, the community liaison shall work with the project sponsor team and the affected building occupants to resolve the concerns such that the vibration control measures would meet a performance target of the 65 VdB vibration level threshold for vibration sensitive equipment, as set forth by Federal Transit Authority (FTA). To resolve concerns raised by building occupants, the community liaison shall convey the details of the complaint(s) to the project sponsor team, such as who shall implement specific measures to ensure that the project construction meets the performance target of 65 VdB vibration level for vibration sensitive equipment. These measures may include evaluation by a qualified noise and vibration consultant, scheduling certain construction activities outside the hours of operation or recording periods of specific vibration-sensitive equipment if feasible, and/or conducting ground-borne vibration monitoring to document that the project can meet the performance target of 65 VdB at specific distances and/or locations. Ground-borne vibration monitoring, if appropriate to resolve concerns, shall be conducted by a qualified noise and vibration consultant.

With the implementation of **Mitigation Measure M-NO-2**, construction equipment would not generate vibration exceeding the 65 VdB impact level. Therefore, potential vibration impacts on vibration-sensitive equipment at the KQED building as a result of project construction would be reduced to a less-than-significant level.

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Operational Noise Impacts

Impact NO-3: Operation of the proposed project or project variants would generate a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan, or applicable standards of other agencies. (*Less than Significant with Mitigation*)

Onsite Stationary Sources

The proposed project and project variants could involve the installation of emergency generators, HVAC systems, and cooling towers.

The proposed project or project variants would include operation of three emergency diesel generators: two dedicated for the backup power requirements of the replacement transit facility and one dedicated for the proposed residential development. The locations of the generators have not yet been determined; however; reasonable locations for the emergency generators include the proposed basement level and the rooftop of the east-west portion of the residential development along Mariposa Street (see **Figures 2.12** and **2.19**, p. 2.36 and 2.43, respectively). The new emergency generators would be completely shielded from existing noise-sensitive receptors. The exhaust for the generator would be vented to the roof of the building. Therefore, noise impacts during routine testing of the generators (i.e., approximately 50 hours each over the course of a year) would be expected to be less than significant.

Information regarding the noise-generating characteristics and locations of HVAC systems and cooling towers was not available at the time when this analysis was conducted. Noise from typical commercial-scale HVAC system units can range from approximately 65 to 75 dBA at 50 feet, whereas noise from cooling towers can range from approximately 70 to 85 dBA at 50 feet.[46] Due to the low existing ambient noise levels ranging from 52 to 57 dBA L_{90}, and the early phases of project design, onsite stationary sources without proper noise attenuation could have the potential to exceed operational noise limits in the noise ordinance.

Mitigation Measure M-NO-3: Fixed Mechanical Equipment Noise Control for Building Operations, described below, would reduce the potential noise increase during operation.

> **Mitigation Measure M-NO-3: Fixed Mechanical Equipment Noise Control for Building Operations**
>
> The SFMTA and a private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall prepare operational noise control documentation as detailed below.
>
> Prior to approval of a building permit, the project sponsor team shall submit documentation to the Environmental Review Officer (ERO) or the officer's designee, demonstrating with

[46] San Francisco Planning Department, 3333 California Street Mixed-Use Project Final EIR, September 5, 2019, Case No. 2015-014028ENV.

reasonable certainty that the building's fixed mechanical equipment (such as heating, ventilation and air conditioning [HVAC] equipment) meets the noise limits specified in sections 2909 (b) and 2909 (d) of the noise ordinance (i.e., an 8-dB increase above the ambient noise level at the property plane for commercial or mixed-use properties; and interior noise limits of 55 dBA and 45 dBA for daytime and nighttime hours inside any sleeping or living room in a nearby dwelling unit on a residential property assuming windows open, respectively). Acoustical treatments required to meet the noise ordinance may include, but are not limited to:

- Enclosing noise-generating mechanical equipment;
- Installing relatively quiet models of air handlers, exhaust fans, and other mechanical equipment;
- Using mufflers or silencers on equipment exhaust fans;
- Orienting or shielding equipment to protect noise-sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat) to the greatest extent feasible;
- Increasing the distance between noise-generating equipment and noise-sensitive receptors; and/or
- Placing barriers around the equipment to facilitate the attenuation of noise.

Compliance with this fixed-mechanical equipment noise control for building operations standard requirement does not obviate the need for the equipment to demonstrate compliance with the noise ordinance throughout the lifetime of the project.

Compliance with **Mitigation Measure M-NO-3** would ensure that the proposed project's or project variants' fixed mechanical equipment is designed to comply with applicable requirements of the noise ordinance prior to issuance of a building permit. Compliance with this standard requirement would reduce the potential for fixed mechanical systems to be installed that do not comply with the noise ordinance and then after installation become the subject of enforcement action. Specifically, compliance with the property plane noise limits in the noise ordinance would ensure that noise from fixed mechanical equipment does not significantly increase ambient noise levels. Compliance with the interior noise standards of the noise ordinance would ensure that noise from fixed mechanical equipment does not result in a significant noise impact to sensitive receptors. The noise ordinance standards for fixed mechanical equipment were developed with the intention of preventing unwanted, excessive, and avoidable noise. With implementation of **Mitigation Measure M-NO-3**, the proposed project or project variants would comply with noise ordinance standards. Therefore, the impact would be reduced to a less-than-significant level.

Other Onsite Sources

Other onsite sources are related to bus maintenance activities (i.e., repair and wash), vehicle movements, and noise from garbage trucks and delivery trucks.

Under the existing conditions, the western half of the project site has an outdoor bus storage yard, a running repair station and bus wash operations along the north and west edges, and a vacuum and fare collection station on the open portion of site near the maintenance and operations building. The proposed project or project variants would involve a replacement transit facility and introduce new residential and commercial uses to the site. Therefore, the proposed project or project variants could increase onsite activities related to bus maintenance activities and vehicle movements. However, the proposed project or project variants would not have an outdoor bus storage yard, which are the existing conditions on the site. Bus maintenance activities and most vehicle movements (except when the facility doors need to be open for vehicles entering or exiting the facility) would occur in an enclosed space. Therefore, it is anticipated that the proposed project or project variants would not substantially increase the noise levels received at nearby receptors above existing ambient noise levels.

As discussed under section 2904 of the police code, p. 3.D.22, noise emissions from the mechanical processing systems of waste collection vehicles are limited to a sound level limit of 75 dBA at a distance of 50 feet. Most onsite garbage collection activity would occur within the proposed basement level (see **Figure 2.12: Proposed Basement Level Plan**, p. 2.36); therefore, noise from waste collection within the basement would be shielded by intervening walls. Offsite garbage collection along Bryant Street for the proposed commercial use would emit noise that would be similar in character and scheduled frequency to existing garbage collection along this roadway.

Noise emissions from delivery trucks would occur only for relatively short periods of time and would not be expected to occur frequently. In addition, the noise generated by delivery trucks at the project site would be consistent with existing noise sources and land uses surrounding the project site because the project site is in a mixed-use urban area.

Therefore, noise from these activities would not result in significant impacts, and mitigation is not necessary.

Offsite Traffic

The assessment of traffic volumes along 22 roadway segments during the PM peak hour indicates the highest traffic volume increase of 39 percent would occur along the roadway segment of Mariposa Street between Hampshire Street and Potrero Avenue (from 274 trips to 380 trips). The estimated existing and existing plus project traffic noise levels for this roadway segment are summarized in **Table 3.D.19: Existing and Existing Plus Project Traffic Noise Levels for the Roadway Segment with Highest Increase during PM Peak Hour**.

Based on these estimates, the proposed project or project variants would increase traffic noise by about 1 dBA along this roadway segment. As this segment would have the greatest predicted increase in project-related traffic, noise increases along other roadway segments affected by the proposed project or project variants would be less than 1 dBA. Because this is below the 3-dBA threshold, the project-generated traffic noise increase along local area roadways would be less than significant.

Table 3.D.39: Existing and Existing Plus Project Traffic Noise Levels for the Roadway Segment with Highest Increase during PM Peak Hour, dBA L_{eq} at 50 Feet

Road Segment	Existing Traffic Noise Levels NOTE A	Existing Plus Project Traffic Noise Levels NOTE A	Estimated Increase in Noise NOTE B
Mariposa Street between Hampshire Street and Potrero Avenue	58.6	60.0	1.4

Notes:
[A] Noise levels were determined using Federal Highway Administration TNM Lookup tool, version 2.5. Traffic noise model outputs are included in **EIR Appendix F-4, Operational and Cumulative Traffic Noise Models Outputs**. Road center to receptor distance is approximately 50 feet. Consistent with the traffic study, the analysis assumed 97 percent automobile and 3 percent heavy truck under the existing condition and the existing plus project condition for this roadway segment. Consistent with the traffic study, buses are classified as heavy vehicles. Traffic speeds were set at 30 mph.
[B] Considered significant if the incremental increase in noise from traffic is greater than the existing ambient noise level by 3 dBA L_{eq}.

Source: Operational and Cumulative Traffic Data and Operational and Cumulative Traffic Noise Model Outputs, 2020. See **EIR Appendix F-3, Operational and Cumulative Traffic Data,** and **Appendix F-4**.

CUMULATIVE IMPACTS

This section discusses the cumulative construction and operational noise and vibration impacts that could result from the proposed project or project variants in conjunction with cumulative projects. The geographic area of concern for evaluation of cumulative noise impacts is the area within approximately 0.25 mile of the project site. This is because for noise effects to combine with the project-generated noise and result in a cumulative impact, the noise sources need to be in close proximity to each other. Eleven development projects and two transportation projects have been identified within a 0.25-radius of the project site, including new land development, streetscape, and parking management projects. Cumulative projects considered in the cumulative analysis are listed below in **Table 3.D.20: Distance of Cumulative Projects from Sensitive Receptor Locations** (see **EIR Section 3.A, Introduction to Chapter 3**, pp. 3.A.6-3.A.8, for a description of these projects and **Figure 3.A.1: Cumulative Projects**, p. 3.A.9, for their locations).

Construction

Cumulative noise or vibration impacts associated with construction of the proposed project or project variants would occur if there are other projects located in the project vicinity that could be constructed at the same time, or that could substantially extend the duration of construction noise or vibration received at any nearby sensitive receptors.

The two transportation projects would not combine with construction noise or vibration from the proposed project or project variants because construction of the 16th Street Improvement Project would be completed prior to initiation of project construction and there are no construction activities associated with Northeast Mission Parking Management Plan.

Table 3.D.20: Distance of Cumulative Projects from Sensitive Receptor Locations

Locations	Distance to the Nearest Sensitive Receptors Identified for the Proposed Project
Development Projects	
1850 Bryant Street	Within 5 feet of R3 (1800 Bryant Street)
321 Florida Street	Within 5 feet of R7 (1746 Bryant Street), R8 (2726 17th Street), and R9 (2730 17th Street)
2435-2445 16th Street	200 feet from R7 (1746 Bryant Street)
681 Florida Street	400 feet from R10 (1960 Bryant Street)
2750 19th Street	490 feet from R10 (1960 Bryant Street)
2747 19th Street	670 feet from R10 (1960 Bryant Street)
333-335 Potrero Avenue	555 feet from R6 (480 Potrero Avenue)
312 Utah Street	660 feet from R6 (480 Potrero Avenue)
300 Kansas Street	1,100 feet from R6 (480 Potrero Avenue)
2601 Mariposa Street	80 feet from R4 (1900 Bryant Street)
480 Potrero Avenue	60 feet from R2 (475 Hampshire Street)
Transportation Projects	
16th Street Improvement Project	
SFMTA Northeast Mission Parking Management Plan	

Of the 11 development projects listed in the **Table 3.D. 20**, only the 2601 Mariposa Street project would not combine with construction noise or vibration from the proposed project or project variants because its construction phase would not overlap with the proposed project or project variants. The construction phases for the other 10 development projects may overlap with the proposed project or project variants, and therefore these projects were considered for cumulative construction noise or vibration impacts.

Impact C-NO-1: Construction noise as a result of the proposed project or project variants, combined with construction noise from cumulative projects in the vicinity, would cause a substantial temporary increase in ambient noise levels. (*Less than Significant with Mitigation)*

Similar to the approach for the project-level analysis, the cumulative analysis provides conservative results by excluding the noise attenuation benefits that intervening structures may provide. Under a conservative assumption, construction of these development projects could overlap with construction of the proposed project, and the 10 development projects could generate construction noise levels that are perceptible at the nearest noise-sensitive receptors due to the low existing ambient noise levels ranging from 57 to 65 dBA L_{eq}. However, among the 10 development projects, seven (except for the 1850 Bryant Street project, the 321 Florida Street project, and the 480 Potrero Avenue project) are located at least 200 feet from the same noise-sensitive receptors as the proposed project or project variants. At a distance of 200 feet, construction noise at the other sites is not likely to combine with that of the proposed project due to the fact that construction noise attenuates at a rate of 6 dBA for every doubling of distance from the source.[47] However, because the construction noise levels from the proposed project or project variants would exceed the daytime noise threshold of "10 dBA L_{eq} above the ambient noise level," the proposed project or project variants could combine with construction noise from the other future projects and exceed the daytime noise threshold of "10 dBA L_{eq} above the ambient noise level."

Regarding noise from hauling trucks, it is possible that the proposed project or project variants could overlap with construction of future projects and use the same truck routes. As a conservative estimate, assuming construction traffic would travel on the same truck routes at the same time, it is possible that noise from combined truck traffic could increase ambient noise. However, construction duration for the proposed project or project variants would not exceed five years and therefore this activity would be limited in duration. As a result, even if the cumulative construction noise related to hauling trucks could result in a temporary increase in ambient noise levels, the contribution of the proposed project or project variants would be less than cumulatively considerable.

Because the proposed project or project variants could combine with construction noise from the other future projects and exceed the daytime noise threshold of 10 dBA L_{eq} above the ambient noise level, this would result in a potentially significant cumulative construction noise impact.

As discussed above under **Impact NO-1**, implementation of measures in **Mitigation Measure M-NO-1: Construction Noise Control**, pp. 3.D.41-3.D.42, would reduce the proposed project's temporary increases in ambient noise levels to the maximum extent feasible and because the exceedance of both daytime and nighttime construction thresholds would be limited in time. Thus, the potential for construction of the proposed project or project variants to generate noise levels that would result in a substantial temporary increase in ambient noise levels would be less than significant. Because the project's contribution to any cumulative construction noise impact would be of relatively short duration, the project's contribution would be less than cumulatively considerable.

Impact C-NO-2: Construction vibration as a result of the proposed project or project variants, combined with construction vibration from cumulative projects in the vicinity, would not generate excessive groundborne vibration or groundborne noise levels. (*Less than Significant)*

Vibration impacts are localized because vibration dissipates rapidly with increased distance from the source. None of the 10 development projects are located within 232 feet of the KQED building

47 Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, p. 2-10, *https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf*, accessed May 5, 2021.

at 2601 Mariposa Street. Based on the vibration buffer distances shown in **Table 3.D.17**, p. 3.D.40, construction vibration is not likely to cause disturbance to vibration-sensitive equipment at the KQED building (if any). Therefore, future projects would not combine with the proposed project or project variants to result in a potentially significant cumulative impact related to interference with vibration-sensitive equipment at KQED building (if any).

Among the 10 development projects, seven projects (with the exception of the 1850 Bryant Street project, the 321 Florida Street project, and the 480 Potrero Avenue project) are located at least 200 feet away from the same vibration-sensitive receptors as the proposed project or project variants. At a distance of 200 feet, construction vibration is not likely to cause building damage (based on the vibration thresholds and Caltrans guidance [see **Table 3.D.17**]) or be perceptible to sensitive receptors in nearby residences during nighttime construction. The 480 Potrero Avenue project is located within 60 feet from the nearest vibration-sensitive receptor (R2) and would involve interior construction; therefore, vibration impact is not anticipated. The 1850 Bryant Street project and the 321 Florida Street project are located within 5 feet from the nearest vibration-sensitive receptor (R3, R7, R8, and R9) and would involve demolition, excavation, and basement and foundation work. However, the proposed project or project variants would not cause building damage to any of the closest nearby buildings due to the distance of construction-related vibration activities, such as excavation and basement/foundation work, and the buffer distance of 47 feet for structure damage to historic and older buildings (see **Table 3.D.17**). Additionally, implementation of **Mitigation Measure M-NO-2** would ensure that any construction-related vibration impacts on vibration sensitive uses at 2601 Mariposa Street would be reduced to less-than-significant levels. Therefore, construction vibration from cumulative projects would not combine with that from the proposed project or project variants to result in a potentially significant cumulative impact related to vibration damage to buildings and vibration-sensitive uses.

At a distance of 5 feet from the 1850 Bryant Street project or the 321 Florida Street project, sensitive receptors in nearby residences (R3, R7, R8, and R9) would be disturbed if nighttime construction were to occur. Therefore, the proposed project or project variants could combine with construction vibration from the 1850 Bryant Street project and the 321 Florida Street project and result in a potentially significant cumulative construction vibration impact related to disturbance of residences during nighttime construction. However, the potentially significant cumulative construction vibration impact would only occur if the proposed project or project variants and a cumulative project both have nighttime construction at the same time. The potential for two projects to have simultaneous nighttime construction would be low. In addition, the project site is located at least 80 feet from sensitive receptors in nearby residences at R3, R7, R8, or R9 (see **Table 3.D.4**, p. 3.D.11). Based on the buffer distance of 58 feet (see **Table 3.D.17**), nighttime construction of the proposed project or project variants would not generate excessive construction vibration at these vibration-sensitive receptors. Furthermore, nighttime construction of the proposed project or project variants would be limited in duration (i.e., less than two weeks). Therefore, even if a potentially significant cumulative construction vibration impact could occur, the contribution of the proposed project or project variants to the significant cumulative construction vibration impact would be less than cumulatively considerable.

Operation

Onsite Stationary Sources

Impact C-NO-3: Operation of the proposed project or project variants, combined with operation noise from cumulative projects in the vicinity, would cause a substantial permanent increase in ambient noise levels in the project vicinity. (*Less than Significant)*

The nearest cumulative projects (2601 Mariposa Street, 1850 Bryant Street, and 321 Florida Street) could involve the installation of operation-period stationary sources of noise. Noise from operation of stationary sources at future project sites would be localized and would be required to meet the requirements for operational noise limits identified in the noise ordinance. The noise ordinance limits noise levels for each project at its property boundary. Even if each future project would meet the operational noise limits, the combined noise from these cumulative projects could increase ambient noise levels for nearby sensitive receptors. Therefore, operation of the proposed project or project variants could combine with other cumulative projects and result in a potentially significant operational noise impact.

As discussed above under **Impact NO-3**, implementation of noise reduction measures identified in **Mitigation Measure M-NO-3**: **Fixed Mechanical Equipment Noise Control for Building Operations**, pp. 3.D.48-3.D.49, would ensure compliance with noise ordinance standards, and the project's impact would be reduced to a less-than-significant level. As a result, the contribution of the proposed project or project variants to the significant cumulative operational noise impact is less than cumulatively considerable.

Offsite Traffic

Under a cumulative scenario, an assessment of traffic volumes during the PM peak hour along 22 roadway segments in the project site vicinity was performed. **Table 3.D.21: Modeled PM Peak Hour Traffic Noise Levels for the Most Impacted Locations Under Cumulative Scenario** presents the roadway segments that would experience potential substantial increases in ambient noise levels during the cumulative PM peak hour condition. Two roadway segments would exceed 3 dBA, which is considered a significant cumulative noise impact. Those streets are Mariposa Street between Hampshire Street and Potrero Avenue (from 274 trips to 590 trips) and Hampshire Street north of 17th Street (from 23 trips to 50 trips). It should be noted that there are no noise-sensitive receptors along Hampshire Street north of 17th Street, while noise-sensitive receptors (residential units at 2445 Mariposa Street) are located along Mariposa Street between Hampshire Street and Potrero Avenue.

As shown in **Table 3.D.21** below, none of the cumulative operational noise increase is attributable to the proposed project or project variants along Hampshire Street north of 17th Street; and 0.8 dBA of the cumulative increase is attributable to the proposed project or project variants along Mariposa Street between Hampshire Street and Potrero Avenue, which is below the 3-dBA significance threshold. Therefore, the contribution of the proposed project or project variants to the significant cumulative noise increase is not considerable.

Table 3.D.21: Modeled PM Peak Hour Traffic Noise Levels for the Most Impacted Locations Under Cumulative Scenario, dBA L_{eq} At 50 Feet

Road Segment	(A) Existing Traffic Noise Levels NOTE A	(B) Cumulative Traffic Noise Levels NOTE A	(C) Cumulative Plus Project Traffic Noise Levels NOTE A	(C-A) Difference Between Cumulative Plus Project and Existing NOTE B	(C-B) Difference Between Cumulative Plus Project and Cumulative NOTE C
Mariposa Street between Hampshire Street and Potrero Avenue	58.6	61.2	62.0	3.4	0.8
Hampshire Street north of 17th Street	45.6	49	49	3.4	0

Notes:

[A] Noise levels were determined using Federal Highway Administration TNM Lookup tool, version 2.5. Traffic noise model outputs are included in **EIR Appendix F-4**. Road center to receptor distance is approximately 50 feet. Consistent with the traffic study, the analysis assumed 97 percent automobile and 3 percent heavy truck under the existing, cumulative, and cumulative plus project conditions for Mariposa Street between Hampshire Street and Potrero Avenue, and assumed 100 percent automobile for Hampshire Street north of 17th Street. Consistent with the traffic study, buses are classified as heavy vehicles. Traffic speeds were set at 30 mph.

[B] Considered significant if the incremental increase in noise from traffic is greater than the existing ambient noise level by 3 dBA L_{eq}.

[C] Considered significant if the project contribution is greater than 3 dBA L_{eq}.

Source: Operational and Cumulative Traffic Data and Operational and Cumulative Traffic Noise Model Outputs, 2020. See **EIR Appendix F-3** and **Appendix F-4**.

E. AIR QUALITY

INTRODUCTION

EIR Section 3.E, Air Quality, discusses the existing air quality conditions in the project area, presents the regulatory framework for air quality management, and analyzes the potential for the proposed project or project variants to affect existing air quality conditions, both regionally and locally, from activities that emit criteria air pollutant emissions, including emissions of toxic air contaminants such as diesel particulate matter. It analyzes the types and quantities of emissions that would be generated both on a temporary basis from proposed construction activities and over the long term from operation of the proposed project or project variants. The analysis determines whether those emissions are significant in relation to applicable air quality standards and identifies feasible mitigation measures for significant adverse impacts. This section also includes an assessment of potential odor impacts and an analysis of cumulative air quality impacts. The effects of greenhouse gas (GHG) emissions associated with the construction and operation of the proposed project or project variants and associated impacts on climate change and the City's and state's goals for GHG emissions are discussed in the initial study in **Section E.9, Greenhouse Gas Emissions** (see **EIR Appendix B**).

The analysis is based on a review of existing air quality conditions in the Bay Area region and air quality regulations administered by the U.S. Environmental Protection Agency (U.S. EPA), the California Air Resources Board (air resources board), and the Bay Area Air Quality Management District (air district or BAAQMD). This analysis includes methodologies identified in the air district's updated CEQA Air Quality Guidelines[1] and its companion documentation. Calculations were prepared to quantitatively assess the air quality contributions of the proposed project (see **EIR Appendix G: Air Quality Calculation Details and Supporting Information**); this information forms the basis of much of the assessment of air quality impacts presented herein.[2]

The analytical methodologies and approaches are described under "Approach to Analysis" on pp. 3.E.31-3.E.41, and in the Air Quality and Health Risk Assessment Methodology included in **EIR Appendix G**. The approximately three- to four-year construction program would constitute maximum development on the site, with construction estimated to start in 2023 and continue

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1 Bay Area Air Quality Management District (BAAQMD), CEQA Air Quality Guidelines, updated May 2017, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en,* accessed May 5, 2021.

2 Separate calculations for each project variant are not provided because the four project variants constitute minor changes: relocation of an internal bus ramp and development of active use on 17th street, the relocation of the emergency bus exit from 17th Street to Hampshire Street, the shifting of a residential lobby from Mariposa Street to Hampshire Street, and a change in the development program to reduce the space allocated for the retail commercial use and introduce a new childcare or other employee and family support use. The project variants' emissions would be substantially similar to those of the proposed project.

through 2026. Although the construction program is defined as occurring over approximately three to four years, for purposes of CEQA the construction and operational air quality emissions analysis assumes a three-year timeframe as it is the most conservative (or worst case) analysis. This is because a shorter construction period results in nearby sensitive receptors being exposed to higher average daily pollutant emissions than if those same construction emissions were spread out over a longer construction period.

Issues identified in public comments to the Notice of Preparation (NOP) of an Environmental Impact Report and Notice of a Public Scoping Meeting (**EIR Appendix A**) related to the proposed project's physical environmental impacts were considered in preparing this analysis. There were no NOP comments related to air quality (see **EIR Chapter 1, Introduction**, pp. 1.3-1.5).

ENVIRONMENTAL SETTING

CLIMATE AND METEOROLOGY

The project site is in the San Francisco Bay Area Air Basin (air basin). The air basin's moderate climate steers storm tracks away from the region for much of the year, although storms generally affect the region from November through April. San Francisco's proximity to the onshore breezes stimulated by the Pacific Ocean provides for generally very good air quality in the City.

Annual temperatures in the project area average in the mid-50s (degrees Fahrenheit), generally ranging from the low 40s on winter mornings to the mid-70s during summer afternoons. Daily and seasonal changes in temperature are small because of the moderating effects of nearby San Francisco Bay. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the "rainy" period from November through April. Precipitation may vary widely from year to year as a shift in the annual storm track of a few hundred miles can mean the difference between a very wet year and drought conditions.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants regionally. The project area is within the peninsula climatological subregion. Marine air traveling through the Golden Gate is a dominant weather factor affecting dispersal of air pollutants within the region. Westerly to northwesterly winds are the most frequent and strongest winds during all seasons. Existing wind speeds around the project site are approximately 13 miles per hour.[3] Increased temperatures create the conditions in which ozone formation can increase.

[3] RWDI, Potrero Yard Modernization Project Pedestrian Wind Study, September 4, 2020, p. 9 (see **EIR Appendix H**)

AMBIENT AIR QUALITY – CRITERIA AIR POLLUTANTS

As required by the 1970 Federal Clean Air Act, the U.S. EPA initially identified six criteria air pollutants that are pervasive in urban environments and for which state and federal health-based ambient air quality standards have been established. The U.S. EPA calls these pollutants "criteria air pollutants," because it has regulated them by developing specific public health-based and welfare-based criteria for setting permissible levels. Ozone, carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead are the six criteria air pollutants originally identified by the U.S. EPA. Since adoption of the 1970 act, subsets of PM have been identified for which permissible levels have been established. These include PM of 10 microns in diameter or less (PM_{10}) and PM of 2.5 microns in diameter or less ($PM_{2.5}$).

The air district is the regional agency with jurisdiction for regulating air quality within the nine-county San Francisco Bay Area Air Basin. The region's air quality monitoring network provides information on ambient concentrations of criteria air pollutants at various locations in the San Francisco Bay Area. **Table 3.E.1: Summary of San Francisco Air Quality Monitoring Data (2015-2019)** presents a five-year summary of the highest annual criteria air pollutant concentrations, recorded at the air quality monitoring station operated and maintained by the air district at 16th and Arkansas streets (Potrero Hill), approximately 0.55 mile east of the project site. **Table 3.E.1** also compares measured pollutant concentrations with the most stringent applicable ambient air quality standards (state or federal). These concentrations are health-based standards established with an ample margin of safety. To determine attainment with air quality standards, exceedances are assessed on a region-wide basis. Concentrations shown in boldface type in the table indicate only a localized exceedance of the standard and not an air basin-wide exceedance of the standard.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG, also sometimes referred to as "volatile organic compounds" [VOCs] by some regulatory agencies) and oxides of nitrogen (NOx) in the presence of sunlight. The main sources of ROG and NOx, often referred to as "ozone precursors," are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels.

In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a "regional air pollutant" because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.

Table 3.E.1: Summary of San Francisco Air Quality Monitoring Data (2015-2019)

Pollutant	Most Stringent Applicable Standard	Maximum Concentrations Measured and Number of Days Standards Were Exceeded NOTE A				
		2015	2016	2017	2018	2019
Ozone						
Maximum 1-Hour Concentration (ppm)	>0.09 NOTE B	0.085	0.070	0.087	0.065	0.091
Days 1-Hour Standard Exceeded		0	0	0	0	0
Maximum 8-Hour Concentration (ppm)	>0.070 NOTES B & C	0.067	0.057	0.054	0.049	**0.073**
Days 8-Hour Standard Exceeded		0	0	0	0	1
Carbon Monoxide (CO)						
Maximum 1-Hour Concentration (ppm)	>20 NOTE B	1.8	1.7	2.5	1.9	1.2
Days 1-Hour Standard Exceeded		0	0	0	0	0
Maximum 8-Hour Concentration (ppm)	>9.0 NOTES B & C	1.3	1.1	1.4	1.6	1.0
Days 8-Hour Standard Exceeded		0	0	0	0	0
Respirable Particulate Matter (PM_{10})						
Maximum 24-Hour Concentration (µg/m^3)	>50 NOTE B	47	29	**77**	43	42
Days 24-Hour Standard Exceeded NOTE D		0	0	2	0	0
Fine Particulate Matter ($PM_{2.5}$)						
Maximum 24-Hour Concentration (µg/m^3)	>35 NOTE C	**35.4**	19.6	**49.9**	**177.4**	25.4
Days 24-Hour Standard Exceeded		0	0	7	14	0
Annual Average (µg/m^3)	>12 NOTES B & C	7.6	7.5	9.7	11.7	7.7
Nitrogen Dioxide (NO_2)						
Maximum 1-Hour Concentration (ppm)	>0.100 NOTE C	0.071	0.058	0.073	0.069	0.061
Days 1-Hour Standard Exceeded		0	0	0	0	0

Notes: **Boldface** values are in excess of applicable standard; ppm = parts per million; µg/m3 = micrograms per cubic meter; > = greater than

[A] Number of days exceeded is for all days in a given year, except for PM_{10}, which has been monitored once every 12 days as of January 2013.

[B] State standard, not to be exceeded.

[C] Federal standard, not to be exceeded.

[D] Based on a sampling schedule of 1 out of every 12 days, for a total of approximately 30 samples per year.

Source: BAAQMD, Annual Bay Area Air Pollution Quality Summaries, 2015-2019, *https://www.baaqmd.gov/about-air-quality/air-quality-summaries*, accessed November 9, 2020.

According to published data, and as shown in **Table 3.E.1**, p. 3.E.4, the most stringent applicable standards for ozone (state 1-hour standard of 0.09 parts per million [ppm] and the federal 8-hour standard of 0.070 ppm) were not exceeded in San Francisco between 2015 and 2018. In 2019 the federal 8-hour ozone standard was exceeded once. In 2015, the U.S. EPA strengthened the 8-hour ozone standard to 0.070 ppm, and the new standard became effective December 28, 2015.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal. As shown in **Table 3.E.1**, the more stringent state CO standards were not exceeded between 2015 and 2019. Measurements of CO indicate hourly maximums ranging between approximately 6 and 13 percent of the more stringent state standard, and maximum 8-hour CO levels that are approximately 11 to 18 percent of the allowable 8-hour standard.

Particulate Matter

Particulate matter is a class of air pollutants that consists of a complex mix of solid and liquid airborne particles from human-made and natural sources. Particulate matter is measured in two size ranges: PM_{10} and $PM_{2.5}$. In the Bay Area, motor vehicles generate about one-half of the air basin's particulates through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to the air resources board, studies in the United States and elsewhere "have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks," and studies of children's health in California have demonstrated that particle pollution "may significantly reduce lung function growth in children."[4] The air resources board also reports that statewide attainment of PM standards could prevent thousands of premature deaths, lower hospital admissions for cardiovascular and respiratory disease and asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California.[5]

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4 California Air Resources Board, Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution, November 2007, p. 1.

5 California Air Resources Board, Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution, November 2007, p. 1.

Among the criteria pollutants that are regulated, particulates appear to represent a serious ongoing health hazard. As long ago as 1999, the air district was reporting, in its CEQA Air Quality Guidelines, that studies had shown that elevated particulate levels contribute to the death of approximately 200 to 500 people per year in the Bay Area. $PM_{2.5}$ is of particular concern because epidemiological[6] studies have demonstrated that people who live near freeways, especially people who live within 500 feet of freeways or high-traffic roadways and are exposed to vehicle-emitted $PM_{2.5}$, have poorer health outcomes, including increased asthma symptoms and respiratory infections and decreased pulmonary function and lung development in children.[7]

As shown in **Table 3.E.1**, p. 3.E.4, the state 24-hour PM_{10} standard was exceeded on two monitored occasions between 2015 and 2019 in San Francisco (both in 2017 during the wildfire period in the counties to the north of San Francisco). It may be conservatively estimated that the state 24-hour PM_{10} standard of 50 micrograms per cubic meter ($\mu g/m^3$) was exceeded on up to 24 days per year between 2015 and 2019.[8] The federal 24-hour $PM_{2.5}$ standard was exceeded on 21 monitored occasions between 2015 and 2019 in San Francisco. The federal and state annual average standards were not exceeded between 2015 and 2019. Starting in 2017 increasing levels of $PM_{2.5}$ levels were recorded, with the most notable increase in 2018 because of a very active and extreme wildfire season. Although not as notable in 2019, these events have become more frequent and extreme as evidenced in 2020 in which the entire Bay Area and much of California experienced one of the largest and most extreme wildfire seasons in recorded California history in terms of the number of wildfires, acres burned, and damage. The extreme nature of recent wildfires is increasingly a result of changing weather patterns including higher temperatures, decreasing rainfall, and shifting winds that result in low moisture content in trees and plants and high flammability. The health effects of this exposure include eye and throat irritation, coughing, and difficulty breathing; all of which could exacerbate the health effects on persons with asthma or other pre-existing respiratory conditions and also for those who may have contracted COVID-19. The long-term health effects of COVID-19 on the respiratory system are unknown but may be compounded by PM exposure. The public health response to these potentially overlapping environmental conditions continues to focus on the importance of staying inside during extreme wildfire events.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation,

6 Epidemiology is a branch of medical science that deals with the incidence, distribution, and control of disease in a population.
7 San Francisco Department of Public Health (SFDPH), Assessment and Mitigation of Air Pollutant Health Effect from Intra-urban Roadways: Guidance for Land Use Planning and Environmental Review, May 2008, p. 7.
8 PM_{10} was sampled every twelfth day; therefore, actual days over the standard can be estimated to be up to twelve times the numbers listed in the table. $PM_{2.5}$ is continuously monitored.

NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of the air on high-pollution days, especially in conjunction with high ozone levels. The current state 1-hour standard for NO_2 (0.18 ppm) is being met in San Francisco. In 2010, the U.S. EPA implemented a new 1-hour NO_2 standard (0.10 ppm), which is presented in **Table 3.E.2: State and Federal Ambient Air Quality Standards and Attainment Status for the San Francisco Bay Area Air Basin**. Currently, the air resources board is recommending that the San Francisco Bay Area Air Basin be designated as an attainment area for the new standard.[9] As shown in **Table 3.E.1**, p. 3.E.4, this new federal standard was not exceeded at the San Francisco station between 2015 and 2019.

Table 3.E.2: State and Federal Ambient Air Quality Standards and Attainment Status for the San Francisco Bay Area Air Basin

Pollutant	**Averaging Time**	**State (CAAQS NOTE A)**		**Federal (NAAQS NOTE B)**	
		Standard	**Attainment Status**	**Standard**	**Attainment Status**
Ozone	1-hour	0.09 ppm	**N**	NA	See **NOTE C**
	8-hour	0.070 ppm	**N**	0.070 ppm NOTE D	**N**; See **NOTE E**
Carbon Monoxide (CO)	1-hour	20 ppm	A	35 ppm	A
	8-hour	9 ppm	A	9 ppm	A
Nitrogen Dioxide (NO_2)	1-hour	0.18 ppm	A	0.100 ppm	See **NOTE F**
	Annual	0.030 ppm	NA	0.053 ppm	A
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm	A	0.075 ppm	See **NOTE G**
	24-hour	0.04 ppm	A	0.14 ppm	See **NOTE G**
	Annual	NA	NA	0.03 ppm	See **NOTE G**
Particulate Matter (PM_{10})	24-hour	50 $\mu g/m^3$	**N**	150 $\mu g/m^3$	U
	Annual NOTE H	20 $\mu g/m^3$	**N** NOTE I	NA	NA; See **NOTE J**
Fine Particulate Matter ($PM_{2.5}$)	24-hour	NA	NA	35 $\mu g/m^3$	**N**; See **NOTE K**
	Annual	12 $\mu g/m^3$	**N** NOTE I	12 $\mu g/m^3$	U/A; See **NOTE L**
Sulfates	24-hour	25 $\mu g/m^3$	A	NA	NA
Lead	30-day	1.5 $\mu g/m^3$	A	NA	NA
	Cal. Quarter	NA	NA	1.5 $\mu g/m^3$	A
	Rolling 3-month average	NA	NA	0.15	U; See **NOTE M**
Hydrogen Sulfide	1-hour	0.03 ppm	U	NA	NA
Visibility-Reducing Particles	8-hour	See **NOTE N**	U	NA	NA

9 California Air Resources Board, Recommended Area Designations for the 2010 Nitrogen Dioxide Standards, Technical Support Document, January 2011, *https://www.epa.gov/sites/production/files/2016-04/documents/09carec2.pdf*, accessed May 5, 2021.

Notes: A = Attainment; **N** = Non-attainment; U = Unclassified; NA = Not Applicable, no applicable standard; ppm = parts per million; µg/m^3 = micrograms per cubic meter

[A] CAAQS = state ambient air quality standards (California). CAAQS for ozone, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour), NO_2, PM, and visibility-reducing particles are values that are not to be exceeded. All other state standards shown are values not to be equaled or exceeded.

[B] NAAQS = national ambient air quality standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the 3-year average of the fourth highest daily concentration is 0.07 ppm or less. The 24-hour PM_{10} standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one on average over a 3-year period. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of the 98th percentile is equal to or less than the standard.

[C] The U.S. EPA revoked the national 1-hour ozone standard on June 15, 2005.

[D] This federal 8-hour ozone standard was approved by U.S. EPA in October 2015 and became effective on December 28, 2015.

[E] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. U.S. EPA made recommendations on attainment designations for California on October 3, 2016. In July 2018 the U.S. EPA finalized area designations. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.

[F] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

[G] On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS, however, must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO_2 NAAQS. U.S. EPA classified the San Francisco Bay Area Air Basin as being in Attainment/Unclassifiable in January 2018 (Federal Register Vol. 83, No. 6, pp. 1098-1172).

[H] State standard = annual geometric mean; national standard = annual arithmetic mean.

[I] In June 2002, the California Air Resources Board established new annual standards for $PM_{2.5}$ and PM_{10}.

[J] The U.S. EPA revoked the annual PM_{10} NAAQS in 2006.

[K] On January 9, 2013, the U.S. EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This U.S. EPA rule suspends key state implementation plan requirements as long as monitoring data continue to show that the Bay Area attains the standard. Despite this U.S. EPA action, the Bay Area will continue to be designated as “non-attainment” for the national 24-hour $PM_{2.5}$ standard until such time as the air district submits a “redesignation request” and a “maintenance plan” to the U.S. EPA, and U.S. EPA approves the proposed redesignation.

[L] In December 2012, the U.S. EPA strengthened the annual $PM_{2.5}$ NAAQS from 15 to 12 µg/m^3. In December 2014, the U.S. EPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated “unclassifiable/attainment” must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

[M] National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

[N] Statewide visibility-reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Sources: BAAQMD, Standards and Attainment Status, last updated January 5, 2017, *https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status*, accessed November 9, 2020; U.S. EPA National Ambient Air Quality Standards, last updated December 20, 2016, *https://www.epa.gov/criteria-air-pollutants/naaqs-table*, accessed November 9, 2020.

The U.S. EPA has also established requirements for a new monitoring network to measure NO_2 concentrations near major roadways in urban areas with a population of 500,000 or more. Sixteen new near-roadway monitoring sites are required in California, three of which are in the Bay Area. These monitors are located in Berkeley, Oakland, and San Jose. The Oakland station commenced operation in February 2014, the San Jose station in March 2015, and the Berkeley station in

July 2016.[10] The new monitoring data may result in a need to change area designations in the future. The air resources board will revise the area designation recommendations, as appropriate, once the new monitoring data become available.

Sulfur Dioxide

SO_2 is a colorless, acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease.[11] Pollutant trends suggest that the San Francisco Bay Area Air Basin currently meets and will continue to meet the state standard for SO_2 for the foreseeable future.

In 2010, the U.S. EPA implemented a new 1-hour SO_2 standard, which is presented in **Table 3.E.2**, pp. 3.E.7-3.E.8. The U.S. EPA initially designated the air basin as an attainment area for SO_2. Similar to the new federal standard for NO_2, the U.S. EPA established requirements for a new monitoring network to measure SO_2 concentrations beginning in January 2013.[12] No additional SO_2 monitors are required for the Bay Area because the air district's jurisdiction has never been designated as non-attainment for SO_2 and no state implementation plans or maintenance plans have been prepared for SO_2. The U.S. EPA designated the entire state as attainment/unclassifiable as of December 2017.[13]

Lead

Leaded gasoline (phased out from use in automobiles in the United States beginning in 1973), paint (on older houses, cars), smelters (metal refineries), and manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has a range of adverse neurotoxic health effects, which put children at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline in automobiles was eliminated.

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[10] BAAQMD, 2019 Air Monitoring Network Plan, July 1, 2019, pp. 38-42, *https://www.baaqmd.gov/~/media/files/technical-services/2019_network_plan-pdf.pdf?la=en*, accessed September 17, 2020.

[11] BAAQMD, CEQA Air Quality Guidelines, May 2017, p. C-16, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en*, accessed May 5, 2021.

[12] U.S. Environmental Protection Agency (U.S. EPA), Fact Sheet: Revisions to the Primary National Ambient Air Quality Standard, Monitoring Network, and Data Reporting Requirements for Sulfur Dioxide, June 2, 2010, *https://www.epa.gov/sites/production/files/2016-05/documents/final_primary_naaqs_factsheet.pdf,* accessed May 5, 2021.

[13] BAAQMD, 2019 Air Monitoring Network Plan, July 1, 2019, p. 34-36, *https://www.baaqmd.gov/~/media/files/technical-services/2019_network_plan-pdf.pdf?la=en*, accessed May 5, 2021.

Ambient lead concentrations are monitored only on an as-warranted, site-specific basis in California. On October 15, 2008, the U.S. EPA strengthened the national ambient air quality standard for lead by lowering it from 1.50 $\mu g/m^3$ to 0.15 $\mu g/m^3$ on a rolling three-month average. The U.S. EPA revised the monitoring requirements for lead in December 2010.[14] These requirements focus on airports and large urban areas and resulted in an increase in 76 monitors nationally. In the Bay Area, lead monitoring stations are located at Reid-Hillview Airport and at 158 East Jackson Street, both in San Jose. Another lead monitoring station, at San Carlos Airport, was discontinued as of April 11, 2017.

Air Quality Index

The U.S. EPA developed the Air Quality Index (AQI) scale to make the public health impacts of air pollution concentrations easily understandable. The AQI, much like an air quality "thermometer," translates daily air pollution concentrations into a number on a scale between 0 and 500 and assigns the number to one of the following six color-coded ranges that rank air quality:

- **Good (Green, AQI = 0–50):** Air quality is considered satisfactory, and air pollution poses little or no risk.
- **Moderate (Yellow, AQI = 51–100):** Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution. Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion.
- **Unhealthy for Sensitive Groups (Orange, AQI = 101–150):** Although the general public is not likely to be affected at this AQI range, people with lung disease as well as older adults and children are at a greater risk from exposure to ozone, whereas persons with heart and lung disease, older adults, and children are at greater risk from the presence of particles in the air. Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged or heavy outdoor exertion.
- **Unhealthy (Red, AQI = 151–200):** Everyone may begin to experience some adverse health effects, and members of the sensitive groups may experience more serious effects. Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
- **Very Unhealthy (Purple, AQI = 201–300):** The rating of "very unhealthy" air quality would trigger a health alert signifying that everyone may experience more serious health effects. Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit outdoor exertion.

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[14] U.S. EPA, Fact Sheet: Revisions to Lead Ambient Air Quality Monitoring Requirements, *https://www.epa.gov/sites/production/files/2016-03/documents/leadmonitoring_finalrule_factsheet.pdf,* accessed May 5, 2021.

- **Hazardous (Maroon, AQI = 301–500):** The rating of "hazardous" air quality would trigger health warnings of emergency conditions. The entire population is more likely to be affected. Everyone, especially children, should limit outdoor exertion.

The AQI numbers refer to specific amounts of pollution in the air. They are based on the federal air quality standards for ozone, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. In most cases, the federal standard for these air pollutants corresponds to the number 100 on the AQI chart. If the concentration of any of these pollutants rises above its respective standard, the air quality can be unhealthy for the public. In determining the air quality forecast, local air districts, including the Bay Area Air Quality Management District, use the anticipated concentration measurements for each of the major pollutants, convert them into AQI numbers, and determine the highest AQI for each zone in a district.

Readings below 100 on the AQI scale would not typically affect the health of the general public (although readings in the moderate range of 50 to 100 may affect unusually sensitive people). Levels above 300 rarely occur in the United States. AQI statistics over recent years indicate that air quality in the Bay Area is predominantly in the "Good" or "Moderate" categories and is healthy on most days for most people. Historical air district data indicate that the San Francisco Bay Area Air Basin experienced air quality in the red level (unhealthy) on 24 days between 2016 and 2019.[15] A number of these unhealthy days are attributable to the increasing frequency of wildfires. In the Bay Area the fire season generally occurs between May and October with the peak period between July and October when dry winds blow and prior to the first significant precipitation of the fall or winter; however, those parameters are shifting with climate change. The 2017 wildfires in northern California resulted in violations of the federal 24-hour $PM_{2.5}$ standard on seven days in September and October, as reported at the air district's Arkansas Street Station in San Francisco. The 2018 wildfires in northern California also resulted in violations, with one day reported in August and 12 days in November.[16] There were no recorded violations of the federal 24-hour $PM_{2.5}$ standard in 2019.

The August and September 2020 wildfires in northern California and in other parts of the state resulted in violations of the federal 24-hour $PM_{2.5}$ standard, although data for 2020 have yet to be tabulated by the air resources board and BAAQMD. Even though the air district's data have not been validated yet, these levels of $PM_{2.5}$ in many counties have been the highest levels recorded in

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[15] BAAQMD, Air Quality Index for Fine Particulate Matter ($PM_{2.5}$), 2016-2019, *https://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data/#/aqi?id=316&date=2016-01-01&view=daily*, accessed November 9, 2020.

[16] BAAQMD, Final Particulate Matter Daily Measurements (San Francisco - Arkansas Street Station), October 2017, *https://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data/#/airp?id=316&style=table&zone=-1&date=2017-10-01&view=daily*, and November 2018, *https://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data/#/airp?id=316&style=table&zone=-1&date=2018-11-01&view=daily*, accessed November 9, 2020.

recent times. As a result, the AQI in several neighboring counties reached the "very unhealthy" designation, ranging from values of 201 to 300. During that period, the air district issued over 30 "Spare the Air" alerts and recommended that individuals stay inside with windows closed and refrain from significant outdoor activity.[17] Wildfires appear to be occurring with increasing frequency in California and the Bay Area as climate changes (since 2000, 17 of the state's 20 largest wildfires and 16 of the state's 20 most destructive fires on record have occurred).[18]

As shown in **Table 3.E.3: Air Quality Index Statistics for the San Francisco Bay Area Air Basin**, the air basin had a total of 15 orange-level (unhealthy for sensitive groups) days in 2016, 9 days in 2017, 10 days in 2018, and 10 days in 2019. Between 2016 and 2019, the air basin experienced a total of 19 red-level (unhealthy) days and eight purple-level (very unhealthy) days, the latter of which were likely caused by the October 2017 and November 2018 wildfires.

Table 3.E.3: Air Quality Index Statistics for the San Francisco Bay Area Air Basin

Air Quality Index Levels	Number of Days by Year			
	2016	2017	2018	2019
Unhealthy for Sensitive Groups (Orange)	15	9	10	10
Unhealthy (Red)	2	9	8	0
Very Unhealthy (Purple)	0	3	5	0

Source: BAAQMD, Air Quality Index, 2016-2019, *https://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data/#/aqi-highs?date=2016-01-01&view=daily*, accessed November 9, 2020.

TOXIC AIR CONTAMINANTS AND LOCAL HEALTH RISKS AND HAZARDS

In addition to criteria air pollutants, individual projects may emit toxic air contaminants (TACs). TACs collectively refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but short-term) adverse effects on human health, including carcinogenic effects.[19] Human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

Unlike criteria air pollutants, TACs are not subject to ambient air quality standards but are regulated by the air district using a risk-based approach to determine which sources and pollutants to control

[17] BAAQMD, Data and Records, *https://www.sparetheair.org/understanding-air-quality/data-and-records/pm-data* and *https://www.sparetheair.org/understanding-air-quality/data-and-records/ozone-data*, accessed September 14, 2020.

[18] Cal Fire, Stats & Events, Top 20 Largest California Wildfires, April 28, 2021, *https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf*, and Top 20 Most Destructive California Wildfires, April 28, 2021, *https://www.fire.ca.gov/media/t1rdhizr/top20_destruction.pdf*, accessed April 28, 2021.

[19] "Carcinogenic" indicates that scientific studies have shown that exposure to a substance or mixture of substances at certain levels for some period of time has the potential to promote the formation of cancer.

as well as the degree of control. A health risk assessment is an analysis that estimates human health exposure to toxic substances and, when considered together with information regarding the toxic potency of the substances, provides quantitative estimates of health risks.[20]

Exposures to fine PM ($PM_{2.5}$) are strongly associated with mortality, respiratory diseases, and impaired lung development in children, as well as other end results, such as hospitalization for cardiopulmonary disease.[21] In addition to $PM_{2.5}$, diesel PM (DPM), a byproduct of diesel fuel combustion, is also of concern. The air resources board identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans.[22] The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the region.

San Francisco Modeling of Air Pollution Exposure Zones

In an effort to identify areas of San Francisco most adversely affected by sources of TACs, the planning and public health departments partnered with the air district to inventory and assess air pollution and exposures from on-road vehicles, permitted stationary sources, Caltrain passenger diesel locomotives, ships and harbor craft, and ferry boats within San Francisco. Citywide air quality dispersion modeling was conducted using the U.S. EPA's atmospheric dispersion modeling system (AERMOD)[23] to estimate concentrations of PM_{10} (DPM is assumed equivalent to PM_{10}), $PM_{2.5}$, and total organic gases (TOG) on a 20-by-20-meter receptor grid covering the entire city. The citywide modeling results were used to support the San Francisco Citywide Health Risk Assessment (Citywide health risk assessment), which is a comprehensive assessment of existing cumulative exposures to air pollution throughout the city. The methodology and technical documentation for modeling citywide air pollution are available in the San Francisco Citywide Health Risk Assessment: Technical Support Documentation.[24]

Modeling results from the Citywide health risk assessment were used to identify areas in the city with poor air quality, termed Air Pollutant Exposure Zones (APEZs), based on the following health-

[20] In general, a health risk assessment is required if the air district concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk. The applicant is then subject to a health risk assessment for the source in question. Such an assessment generally evaluates chronic, long-term effects, estimating the increased risk of cancer as a result of exposure to one or more TACs.

[21] SFDPH, Assessment and Mitigation of Air Pollutant Health Effects from Intra-Urban Roadways: Guidance for Land Use Planning and Environmental Review, May 2008.

[22] California Air Resources Board, Fact Sheet: The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines, October 1998.

[23] AERMOD is the U.S. EPA's preferred or recommended steady state air dispersion plume model. For more information on AERMOD and to download the AERMOD Implementation Guide, *https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models*, accessed September 18, 2020.

[24] San Francisco Department of Public Health, 2020, San Francisco Citywide Health Risk Assessment: Technical Support Documentation, September 2020.

protective criteria: (1) cumulative $PM_{2.5}$ concentrations equal to or greater than 10 $\mu g/m^3$; and/or (2) excess cancer risk from the contribution of emissions from all modeled sources equal to or greater than 100 per 1 million persons exposed.

A health vulnerability layer was incorporated in the APEZ for those San Francisco ZIP codes in the worst quintile of Bay Area Health Vulnerability scores (ZIP Codes 94102, 94103, 94110, 94124, and 94134). In these areas, the standard for identifying areas as being within the APEZ were lowered to (1) excess cancer risk from the contribution of emissions from all modeled sources equal to or greater than 90 per 1 million persons exposed; and/or (2) cumulative $PM_{2.5}$ concentrations greater than 9 $\mu g/m^3$.

Lastly, all parcels within 500 feet of a major freeway were also included in the APEZ, consistent with findings in the air resources board's Air Quality and Land Use Handbook: A Community Health Perspective, which suggests air pollutant levels decrease substantially at approximately 500 feet from a freeway.[25]

Based on the modeling results of the Citywide health risk assessment, the project site is in a mapped APEZ and is located within a heath vulnerable zip code.[26] All parcels within 1,000 feet of the project site are also in the mapped APEZ. The following provides additional support for the APEZ criteria discussed above.

Fine Particulate Matter

In April 2011, the U.S. EPA published Policy Assessment for the Particulate Matter Review of the National Ambient Air Quality Standards. In this document, U.S. EPA staff conclude that the then-current federal annual $PM_{2.5}$ standard of 15 $\mu g/m^3$ should be revised to a level within the range of 13 to 11 $\mu g/m^3$, with evidence strongly supporting a standard within the range of 12 to 11 $\mu g/m^3$. In December 2012, the U.S. EPA strengthened the annual $PM_{2.5}$ standard from 15 to 12 $\mu g/m^3$ and issued final area designations based on that standard. The U.S. EPA published a new policy assessment in January 2020.[27] The policy assessment did not include recommendations to change the standards for particulate matter. APEZs for San Francisco are based on the health-protective $PM_{2.5}$ standard of 11 $\mu g/m^3$, as supported by the U.S. EPA's Policy Assessment for the Particulate

[25] California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005, *http://www.arb.ca.gov/ch/handbook.pdf*, accessed May 5, 2021.

[26] San Francisco Planning Department, Property Information Map, Air Pollution Exposure Zone (2020), *https://sfplanninggis.org/pim/map.html?search=2500%20Mariposa%20street&layers=Air%20Pollutant%20Exposure%20Zone*, accessed on May 5, 2021.

[27] U.S. EPA, Policy Assessment for the Review of the National Ambient Air Quality Standards for Particulate Matter, January 2020, *https://www.epa.gov/sites/production/files/2020-01/documents/final_policy_assessment_for_the_review_of_the_pm_naaqs_01-2020.pdf*, and *https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm*, accessed November 9, 2020.

Matter Review of the National Ambient Air Quality Standards, although lowered to 10 µg/m^3 to account for uncertainty in accurately predicting air pollutant concentrations using emissions modeling programs.

Excess Cancer Risk

The 100-per-1-million-persons-exposed (100 excess cancer risk) criterion discussed in "San Francisco Modeling of Air Pollution Exposure Zones," pp. 3.E.13-3.E.14, is based on U.S. EPA guidance for conducting air toxic analyses and making risk management decisions at the facility and community-scale level.[28] As described by the air district, the U.S. EPA considers a cancer risk of 100 per 1 million or less to be within the "acceptable" range of cancer risk. Furthermore, in the 1989 preamble to the benzene National Emissions Standards for Hazardous Air Pollutants rulemaking,[29] the U.S. EPA states that it "…strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately one in one million and (2) limiting to no higher than approximately one in ten thousand [100 in one million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years." The 100-per-1-million-excess-cancer-cases criterion is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on the air district's regional modeling.[30]

In addition to monitoring criteria pollutants, both the air district and the air resources board operate TAC monitoring networks in the San Francisco Bay Area Air Basin. These stations measure 10 to 15 TACs, depending on the station. The TACs selected for monitoring are those that traditionally have been found in the highest concentrations in ambient air and therefore tend to produce the most significant risk. The air district's ambient TAC monitoring station nearest to the project site is at 10 Arkansas Street, San Francisco, approximately 0.5 mile east of the project site. The ambient concentrations of carcinogenic TACs measured at the Arkansas Street station are presented in **Table 3.E.4: 2018 Annual Average Ambient Concentrations of Carcinogenic Toxic Air Measured at BAAQMD Monitoring Station, 10 Arkansas Street, San Francisco**. The estimated cancer risk from a lifetime exposure (70 years) to these substances is also shown. When TAC measurements at this station are compared to ambient concentrations of various TACs for the Bay Area as a whole, the cancer risks associated with mean TAC concentrations in San Francisco are similar to those for the Bay Area as a whole. Therefore, the estimated average lifetime cancer risk

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28 BAAQMD, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009, p. 67, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en,* accessed September 18, 2020.
29 54 Federal Register 38044, September 14, 1989.
30 BAAQMD, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009, p. 67.

resulting from exposure to TAC concentrations monitored at the San Francisco station does not appear to be any greater than that for the Bay Area as a region.

Table 3.E.4: 2018 Annual Average Ambient Concentrations of Carcinogenic Toxic Air Contaminants Measured at BAAQMD Monitoring Station, 10 Arkansas Street, San Francisco

Substance	Concentration	Cancer Risk per Million [NOTE A]
Gaseous TACs (ppb)		
Acetaldehyde [NOTE B]	0.69	10
Benzene	0.189	49
1,3-Butadiene	0.033	36
Carbon Tetrachloride	0.072	55
Chloroform	0.022	2
Para-Dichlorobenzene	*	*
cis-1,3-Dichloropropene	0.05	10
trans-1,3-Dichloropropene	0.05	10
Ethyl Benzene	0.11	3
Ethylene Dibromide	*	*
Ethylene Dichloride	*	*
Formaldehyde [NOTE B]	1.64	35
Methyl Tertiary-Butyl Ether (MTBE)	*	*
Methylene Chloride	0.099	1
Perchloroethylene	0.008	1
Trichloroethylene	0.010	0.3
Polycyclic Aromatic Hydrocarbons (ng/m^3)		
Benzo(a)pyrene	*	*
Benzo(b)fluoranthene	*	*
Benzo(k)fluoranthene	*	*
Dibenz(a,h)anthracene	*	*
Indeno(1,2,3-cd)pyrene	*	*
Particulate TACs (ng/m^3)		
Arsenic [NOTE A]	0.92	9
Beryllium [NOTE B]	0.150	1
Cadmium [NOTE B]	0.70	9
Chromium (Hexavalent) [NOTE B]	0.045	19
Lead	*	*
Nickel [NOTE B]	3.2	2
Total Risk for All TACs		**252.3**

Notes: TACs = toxic air contaminants; BAAQMD = Bay Area Air Quality Management District; ppb = part per billion; ng/m^3 = nanograms per cubic meter; *= indicates that insufficient or no data were available to determine the value

[A] Cancer risks were estimated by applying published unit risk values to the measured concentrations. The potential cancer risk estimates reflect the most recent risk assessment methodology finalized by the Office of Environmental Health Hazard Assessment on March 6, 2015. Information on the agency's new risk assessment methodology can be found at *http://www.oehha.ca.gov/air/hot_spots/hotspots2015.html*.

[B] Reported concentrations and cancer risks are from 2017.

Source: California Air Resources Board, Annual Toxics Summaries by Monitoring Sites, *https://www.arb.ca.gov/adam/toxics/sitesubstance.html*, accessed September 18, 2020.

Roadway-Related Pollutants

Motor vehicles are responsible for a large share of air pollution, especially in California. Vehicle tailpipe emissions contain diverse forms of particles and gases, and vehicles also contribute to particulates by generating road dust through tire wear. Epidemiological studies have demonstrated that people living close to freeways or busy roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections, and decreased pulmonary function and lung development in children. Air pollution monitoring conducted in conjunction with epidemiological studies has confirmed that roadway-related health effects vary with modeled exposure to PM and NO_2. In traffic-related studies, the additional non-cancer health risk attributable to roadway proximity was seen within 1,000 feet of the roadway and was strongest within 300 feet.[31] As a result, the air resources board recommends that new sensitive land uses not be located within 500 feet of a freeway or urban roads carrying 100,000 vehicles per day.

Diesel Particulate Matter

As stated on p. 3.E.13, the air resources board identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways. The air resources board estimated that, as of 2000, the average Bay Area cancer risk from exposure to DPM, based on a population-weighted average ambient DPM concentration, is approximately 480 in 1 million, which is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. The average statewide cancer risk from DPM as determined by the air resources board declined from 750 in 1 million in 1990 to 540 in 1 million in 2000.[32,33] By 2012, the air resources board estimated the average statewide cancer risk from DPM at 520 in 1 million.[34]

In 2000, the air resources board approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. Subsequent

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31 California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005, *https://www.arb.ca.gov/ch/handbook.pdf,* accessed May 5, 2021.

32 California Air Resources Board, California Almanac of Emissions and Air Quality - 2009 Edition, Table 5-44 and Figure 5-12.

33 This calculated cancer risk value from ambient air exposure in the Bay Area can be compared against the lifetime probability of being diagnosed with cancer in the United States, from all causes, which for women is more than 38 percent and for men is more than 40 percent (based on a sampling of 17 regions nationwide), or roughly greater than 380,000 to 400,000 in 1 million, according to the American Cancer Society. American Cancer Society, last revised January 13, 2020, *http://www.cancer.org/cancer/cancerbasics/lifetime-probability-of-developing-or-dying-from-cancer,* accessed September 18, 2020.

34 California Air Resources Board, Overview: Diesel Exhaust and Health, *https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health*, accessed September 18, 2020.

regulations approved by the air resources board apply to new trucks and diesel fuel. With new controls and fuel requirements, a medium-heavy duty or heavy-heavy duty truck built in 2010 or later would have particulate exhaust emissions that are over 50 times lower than a medium-heavy duty or heavy-heavy duty truck built before 1990.[35] The regulations are anticipated to result in an 80 percent decrease in statewide diesel health risk in 2020 as compared with the diesel risk in 2000. Despite notable emission reductions, the air resources board recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. The air resources board notes that these recommendations are advisory and should not be interpreted as defined "buffer zones," and that local agencies must balance other considerations, including transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. The position of the air resources board is that with careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary, infill development, mixed-use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level.[36]

SENSITIVE RECEPTORS

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Population subgroups sensitive to the health effects of air pollutants include the elderly and the young; those with higher rates of respiratory disease, such as asthma and chronic obstructive pulmonary disease; and those with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. The air district defines sensitive receptors as children, adults, and seniors occupying or residing in residential dwellings, schools, daycare centers, hospitals, and senior-care facilities. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration to ensure the health and well-being of their employees.[37]

The proximity of sensitive receptors to motor vehicles is an air pollution concern, especially in San Francisco where building setbacks are limited and roadway volumes are higher than in most other parts of the Bay Area. Vehicles also contribute to particulates by generating road dust and through tire wear.

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35 Pollution Engineering, New Clean Diesel Fuel Rules Start, July 2006, and California Air Resources Board, Evaluation of Particulate Matter Filters in On-Road Heavy-Duty Diesel Vehicle Applications, May 8, 2015, p. 23, *https://ww3.arb.ca.gov/msprog/onrdiesel/documents/dpfeval.pdf*, accessed May 5, 2021.

36 California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005, *http://www.arb.ca.gov/ch/handbook.pdf,* accessed May 5, 2021.

37 BAAQMD, Recommended Methods for Screening and Modeling Local Risks and Hazards, May 2011, p. 12.

Existing receptors evaluated in this analysis include a representative sample of known residents (children and adults) in the surrounding neighborhood, and other sensitive receptors (school children, daycare facilities, etc.) located in the surrounding community and along the expected travel routes of the on-road delivery and haul trucks in the project vicinity. The health risk impact analysis includes receptor locations within a 1,000-foot radius from the project site, which is conservative because the maximum impacts identified from the construction and operation of the proposed project or project variants would be closer to the emissions sources and adjacent to the site (see **Figure 3.D.1**, p. 3.D.9, in **EIR Section 3.D, Noise and Vibration**). In addition to the residential receptors, two daycare facilities and a middle school were identified within 1,000 feet of the project site, as follows:

- Sweet Peas Preschool at 2730 17th Street is approximately 240 feet west.
- Brightworks School at 1960 Bryant Street is approximately 280 feet south.
- Las Luciernagas Preschool at 2095 Harrison Street is approximately 745 feet west.

These above-noted sensitive receptors were not evaluated separately from residences because the residences are closer to the project site and are assumed to include children of comparable ages who would be exposed to higher pollutant concentrations for a longer duration than the daycare and middle school facilities, and are therefore expected to have greater health impacts. The analysis also assumes residents are at their residences and exposed to the project's emissions for 30 years, as recommended by California Office of Environmental Health Hazard Assessment (OEHHA) health risk guidelines.

As stated on p. 3.E.14, the project site is located within an area that meets the APEZ criteria and is also located within a heath vulnerable ZIP code. Background cancer risk values on the project site are between about 144 and 178 in a million, with background values ranging from about 107 to 450 in 1 million within 1,000 feet of the site.[38] Background $PM_{2.5}$ concentrations range from about 9.9 to 11.5 $\mu g/m^3$ on the project site, with background values varying between about 9.2 to 16.9 $\mu g/m^3$ within 1,000 feet of the site.

EXISTING STATIONARY SOURCES OF AIR POLLUTION

The air district's inventory of permitted stationary sources of emissions shows approximately eight permitted stationary emission sources within or near the 1,000-foot zone of influence[39] of the project site. These sources include gasoline dispensing facilities, auto body coating, sterilizers, spray booths, a clay kiln, and a coffer roster. Of these sources, emissions from the gasoline

[38] San Francisco Department of Public Health, 2020, APEZ 2020 Geodatabase.

[39] For assessing community risks and hazards, an area of influence, i.e., a 1,000-foot radius distance buffer around the project site boundary, is recommended. The air district recommends that any proposed project that includes the siting of a new emissions source assess associated impacts to sensitive receptors within 1,000 feet.

dispending facilities result in the largest estimated cancer risk and $PM_{2.5}$ concentrations in the project vicinity. All of these sources contribute to the background levels of cancer risk and $PM_{2.5}$ concentration discussed on p. 3.E.14.

MAJOR ROADWAYS CONTRIBUTING TO AIR POLLUTION

U.S. 101 is the only freeway or major roadway within 1,000 feet of the project site with more than 30,000 vehicles in annual average daily traffic, based on data provided by the BAAQMD.[40] This traffic contributes to concentrations of $PM_{2.5}$, DPM, and other air contaminants emitted from motor vehicles near the street level. Aside from the surrounding major roadways, there are no other areas of mobile-source activity or otherwise “non-permitted” sources (e.g., railyards, trucking distribution facilities, and high-volume fueling stations) located within 1,000 feet of the project site.

REGULATORY FRAMEWORK

FEDERAL REGULATIONS

Federal Clean Air Act

The 1970 Clean Air Act (last amended in 1990) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants are planned to be controlled in order to achieve all standards by the deadlines specified in the act. These ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an ample margin of safety) to which the public can be exposed without adverse health effects. They are designed in consideration of those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards without observing adverse health effects.

The current attainment status for the San Francisco Bay Area Air Basin, with respect to federal standards, is summarized in **Table 3.E.2**, pp. 3.E.7-3.E.8. In general, the air basin experiences low concentrations of most pollutants when compared to federal standards, except for ozone and PM (PM_{10} and $PM_{2.5}$) for which standards are exceeded periodically (see **Table 3.E.1**, p. 3.E.4).

40 BAAQMD, 2019 Raster files with health risk values modeled for all highways/freeways and roadways with over 30,000 AADT, May 6, 2020.

Emission Standards for New Off-Road Equipment

Before 1994, there were no standards to limit the amount of emissions from off-road equipment, which includes construction equipment. In 1994, the U.S. EPA established emission standards for hydrocarbons, NOx, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by the U.S. EPA, as well as by the air resources board. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

STATE REGULATIONS

California Clean Air Act

Although the Federal Clean Air Act established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own air quality standards when federal standards were established, and because of the unique meteorological problems in California, there is considerable diversity between the state and national ambient air quality standards, as shown in **Table 3.E.2**, pp. 3.E.7-3.E.8. California ambient standards are at least as protective as national ambient standards and are often more stringent.

In 1988, California passed the California Clean Air Act (California Health and Safety Code sections 39600 et seq.), which, like its federal counterpart, required the designation of areas as attainment or non-attainment, but based these designations on state ambient air quality standards rather than the federal standards. As indicated in **Table 3.E.2**, the San Francisco Bay Area Air Basin is designated as “non-attainment” for state ozone, PM_{10}, and $PM_{2.5}$ standards, and as “attainment” or “unclassified” for other pollutants.

Toxic Air Contaminants

In 2005, the air resources board approved a regulatory measure to reduce emissions of toxic and criteria pollutants by limiting the idling of new heavy-duty diesel vehicles. The regulations generally limit idling of commercial motor vehicles (including buses and trucks) within 100 feet of a school or residential area for more than five consecutive minutes or periods aggregating more than five minutes in any one hour. Buses or vehicles also must turn off their engines upon stopping at a school and must not turn their engines on more than 30 seconds before beginning to depart from a school. Also, state law Senate Bill 352 was adopted in 2003 and limits locating public schools within 500 feet of a freeway or busy traffic corridor (Education Code section 17213; Public Resources Code section 21151.8).

Tanner Air Toxics Act and Air Toxics Hot Spots Information and Assessment Act

TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (Assembly Bill 2588), also known as the Hot Spots Act. To date, the air resources board has identified more than 21 TACs and has adopted the U.S. EPA's list of hazardous air pollutants as TACs.

California Air Resources Board's In-Use Off-Road Diesel-Fueled Fleets Regulation

In 2007, the air resources board adopted a regulation to reduce diesel PM and NOx emissions from in-use off-road heavy-duty diesel vehicles in California.[41] The regulation imposes limits on vehicle idling and requires fleets to reduce emissions by retiring, replacing, repowering, or installing exhaust retrofits on older engines. In December 2010, major amendments were made to the regulation, including a delay of the first performance standards compliance date to no earlier than January 1, 2014.

Title 24 (Building Energy Efficiency Standards)

Title 24 of the California Code of Regulations is the means by which California regulates energy consumption. The Title 24 Building Energy Efficiency Standards apply to energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and nonresidential buildings. The Title 24 standards, first adopted by the California Energy Commission in 1978, are updated periodically to incorporate new energy efficiency technologies and methods.

The California Green Building Standards Code was adopted as part of Title 24 in 2008 and was last updated in 2019. The code establishes voluntary standards for planning and design for energy efficiency (in excess of the California Energy Code requirements), water efficiency and conservation, material conservation and resource efficiency, sustainable site development, and internal air contaminants and more.

The California Energy Code (Title 24, Part 6, Building Energy Efficiency Standards, effective January 1, 2020)[42] includes the 2019 Energy Standards which focus on three key areas: residential photovoltaic systems, residential and nonresidential ventilation requirements, and nonresidential lighting requirements. For ventilation, the updates will increase air filtration requirements to a Minimum Efficiency Reporting Value (MERV) of 13, necessary for filtering out the smallest category of potentially harmful particulates. This filtration requirement applies to all habitable

[41] California Code of Regulations, title 13, sections 2449, 2449.1, 2449.2, and 2449.3.
[42] California Energy Commission, 2019 Building Energy Efficiency Standards, 2019, *https://ww2.energy.ca.gov/2018publications/CEC-400-2018-020/CEC-400-2018-020-CMF.pdf*, accessed September 20, 2020.

spaces in high-rise residential buildings[43], hotel/motel buildings, and nonresidential buildings other than healthcare facilities that are mechanically heated or mechanically cooled.

The filtration requirement reduces indoor exposure to particulate matter including DPM and thus will reduce cancer risk to occupants of applicable buildings for which an application for a building permit or renewal of an existing permit is filed after January 1, 2020.

California Green Buildings Standards Code (CALGreen)

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24) was adopted as part of the California Building Standards Code (Title 24 California Code of Regulations). The 2019 California Green Building Standards Code (24 California Code of Regulations, Part 11), also known as the CALGreen Code, contains mandatory requirements for new residential and nonresidential buildings (including buildings for retail, office, public schools, and hospitals) throughout California. The development of the CALGreen Code is intended to reduce energy and water consumption, reduce construction waste, make buildings more efficient in the use of materials and energy, and reduce environmental impacts during and after construction.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others.

REGIONAL REGULATIONS AND PLANS

Bay Area Air Quality Management District

The Bay Area Air Quality Management District is the regional agency with jurisdiction over the nine-county region located in the San Francisco Bay Area Air Basin. The Association of Bay Area Governments, Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various non-governmental organizations also participate in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs. The air district is responsible for attaining and maintaining air quality in the region within federal and state air quality standards. Specifically, the air district has the responsibility to monitor ambient air pollutant levels throughout the region and to develop and implement strategies to attain the applicable federal and state standards.

[43] A high-rise residential building is defined as a building, other than a hotel/motel, of Occupancy Group R-2 or R-4 with four or more habitable stories.

The air district does not have authority to regulate emissions from motor vehicles. Specific rules and regulations adopted by the air district limit the emissions that can be generated by various stationary sources and identify specific pollution reduction measures that must be implemented in association with various activities. These rules regulate not only emissions of the six criteria air pollutants, but TAC emissions sources are also subject to these rules and are regulated through the district's permitting process and standards of operation.

Through this permitting process, including an annual permit review, the air district monitors the generation of stationary emissions and uses this information in developing its air quality plans. Any sources of stationary emissions constructed as part of the proposed project would be subject to the air district's Rules and Regulations. Both federal and state ozone plans rely heavily on stationary source control measures set forth in the air district's Rules and Regulations.

A list of some of the applicable air district rules is provided below:

- **Regulation 2, Rule 2 (New Source Review)**: This regulation contains requirements for best available control technology and emissions offsets.
- **Regulation 2, Rule 5 (New Source Review of TACs)**: This regulation outlines guidance for evaluating TAC emissions and their potential health risks.
- **Regulation 6, Rule 1 (Particulate Matter)**: This regulation restricts emissions of particulate matter darker than No. 1 on the Ringlemann Chart to less than three minutes in any one hour.
- **Regulation 7 (Odorous Substances)**: This regulation establishes general odor limitations on odorous substances and specific emissions limitations on certain odorous compounds.
- **Regulation 8, Rule 3 (Architectural Coatings)**: This regulation limits the quantity of VOCs in architectural coatings.
- **Regulation 9, Rule 8 (Stationary Internal-Combustion Engines)**: This regulation limits emissions of NOx and CO from stationary internal-combustion engines of more than 50 horsepower (hp).
- **Regulation 11, Rule 2 (Hazardous Pollutants)**: This regulation limits emissions of asbestos during demolition, renovation, milling, and manufacturing and establishes appropriate waste disposal procedures.

In accordance with its Engineering Division Policy and Procedure Manual,[44] the air district requires implementation of best available control technology for toxics and would deny an authority to construct or a permit to operate for any new or modified source of TACs that exceeds a cancer risk of 10 in 1 million or a chronic or acute hazard index of 1.0. The permitting process under the air district's Regulation 2, Rule 5 requires a health risk screening analysis, the results of which are posted on the air district's website.

[44] BAAQMD, Engineering Division Policy and Procedure Manual, September 2015, *http://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/engineering-policy-and-procedure-manual.pdf?la=en*, accessed May 5, 2021.

The air district regulates back-up emergency generators, fire pumps, and other sources of TACs through its New Source Review (Regulation 2, Rule 5) permitting process.[45] Although emergency generators are intended to be used only during periods of power outages, monthly testing of each generator is required; however, the air district limits testing to no more than 50 hours per year. Each emergency generator installed is assumed to meet a minimum of Tier 2 emission standards (before control measures). As part of the permitting process, the air district limits the excess cancer risk from any facility to no more than 10 per 1 million population for any permits that are applied for within a two-year period and would require any source that would result in an excess cancer risk greater than 1 per 1 million to install Best Available Control Technology for Toxics.

Several air district regulations and rules apply to odorous emissions. Regulation 1, rule 301 is a nuisance provision that states that sources cannot emit air contaminants that cause nuisance to a considerable number of persons. Regulation 7 specifies limits for the discharge of odorous substances where the air district receives complaints from 10 or more complainants within a 90-day period.

Bay Area Air Quality Planning Relative to State and Federal Standards

FEDERAL AIR QUALITY PLAN

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The federal and state clean air acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM_{10} standard). The BAAQMD adopted the Bay Area Ozone Attainment Plan in 2001 in response to U.S. EPA's finding that the Bay Area had failed to attain the national ambient air quality standard for ozone. The plan includes a control strategy for ozone and its precursors to ensure a reduction in emissions from stationary sources, mobile sources, and the transportation sector.[46]

CALIFORNIA AIR QUALITY PLAN

Bay Area plans addressing state standards are prepared with the cooperation of BAAQMD, the MTC, and the Association of Bay Area Governments (ABAG). In April 2017, the air district adopted the 2017 Bay Area Clean Air Plan[47] whose primary goals are to protect public health and

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[45] BAAQMD, Regulation 2, Permits; Rule 5, New Source Review of Toxic Air Contaminants, December 2016, *https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-rule-5-new-source-review-of-toxic-air-contaminants/documents/rg0205_120716-pdf.pdf?la=en*, accessed May 5, 2021.

[46] BAAQMD, Revised San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard, adopted October 24, 2001, *http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2001-ozone-attainment-plan/oap_2001.pdf*, accessed May 5, 2021.

[47] BAAQMD, 2017 Bay Area Clean Air Plan: Spare the Air, Cool the Climate. A Blueprint for Clean Air and Climate Protection in the Bay Area, April 19, 2017, *http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en,* accessed May 5, 2021.

to protect the climate. The plan includes a wide range of proposed control measures to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. The 2017 Bay Area Clean Air Plan updates the 2010 Bay Area Clean Air Plan and complies with state air quality planning requirements as codified in the California Health and Safety Code. The San Francisco Bay Area Air Basin is designated nonattainment for both the one- and eight-hour state ozone standards. In addition, emissions of ozone precursors in the air basin contribute to air quality problems in neighboring air basins. Under these circumstances, state law requires the Clean Air Plan to include all feasible measures to reduce emissions of ozone precursors and to reduce the transport of ozone precursors to neighboring air basins.

The 2017 Bay Area Clean Air Plan contains 85 measures to address reduction of several pollutants: ozone precursors, particulate matter, air toxics, and/or GHGs. Other measures focus on a single type of pollutant, potent GHGs such as methane and black carbon, or harmful fine particles that affect public health. These control strategies are grouped into the following categories:

- Stationary Source Measures
- Transportation Control Measures
- Energy Control Measures
- Building Control Measures
- Agricultural Control Measures
- Natural and Working Lands Control Measures
- Waste Management Control Measures
- Water Control Measures
- Super-GHG Control Measures

To fulfill federal air quality planning requirements, the air district adopted a $PM_{2.5}$ emissions inventory for year 2010 at a public hearing on November 7, 2012. The 2017 Bay Area Clean Air Plan also included several measures for reducing PM emissions from stationary sources and wood burning. On January 9, 2013, the U.S. EPA issued a final rule determining that the Bay Area has attained the 24-hour $PM_{2.5}$ national ambient air quality standard, suspending federal State Implementation Plan planning requirements for the San Francisco Bay Area Air Basin.[48] Despite this U.S. EPA action, the air basin will continue to be designated as non-attainment for the national 24-hour $PM_{2.5}$ standard until the air district submits a redesignation request and a maintenance plan to the U.S. EPA, and the U.S. EPA approves the proposed redesignation.

[48] U.S. EPA, Determination of Attainment for the San Francisco Bay Area Nonattainment Area for the 2006 Fine Particle Standard; California; Determination Regarding Applicability of Clean Air Act Requirements, January 9, 2013, *https://www.federalregister.gov/documents/2013/01/09/2013-00170/determination-of-attainment-for-the-san-francisco-bay-area-nonattainment-area-for-the-2006-fine*, accessed May 5, 2021.

Association of Bay Area Governments and Metropolitan Transportation Commission Plan Bay Area

On July 18, 2013, the MTC and ABAG approved Plan Bay Area. Plan Bay Area includes integrated land use and transportation strategies for the region and was developed through OneBayArea, a joint initiative between ABAG, the air district, the MTC, and the San Francisco Bay Conservation and Development Commission. The plan's transportation policies focus on maintaining the extensive existing transportation network and using these systems more efficiently to handle density in Bay Area transportation cores.[49] Assumptions for land use development are from local and regional planning documents. Emission forecasts in the 2017 Bay Area Clean Air Plan rely on projections of vehicle miles traveled, population, employment, and land use projections made by local jurisdictions during development of Plan Bay Area.

In July 2017, the MTC and ABAG adopted Plan Bay Area 2040. The updated plan addresses housing and economic issues and provides strategies to address the area's transportation and land use goals. The plan's land use and transportation pattern achieve the two mandated requirements for a reduction in per-capita CO_2 emissions from passenger vehicles and adequate housing for the Bay Area's expected population growth through 2040.[50] In spring 2018 the MTC and ABAG initiated the planning process for the update to the 2017 plan: Plan Bay Area 2050.[51] This update outlines the strategic framework for growth and investment through 2050 using the recently adopted 2020 Regional Growth Forecast.[52] Plan Bay Area 2050 includes 35 strategic transportation, housing, economic, and environmental policy initiatives and/or investment strategies to sustainably guide the region to 2050. The impacts of the plan's proposed regional pattern of household and employment growth, transportation investments, and resilience investments will be assessed as part of a program-level environmental review.[53] The Notice of Preparation for the Draft EIR for Plan Bay Area 2050 (Regional Transportation Plan/Sustainable Communities Strategy for the Nine-County San Francisco Bay Area) was published on September 28, 2020, initiating a 30-day review

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[49] Association of Bay Area Governments and Metropolitan Transportation Commission, Plan Bay Area: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area, 2013-2040, adopted July 18, 2013, *https://mtc.ca.gov/our-work/plans-projects/plan-bay-area-2040/plan-bay-area*, accessed May 5, 2021.

[50] Association of Bay Area Governments and Metropolitan Transportation Commission, Plan Bay Area 2040: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area, 2017–2040, adopted July 26, 2017, *https://www.planbayarea.org/plan-bay-area-2040*, accessed May 12, 2021.

[51] Association of Bay Area Governments and Metropolitan Transportation Commission, Plan Bay Area 2050, *https://www.planbayarea.org/plan-bay-area-2050-1*, accessed December 3, 2020.

[52] The 2020 regional growth forecast identifies how much the Bay Area might grow between Plan Bay Area 2050's baseline year (2015) and its horizon year (2050), including population, jobs, households and associated housing units.

[53] Association of Bay Area Governments and Metropolitan Transportation Commission, Plan Bay Area 2050, 2050 Plan, Environmental Impact Report, *https://www.planbayarea.org/draftEIR*, accessed June 25, 2021.

period that ended on October 28, 2020. A public scoping meeting was held on October 15, 2020. The Draft EIR is anticipated to be released in late spring/early summer 2021 with certification of the Final EIR in fall 2021.

LOCAL REGULATIONS AND PLANS

San Francisco General Plan Air Quality Element

The San Francisco General Plan (general plan) includes the 1997 Air Quality Element.[54] The objectives specified by the City include the following:

Objective 1: Adhere to state and federal air quality standards and regional programs.

Objective 2: Reduce mobile sources of air pollution through implementation of the Transportation Element of the General Plan.

Objective 3: Decrease the air quality impacts of development by coordination of land use and transportation decisions.

Objective 4: Improve air quality by increasing public awareness regarding the negative health effects of pollutants generated by stationary and mobile sources.

Objective 5: Minimize particulate matter emissions from road and construction sites.

Objective 6: Link the positive effects of energy conservation and waste management to emission reductions.

San Francisco Construction Dust Control Ordinance

Dust can be an irritant that causes watery eyes or lung, nose, or throat irritation. Demolition, excavation, grading, and other construction activities can cause wind-blown dust, which could contribute particulate matter to the local atmosphere. Depending on exposure, adverse health effects can result from this particulate matter in general as well as specific contaminants, such as lead or asbestos, which may be constituents of the soil. In response, the City adopted San Francisco Health Code article 22B[55] and San Francisco Building Code section 106.A.3.2.6[56], which collectively constitute the Construction Dust Control Ordinance. San Francisco Public Works (public works) has incorporated similar provisions in the San Francisco Building Code into public works order No. 171,378.[57] The ordinance requires that all site preparation work, demolition, or

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54 San Francisco Planning Department, Air Quality Element of the *San Francisco General Plan*, July 1997, updated in 2000.

55 San Francisco Department of Public Health, Article 22B: Construction Dust Control Requirements, July 2008, *https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_health/0-0-0-4199*, accessed December 3, 2020.

56 San Francisco Department of Building Inspections, Building Code section 106.A.3.2.6, *https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_building/0-0-0-92027*, accessed December 3, 2020.

57 San Francisco Public Works, Order No. 171,378, November 18, 1998, *http://sfpublicworks.org/sites/default/files/Public%20Works%20Order%20171%2C378.pdf*, accessed December 3, 2020.

other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures whether or not the activity requires a permit from the Department of Building Inspection. For projects over 0.5 acre, the Construction Dust Control Ordinance requires that the SFMTA and private project co-sponsor submit a dust control plan for approval by the San Francisco Department of Public Health prior to issuance of a building permit by the Department of Building Inspection.

Construction permits will not be issued without written notification from the Director of Public Health stating that the SFMTA and private project co-sponsor has a site-specific dust control plan unless the director waives the requirement. The Construction Dust Control Ordinance requires SFMTA and private project co-sponsor and contractors responsible for construction activities to control construction dust on the site or implement other practices that result in equivalent dust control that are acceptable to the Director of Public Health.

Dust suppression activities may include watering all active construction areas sufficiently to prevent dust from becoming airborne; increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water must be used if required by article 21, section 1100 et seq. of the San Francisco Public Works Code.

San Francisco Clean Construction Ordinance

In April 2007, the City adopted an ordinance requiring public projects to reduce emissions at construction sites starting in 2009. In March 2015, the City expanded the existing ordinance to require public projects to reduce emissions at construction sites in areas with high background concentrations of air pollutants. Establishment of the APEZ was used as the basis for approving a series of amendments to the San Francisco Environment and Administrative codes, generally referred to as the Clean Construction Ordinance, or Environment Code chapter 25 (Ordinance 28-15, effective April 19, 2015).[58] The purpose of the Clean Construction Ordinance is to protect the public health, safety, and welfare by requiring contractors on City projects to reduce diesel and other particulate matter emissions generated by construction activities. For projects located within a mapped APEZ, such as the proposed project or project variants, the Clean Construction Ordinance requires the items listed below.

Equipment Requirements

- Equipment must meet or exceed Tier 2 standards for off-road engines and operate with the most effective California Air Resources Board Verified Diesel Emissions Control Strategy (VDECS) available for the engine type (Tier 4 engines automatically meet this requirement).

[58] City and County of San Francisco, Clean Construction Ordinance, August 2015, *https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf*, accessed December 4, 2020.

- Portable diesel engines are prohibited where access to alternative sources of power is available.
- Idling of off-road and on-road equipment is limited to two minutes at any location, except as provided in applicable state regulations (e.g., traffic conditions, safe operating conditions). The contractor must post legible and visible signs in English, Spanish, and Chinese in designated queuing areas and at the construction site to remind operators of the two-minute idling limit.
- *Construction Emissions Minimization Plan*. A Construction Emissions Minimization Plan must be prepared before the start of construction. The plan is required to include estimates of the construction timeline by stage and a description of each piece of off-road equipment required for every construction stage (e.g., equipment type, manufacturer, identification number, model year, tier rating, horsepower, expected fuel usage, hours of operation). Additional details may be included for VDECS (e.g., technology type, serial number, make, model, manufacturer, California Air Resources Board verification number level). For off-road equipment using alternative fuels, the description must specify the type of alternative fuel being used.
- *Monitoring*. Monitoring and reporting actions are required during construction to document compliance with the ordinance.
- *Waivers*. Waivers to the requirements of the Clean Construction Ordinance can be issued under unusual circumstances (e.g., lack of available qualifying equipment).

San Francisco Health Code Provisions for Urban Infill Development (Article 38)

San Francisco adopted article 38 of the San Francisco Health Code (health code) in 2008, with revisions that took effect in December 2014. The revised code requires that sensitive land use developments within mapped APEZs incorporate MERV 13 or equivalent ventilation systems to remove particulates from outdoor air.[59] This regulation also applies to conversion of uses to a sensitive use (such as a residential use, a senior care facility, or a daycare center). Article 38 is applicable to the proposed project because the project proposes sensitive land uses and is located within a mapped APEZ.[60]

San Francisco Public Works Standard Construction Measures

As discussed in **EIR Chapter 2, Project Description**, p. 2.49, public works' Standard Construction Measures (SCMs) would apply to the proposed project or project variants (see **Table 2.3: San Francisco Public Works Standard Construction Measures**, pp. 2.50-2.53). The

[59] The MERV rating is a measurement scale designed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) to rate the effectiveness of air filters. The scale is designed to represent the worst-case performance of a filter when dealing with particles in the range of 0.3 to 10 micrometers. The MERV rating system ranges from 1 to 16, with higher MERV ratings correspond to a greater percentage of particles captured on each pass.

[60] San Francisco Planning Department, Property Information Map, Air Pollution Exposure Zone (2020), *https://sfplanninggis.org/pim/map.html?search=2500%20Mariposa%20street&layers=Air%20Pollutant%20Exposure%20Zone*, accessed May 5, 2021.

SFMTA and private project co-sponsor (the project sponsor team) would implement public works' SCMs as part of the proposed project or project variants, including the measures applicable to air quality. **SCM #2, Air Quality**, requires all projects to comply with the Construction Dust Control Ordinance, as described above on pp. 3.E.28-3.E.29. Major projects with more than 20 days of construction within a mapped APEZ such as the proposed project or project variants must also comply with the Clean Construction Ordinance, as described above on pp. 3.E.29-3.E.30. Also refer to **EIR Appendix C** for additional information on public works' **SCM #2, Air Quality**.

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the CEQA Guidelines, which has been modified by the San Francisco Planning Department. For this analysis, the following thresholds were used to determine whether implementing the proposed project or project variants would result in a significant impact related to air quality.

A project would have a significant effect on air quality if implementation of the project would do any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

APPROACH TO ANALYSIS

Project Features

In general, the proposed project or project variants would generate emissions of criteria air pollutants, ozone precursors, and TACs during construction and operations. All project construction activities would be completed prior to operation; therefore, there will be no overlap between project construction emissions and emissions occurring during project operations.

Proposed Construction

During construction, air quality impacts could result from operation of heavy-duty construction equipment, vehicle trips made by construction workers, truck hauling trips, and vendor truck trips. In addition, fugitive dust emissions would result from site disturbance, including grading and asphalt recycling, and fugitive ROG emissions would result from application of architectural coatings and paving.

For purposes of the construction air quality analysis, the proposed project or project variants was assumed to be constructed over a period of three years. Demolition would last about two months and site preparation, grading, and piling would last about five months. Installation of the foundation system would last about two months. Above-ground building construction, exterior finishing, and interior finishing would take a total of about 27 months, with some work overlap. Mobile equipment, such as excavators, graders, backhoes, loaders, dump trucks, forklifts, compactors, pavers, and cranes, would be used for demolition, site clearing, excavation, and grading, but also for building construction and/or hardscape and landscape materials installation. Miscellaneous stationary equipment would include generators, air compressors, and cement/mortar mixers. A variety of other smaller mechanical equipment would also be used at the project site during the construction period, such as jackhammers/pavement breakers, concrete/industrial saws cutters, impact drills, and concrete boom pumps. The proposed project or project variants would require pile driving. A list of construction equipment expected to be used for the proposed project or project variants by construction activity is shown in **EIR Appendix G-1, Air Quality and Health Risk Assessment Methodology**. The preliminary off-road construction equipment list (equipment roster by type, fuel use, and number) and assumed intensity of daily use of each type of off-road construction equipment provided by the SFMTA are estimates. There is a level of uncertainty, and these numbers may change as the project evolves and the private project co-sponsor provides detailed plans and/or any project refinements.

Construction-related activities would typically occur Monday through Saturday, between 7 a.m. and 8 p.m. as allowed in San Francisco, with most work occurring between Monday and Friday. Nighttime construction is anticipated for certain activities such as major concrete pours; however, construction on Sundays and major legal holidays is not anticipated. Throughout the construction period, construction staging would occur on site and on the surrounding sidewalks except for the first 12 months when the north side parking lane and westbound travel lane on Mariposa Street between Bryant and Hampshire streets would be closed to provide additional space for construction staging. Additionally, Hampshire Street between 17th and Mariposa streets would be partially closed on a temporary, as-needed basis to provide additional space for laydown and staging.

Project construction would also generate truck trips delivering concrete and other building materials, transporting construction equipment to and from the site, hauling soils and debris from the site, and for sweeping streets as part of construction site management and dust control.

Proposed Operation

Operation of the proposed project or project variants would begin as early as 2026. The proposed project or project variants would generate operational emissions from a variety of sources, including stationary sources (diesel emergency generators), area sources (consumer products, architectural coatings, and landscape equipment), and mobile sources (daily automobile and truck trips). The proposed project or project variants would not use natural gas and therefore would not include any natural gas-powered process boilers.

The proposed replacement transit facility would operate 24 hours per day, 7 days a week. Other key operational elements of the proposed project or project variants that could directly or indirectly result in air quality impacts include the following:

- Traffic increases would be associated with long-term development and would result in 3,208 daily and 226 weekday p.m. peak hour vehicle trips over existing conditions.[61]
- The proposed replacement transit facility would continue to use solvents for bus cleaning activities in accordance with the emission limitations described under the facility's existing BAAQMD Permit to Operate[62] (i.e., no net change in permissible solvent emissions is proposed or required).[63]
- The proposed replacement transit facility would include operation of two emergency diesel generators with a maximum power of about 1,000 kilowatts.
- Backup power for the proposed residential component of the joint development would include one emergency diesel generator with a maximum power of about 1,000 kilowatts.
- Other area sources would include consumer products, architectural coatings, and landscape equipment.
- Travel and idling emissions would be associated with daily delivery and service vehicle trips.

Additional information on the project's operational emissions sources is provided in **EIR Appendix G**.

The sustainability strategy of the SFMTA and private project co-sponsor would address onsite renewable energy capture as part of its Leadership in Energy and Environmental Design process, e.g., onsite solar photovoltaic systems. The proposed project or project variants would, at minimum, comply with the state's Title 24 energy efficiency requirements and the state Green Building Requirements (discussed above on p. 3.E.23). The proposed project or project variants would not include onsite parking aside from storage for SFMTA vehicles associated with the transit facility (213 buses and 97 non-revenue vehicles); all of which would be electric-powered vehicles. No parking would be provided for the SFMTA employees or for the commercial or residential land uses; however, the SFMTA and the private project co-sponsor would develop and implement a site-specific transportation demand management (TDM) program that would include measures to

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[61] Fehr & Peers and LCW Consulting, Travel Demand Estimates for the Potrero Yard Modernization Project, August 12, 2020, Table 6 (see **EIR Appendix E-4**).

[62] Bay Area Air Quality Management District Permit to Operation, Plant #9427, San Francisco Municipal Railway Potrero.

[63] There are no other existing sources of TAC emissions at Potrero Yard.

reduce vehicle trips and encourage sustainable modes of transportation including the provision of 12 car-share spaces. The TDM program may include both physical (e.g., bicycle and car-share parking) and programmatic (e.g., incentives) measures. In effect, the TDM program would reduce operational air pollutant emissions by reducing the number of vehicle trips that would otherwise be generated by the project. Key strategies in the TDM program include improved walking conditions and bike lanes, car-share parking, and other approaches to discourage use of single-occupant private vehicles. However, the impact of the TDM program was not quantified in this EIR due to a lack of certainty as to measurable effectiveness of the trip reduction measures. Thus, the criteria pollutant emissions reflect the project's impact without implementation of the TDM program.

As discussed above, the project site is located within a mapped APEZ. Therefore, the proposed sensitive land uses (residential uses and possibly childcare under the Employee and Family Support Variant to the project, described below) would be required to comply with Health Code article 38, which requires MERV-13 air filtration for all sensitive use developments in the APEZ.

Project Variants

The analysis of the proposed project adequately addresses the air quality impacts from the project variants (summarized below and described in more detail in **EIR Chapter 2, Project Description**, pp. 2.56-2.58) because the variants are minor relocations and site programming changes which do not affect the building construction or operations. Therefore, air pollutant emissions and associated health risks from the construction and operation of the proposed variants are anticipated to be the same as those from the proposed project.

Emergency Exit Relocation Variant: Relocation of the proposed emergency exit from 17th Street west of Hampshire Street to Hampshire Street south of 17th Street.

Joint Development Lobby Relocation Variant: Relocation of joint development lobby off Mariposa Street to Hampshire Street.

Active 17th Street Variant: Relocation of internal bus ramps from the north to south sides to allow the mix of joint development uses along 17th Street.

Employee and Family Support Variant: Site program revision to include childcare, or related use, in a portion of the space identified in the proposed project for ground-floor commercial use.

Methodology

In general, the proposed project would result in two types of potential air quality impacts. First, the project would result in air pollution through construction activity. Second, the project would generate air pollutants during project operations, due to increased vehicle travel and new stationary sources (i.e., up to three new emergency standby diesel generators). There would be no emissions overlap between project construction and project operations.

The impact analysis in this section was performed in accordance with the Air Quality and Health Risk Assessment Methodology prepared for the proposed project, which describes the methodology and assumptions for estimating criteria air pollutant emissions and TACs, and for assessing health risks during project construction and operations. The analysis assumes that requirements of public works' **SCM #2, Air Quality**, are included in construction contracts for the proposed project or project variants (see **EIR Appendix C**). A copy of the Air Quality and Health Risk Assessment Methodology, including the project-specific construction data, is provided in **EIR Appendix G-1**.

As described, the impact assessment employs the emission factors, models, and tools distributed by a variety of agencies, including the air resources board, the California Air Pollution Officers Association (CAPCOA), OEHHA, and U.S. EPA. Additionally, the analysis includes methods identified in the BAAQMD CEQA Air Quality Guidelines (May 2017). Additional detail on the project's construction and operational emissions sources is provided above under "Project Features."

The approach used to analyze the significance thresholds is discussed below.

Consistency with Air Quality Plan

The proposed project or project variants would be consistent with the 2017 Bay Area Clean Air Plan if it would support the plan's goals, incorporate applicable control measures into the project, and would not disrupt or hinder implementation of any control measures from the plan. Consistency with this plan is the basis for determining whether the proposed project or project variants would conflict with or obstruct implementation of an applicable air quality plan. This assessment addresses the first bulleted significance criterion identified above. See discussion under **Impact AQ-4**, pp. 3.E.60-3.E.63.

Regional and Local Air Quality Impacts

The proposed project or project variants would result in: (1) impacts from criteria air pollutant emissions, which are generally regional in nature, and (2) impacts associated with exposure to TACs and $PM_{2.5}$, which is a localized health impact expressed in terms of exposure to $PM_{2.5}$ annual average concentrations and the probability of contracting cancer per 100 in 1 million persons exposed to TAC concentrations. The assessment of criteria air pollutant impacts and localized health risk and exposure to $PM_{2.5}$ concentrations address the second and third bulleted significance criteria identified above.

CRITERIA AIR POLLUTANTS

As described above under "Regulatory Framework," p. 3.E.26, the San Francisco Bay Area Air Basin is designated as non-attainment for ozone, $PM_{2.5}$, and PM_{10}.

By definition, regional air pollution is largely a cumulative impact in that no single project is sufficient in size to, by itself, result in non-attainment of air quality standards. Instead, a project's individual emissions are considered to contribute to the existing, cumulative air quality conditions. If a project's contribution to cumulative air quality conditions is considerable, then the project's impact on air quality would be considered significant.[64] Given this, the impact analysis below does not include a separate cumulative criteria air pollutant impact discussion.

Table 3.E.5: Criteria Air Pollutant Significance Thresholds identifies quantitative criteria air pollutant significance thresholds. The table is followed by a discussion of each threshold. Projects that would result in criteria pollutant emissions above these significance thresholds would result in a cumulatively considerable net increase in non-attainment criteria air pollutants within the air basin (ozone precursors and PM). Both operational thresholds (average daily and maximum annual) apply to a given project. Construction emissions are assessed solely with respect to the average daily thresholds, pursuant to the air district's guidance, because of the generally temporary nature of construction-related emissions.[65]

The thresholds of significance for criteria air pollutants are based on substantial evidence presented in Appendix D of the 2017 BAAQMD CEQA Air Quality Guidelines and 2009 Revised Draft Options and Justification Report concerning CEQA thresholds.[66]

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[64] BAAQMD, CEQA Air Quality Guidelines, May 2017, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en*, accessed May 5, 2021.

[65] BAAQMD, CEQA Air Quality Guidelines, May 2017, p. 8-2, *http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en*, accessed May 5, 2021.

[66] BAAQMD, CEQA Air Quality Guidelines, May 2017, pp. 2-1 to 2-3 and Appendix D; BAAQMD, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009, pp. 16-17.

Table 3.E.5: Criteria Air Pollutant Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (pounds/day)	**Average Daily Emissions (pounds/day)**	**Maximum Annual Emissions (tons/year)**
ROG	54	54	10
NOx	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
Fugitive Dust	Construction Dust Control Ordinance or other best management practices	Not Applicable	

Note: lb = pounds; NOx = nitrogen oxides; ROG = reactive organic gases; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter

Source: BAAQMD, CEQA Air Quality Guidelines, May 2017.

The potential for a project to result in a cumulatively considerable net increase in criteria air pollutants that may contribute to an existing or projected air quality violation is based on the emissions limits for stationary sources set by the California and Federal Clean Air Acts. To ensure that new stationary sources do not cause or contribute to a violation of an air quality standard, the air district's Regulation 2, Rule 2 requires that any new source that emits criteria air pollutants above a specified emissions limit must offset those emissions. For ozone precursors ROG and NOx, the offset emissions level is an annual average of 10 tons per year (or 54 pounds per day).[67] These levels represent emissions below which new sources are not anticipated to result in a considerable net increase in criteria air pollutants.

The Federal New Source Review program was created under the Federal Clean Air Act to ensure that stationary sources of air pollution are constructed in a manner that is consistent with attainment of federal health-based ambient air quality standards. For PM_{10} and $PM_{2.5}$, the emissions limits under the New Source Review program are 15 tons per year (82 pounds per day) and 10 tons per year (54 pounds per day), respectively. These emissions limits represent levels below which a source alone is not expected to have a significant impact on air quality.[68]

Although the regulations specified above apply to new or modified stationary sources, land use development projects generate ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions due to increases in vehicle trips, energy use, architectural coating, and construction activities. Therefore, the identified thresholds can be applied to the construction and operational phases of land use projects. Those

[67] BAAQMD, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009, p. 17.
[68] BAAQMD, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009, p. 16.

projects that would result in emissions below these thresholds would not result in a cumulatively considerable net increase in nonattainment criteria air pollutants (ozone precursors or PM).

Fugitive dust emissions are typically generated during construction phases. Studies have shown that the application of best management practices at construction sites can significantly control fugitive dust,[69] and individual measures have been shown to reduce fugitive dust by anywhere from 30 to 90 percent.[70] The air district has identified eight best management practices to control fugitive dust emissions from construction activities.[71] San Francisco's Construction Dust Control Ordinance requires a number of fugitive dust control measures to ensure that construction projects do not result in visible dust. The project would be subject to the requirements of the Construction Dust Control Ordinance, which is the basis for determining the significance of air quality impacts from fugitive dust emissions.

OTHER CRITERIA POLLUTANTS

Regional concentrations of CO and SO_2 in the Bay Area have not exceeded the state standards for over two decades. The primary source of CO emissions from development projects is vehicle traffic. Construction-related SO_2 emissions represent a negligible portion of the total basin-wide emissions, and construction-related CO emissions represent less than 5 percent of the Bay Area total basin-wide CO emissions. As discussed previously, the Bay Area is in attainment for both CO and SO_2. Furthermore, the air district has demonstrated, based on modeling, that to exceed the California ambient air quality standard of 9.0 ppm (8-hour average) or 20.0 ppm (1-hour average) for CO, project traffic in addition to existing traffic would need to exceed 44,000 vehicles per hour at affected intersections (or 24,000 vehicles per hour where vertical and/or horizontal mixing is limited[72]). The transportation analysis indicates that the proposed project would generate 226 net-new vehicle trips during the weekday p.m. peak hour.[73] The existing weekday p.m. peak hour traffic volume at the roadway segment with the greatest traffic volumes (Potrero Avenue between 16th and 17th streets) is 1,677 vehicles per hour (see **EIR Appendix F-3**). Similar traffic increases would be associated with long-term development of the project variants except for the Employee and Family Support Variant which would result in 278 weekday p.m. peak hour vehicle trips over existing conditions (52 more weekday p.m. peak hour trips than the proposed project or other variants). Therefore, the existing plus project or project variants traffic volumes at nearby intersections would be well below the screening criterion of 44,000 vehicles per hour. Given the

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69 Western Regional Air Partnership, WRAP Fugitive Dust Handbook, September 7, 2006 .
70 BAAQMD, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009, p. 27.
71 BAAQMD, CEQA Air Quality Guidelines, May 2011, p. 8-3.
72 Such as a tunnel, underpass, or urban canyon between buildings where free flow of air currents can be impeded.
73 Fehr & Peers and LCW Consulting, Travel Demand Estimates for the Potrero Yard Modernization Project, August 12, 2020, Table 6 (see **EIR Appendix E-4**).

Bay Area's attainment status and the limited CO and SO_2 emissions that could result from the proposed project or project variants, the proposed project or project variants would not result in a cumulatively considerable net increase in CO or SO_2, and a quantitative analysis is not required.

Local Health Risks and Hazards

In addition to criteria air pollutants, individual projects may emit TACs. The analysis of other toxic substances that may become airborne, such as naturally occurring asbestos, is presented in the initial study (see **EIR Appendix B**, **Section E.18, Hazards and Hazardous Materials**, **Impact HZ-2**, pp. 120-125).

As part of the environmental review for the proposed project and project variants, a health risk assessment was conducted to provide quantitative estimates of health risks from exposures to TACs. The results are summarized below and supporting calculations are detailed in **EIR Appendix G**. The health risk assessment examines all sensitive receptors within 1,000 feet of the project boundary. Air pollution dispersion modeling was used to identify areas with elevated air pollutant concentrations and higher exposures.

Exposure assessment guidance[74] establishes the assumption that people in residences would be exposed to air pollution 24 hours per day, 350 days per year, for 30 years as the basis for calculating cancer risk in any health risk assessment. Therefore, the assessment of air pollutant exposure to residents assumes residents are home all day most of the year for 30 years. This assumption typically results in the greatest adverse health outcomes of all population groups.

Additionally, in accordance with guidance from OEHHA,[75] the estimated excess lifetime cancer risk for a resident was adjusted using the age sensitivity factors recommended in the OEHHA Technical Support Document for Cancer Potency Factors.[76] This approach accounted for an "anticipated special sensitivity to carcinogens" of infants and children. Cancer risk estimates were weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to two years of age (labeled by OEHHA as "3rd trimester" and "0 < 2"), and by a factor of three for exposures that occur from two years through 15 years of age ("2 < 16"). No weighting factor (i.e., an age sensitivity factor of one, which is equivalent to no adjustment) was applied to ages 16 and

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74 Cal EPA, OEHHA, Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments, February 2015, *http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf* and *https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf*, accessed May 5, 2021.

75 Cal EPA, OEHHA, Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments, February 2015, February 2015, Chapter 8, *http://www.oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf* and *https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf*, accessed May 5, 2021.

76 Cal EPA, OEHHA, Technical Support Document for Cancer Potency Factors, May 2009, *https://oehha.ca.gov/air/crnr/technical-support-document-cancer-potency-factors-2009*, accessed May 5, 2021.

older. Therefore, the residential receptors are assumed to be infants when first exposed to construction period emissions.

The thresholds of significance used to evaluate health risks from new sources of TACs associated with construction and operation of the proposed project or project variants are based on the potential for the project to substantially increase the exposure of nearby sensitive receptors to TACs. As discussed previously on p. 3.E.14, the offsite receptors within 1,000 feet of the project site are within a mapped APEZ. Therefore, the project would be subject to significance thresholds that are lower (more stringent) than thresholds for projects located outside the APEZ. **Table 3.E.6: Health Risk Significance Thresholds** presents the health risk thresholds that are applied to projects within a mapped APEZ.

Table 3.E.6: Health Risk Significance Thresholds

	Significance Thresholds	
Affected Sensitive Receptors	**Excess Cancer Risk (per million)**	**$PM_{2.5}$ ($\mu g/m^3$)**
Project health risk contributions to sensitive receptor locations within the APEZ NOTE A	7.0	0.2

Notes: $PM_{2.5}$ = fine particulate matter; $\mu g/m^3$ = micrograms per cubic meter; APEZ = Air Pollutant Exposure Zone

A The air district identifies a project-level health risk threshold of an excess cancer risk of 10 per one million persons exposed and a $PM_{2.5}$ concentration of 0.3 $\mu g/m^3$. The planning department applies these more stringent (lower) thresholds for a project's contribution within the APEZ. A 0.2 $\mu g/m^3$ increase in $PM_{2.5}$ would result in a 0.28 percent increase in non-injury mortality or an increase of about 21 excess deaths per 1,000,000 population per year from non-injury causes in San Francisco. This information is based on Jerrett, M., et al., Spatial Analysis of Air Pollution and Mortality in Los Angeles, Epidemiology, 16:727-736, 2005. The excess cancer risk has been proportionally reduced to result in a significance criterion of 7 per 1 million persons exposed.

The health risk assessment evaluated the following receptor populations based on OEHHA 2015 guidelines for two scenarios, which are expected to have the highest impacts from the proposed project or project variants:

- **Scenario 1:** 30-year offsite residential exposure commencing at the start of proposed project construction and continuing through project operation; and
- **Scenario 2:** 30-year offsite residential exposure commencing at the time of project operation.

Under Scenario 1, offsite residential risks from construction emissions were added to residential risks associated with operational emissions from a combined total of 30 years of exposure, to ensure that the full impact of project construction and operation on nearby receptors was evaluated. Scenario 2 evaluated the impact on sensitive receptors from 30 years of exposure to operational emissions only (not construction of the proposed project). The 30-year exposure duration scenarios are consistent with OEHHA's guidance for evaluating cancer risk at the maximally exposed individual resident or receptor. Proposed onsite sensitive receptors, which include residents, and, under the Employee and Family Support Variant, a 9,000-gross-square-foot childcare facility, would not be exposed to construction period emissions and would therefore experience lower levels of pollutant exposure than the offsite residents under Scenario 1. Under the Employee and Family Support Variant, the childcare use would be an additional on-site sensitive receptor and would be sited along Bryant Street near 17th Street.

Cumulative Impacts

As discussed above, the contribution of a project's individual air emissions to regional air quality impacts is, by its nature, a cumulative effect. Therefore, no separate cumulative criteria air pollutant impact analysis is provided.

Similarly, the health risk assessment considers the cumulative contribution of localized health risks to sensitive receptors from sources included in the citywide health risk modeling plus the proposed project's sources. Additionally, cumulative projects, whose emissions have not been incorporated into the existing citywide health risk modeling, are also taken into consideration in the cumulative health risk assessment. However, unlike criteria air pollutants, health risks are localized impacts in that beyond 1,000 feet from an emission source, pollutant levels tend to return to background levels. Thus, cumulative health risks to nearby sensitive receptors were assessed based on existing and future foreseeable emissions sources within 1,000 feet of the project's maximally exposed individual resident. The health risk significance thresholds are presented in **Table 3.E.6**, p. 3.E.40.

Odor Impacts

This analysis evaluates whether the proposed project or project variants would create objectionable odors that would affect a substantial number of people (e.g., by introducing new land uses that are typically associated with odor complaints). The BAAQMD's 2017 CEQA Guidelines provide guidance, in the form of screening distances, to help evaluate potential odor impacts. They identify potential odor sources of particular concern, such as wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations, and metal smelters, and recommend buffer zones around them to avoid potential odor conflicts. The assessment of potential odor impacts addresses the fourth bulleted significance criterion identified above.

IMPACT EVALUATION

Impact AQ-1: During construction, the proposed project or project variants would not generate significant fugitive dust emissions, but would generate criteria air pollutant emissions at levels which would result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment. ***(Less than Significant with Mitigation)***

Project construction activities would generate emissions of ozone precursors (ROG and NOx), PM_{10}, and $PM_{2.5}$ from off-road construction equipment, on-road vehicles (worker vehicles, vendor trucks, concrete trucks, and haul trucks), and off-gassing from architectural coatings and asphalt paving. As discussed on pp. 3.E.1-3.E.2, a three-year construction period was used to provide a conservative (worst-case) analysis of average daily pollutant emissions. The preliminary construction program is described in **EIR Chapter 2, Project Description**, pp. 2.54-2.56, and a summary of the project-specific construction information is provided in **EIR Appendix G-2, Construction Criteria Air Pollutant Calculations and Supporting Documentation, Table G-2.3: Preliminary Project-Specific Construction Information**.

Fugitive Dust

Project-related demolition, excavation, grading, and other construction activities may cause wind-blown dust that could contribute PM to the local atmosphere. Despite the established federal standards for air pollutants and ongoing implementation of state and regional air quality control plans, air pollutants continue to have impacts on human health throughout the country.

Dust can be an irritant causing watering eyes or irritation to the lungs, nose, and throat. Depending on exposure, adverse health effects can occur due to PM in general as well as specific contaminants, such as lead or asbestos that may be constituents of dust.

In response to these concerns, the San Francisco Board of Supervisors approved a series of amendments to the San Francisco Building and Health Codes, generally referred hereto as the Construction Dust Control Ordinance (Ordinance 176-08, effective July 30, 2008), with the intent of reducing the quantity of dust generated during site preparation, demolition, and overall construction work in order to protect the health of the general public and onsite workers; to minimize public nuisance complaints; and to avoid orders to stop work by the Department of Building Inspection (building department). The building department will not issue a construction permit without written notification from the Director of Public Health that the applicant has an approved site-specific dust control plan.

In accordance with the Construction Dust Control Ordinance and public works' **SCM #2, Air Quality**, the SFMTA and private project co-sponsor will prepare a site-specific construction dust control plan for the 4.4-acre site for approval by the San Francisco Department of Public Health. Because the project site is within 1,000 feet of sensitive receptors, the site-specific dust control plan submitted to the Director of Public Health is required to include a map showing sensitive receptor locations. This plan also must contain the following measures specified in section 106.3.2.6.3 of the building code: designate an individual who will be responsible for monitoring compliance with dust control requirements; water all active construction areas sufficiently to prevent dust from becoming airborne, use reclaimed water whenever possible; during excavation and dirt-moving activities, wet sweep or vacuum streets and sidewalks where work is in process; cover any inactive stockpiles; and use dust enclosures, curtains, and dust collectors as necessary.

In addition, the site-specific dust control plan may require the SFMTA and private project co-sponsor to wet down areas of soil at least three times per day; provide an analysis of wind direction and install upwind and downwind particulate dust monitors; record particulate monitoring results; hire an independent, third-party to conduct inspections and keep a record of those inspections; establish shut-down conditions (based on wind, soil migration, etc.); establish a hotline for surrounding community members who may be potentially affected by project-related dust; limit the area subject to construction activities at any one time; install dust curtains and windbreaks at the property lines, as necessary; limit the amount of soil in hauling trucks to the size of the truck bed and securing with a tarpaulin; enforce a 15-mile-per-hour speed limit for vehicles entering and exiting construction areas; sweep affected streets with water sweepers at the end of the day; install and use wheel washers to clean truck tires; terminate construction activities when winds exceed 25 miles per hour; and sweep off adjacent streets to reduce particulate emissions. Inactive stockpiles (where no disturbance occurs for more than 7 days) greater than 10 cubic yards or 500 square feet of excavated material, backfill material, import material, gravel, sand, road base, and soil must be covered with a 10-mil (0.01-inch) polyethylene plastic (or equivalent) tarp and braced down, or other equivalent soil stabilization techniques should be used. Reclaimed water must be used for dust suppression watering, when required by article 21, section 1100 et seq. of the San Francisco Public Works Code. Contractors must provide as much water as necessary to control dust (without creating run-off in any area of land clearing, and/or earth movement). The San Francisco Public Utilities Commission operates a recycled water fill station at the Southeast Water Pollution Control Plant, which provides recycled water at no charge.[77]

Implementation of dust control measures in compliance with the public works' **SCM #2, Air Quality**, and regulations and procedures set forth by the San Francisco Construction Dust Control Ordinance would ensure that potential dust-related construction air quality impacts of the proposed project or project variants would be less than significant.

Regarding asbestos, as discussed in **Section E.18, Hazards and Hazardous Materials**, of the initial study under **Impact HZ-2** (see pp. 120-125 of **EIR Appendix B**), naturally occurring asbestos is known to be present in the bedrock beneath the site. As required, excavation and site grading would be conducted in accordance with the site mitigation plan required pursuant to the Maher Ordinance (article 22A of the health code); the site-specific construction dust control plan, required pursuant to public works' **SCM #2** and the Construction Dust Control Ordinance (article 22B of the health code); and the Asbestos Dust Mitigation Plan, required pursuant to the state Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface

[77] City Ordinance 175-91 requires the use of non-potable water for soil compaction and dust control undertaken in conjunction with any construction or demolition project occurring within the boundaries of San Francisco unless permission is obtained from the San Francisco Public Utilities Commission.

Mining Operations.[78] Thus, based on the required adherence to local, regional, and state construction dust control best management practices, particularly those that pertain to naturally occurring asbestos, any effects associated with the naturally occurring asbestos would be less than significant.

Criteria Air Pollutants

Methodology – Construction Emissions

OFF-ROAD EQUIPMENT

Construction of the proposed project or project variants would rely on electrical-, propane-, and diesel-powered off-road equipment. Emissions from off-road construction equipment were estimated for each of the following phases of project construction: demolition; site preparation, grading, and pile-driving; foundation; building construction; paving; and architectural coating.

While the use of electrical power supply during construction may come from fossil fuel power plants that generate criteria air pollutants, these pollutant emissions would be associated with the individual power plant operations (which may not occur in the San Francisco air basin or even in the state) and not the proposed project or project variants. Power plants are existing stationary sources subject to air district and/or the U.S. EPA's permitting requirements to monitor and control pollutant emissions. Therefore, pollutant emissions associated with the use of offsite-generated electrical power during construction of the proposed project or project variants were not estimated. Use of diesel construction equipment would occur during each phase of construction. Propane construction equipment would also be used for several types of equipment (e.g., forklifts), which generates lower pollutant emissions than diesel; however, to simplify calculations and be conservative, all propane emissions were estimated as diesel emissions.

Emissions from off-road diesel equipment were estimated in accordance with methodologies presented in the air resources board's Off-Road Simulation Model and Summary of Off-Road Emissions Inventory Update and using data derived from the Off-Road Emissions Inventory Model and California Emissions Estimator Model version 2016.3.2 (CalEEMod 2016.3.2). In accordance with public work's **SCM #2, Air Quality**, and the San Francisco Clean Construction Ordinance, all off-road diesel equipment would be equipped with Tier 2 or higher engines and the most effective VDECS available for the engine type to reduce diesel exhaust emissions within a mapped APEZ. It should be noted that off-road propane equipment is not subject to the Clean Construction Ordinance. Consistent with public works' **SCM #2** and the Clean Construction Ordinance, construction emissions were estimated assuming that all off-road diesel equipment would be

[78] California Code of Regulations Title 17, Section 93105, *https://www.arb.ca.gov/toxics/atcm/asb2atcm.htm*, accessed September 20, 2020. Pursuant to the authority in California Health and Safety Code, Section 39666, the Bay Area Air Quality Management District enforces these standards.

equipped with engines certified to meet the U.S. EPA's Tier 2 emission standards and Level 3 diesel particulate filters. Consistent with CalEEMod 2016.3.2, the diesel particulate filters were assumed to reduce exhaust particulate matter and reactive organic gases emissions by 85 and 90 percent, respectively.

Construction of the proposed project or project variants is expected to begin in 2023 and end in 2026, with construction activities predominantly occurring Monday through Friday. The total estimated pollutant emissions were converted to average daily emission rates using the total number of work days over the construction period (approximately 780 work days). A copy of the project-specific construction information for off-road equipment use and supporting calculations is included in **EIR Appendix G-2, Tables G-2.3** through **G-2.5**. There is always some degree of uncertainty related to emissions from the daily use of off-road construction equipment (e.g., the project sponsor team may need to use different amounts and/or types of off-road equipment at different daily intensities). For this project in particular, the private project co-sponsor chosen by the SFMTA will further refine project plans for the submittal of the entitlement application; therefore, it is possible that the information regarding construction equipment may change.

ON-ROAD VEHICLES

Construction of the proposed project or project variants would generate emissions from on-road vehicle trips for worker commute, vendor trucks, haul trucks, and concrete trucks. In general, workers would commute to the project staging areas, surrounding neighborhoods, or nearby parking garages. Vendor, haul, and concrete truck trips would travel to and from the project staging areas.

Emission factors for running and idling exhaust emissions were derived from air resources board's EMission FACtors Model (EMFAC2017), which accounts for the air resources board's on-road diesel fleet rules, Pavley Clean Car Standards, and the Low Carbon Fuel Standard. The emissions factors for the earliest date of construction (2023) were used for each vehicle type based on EMFAC2017's aggregate speed and model year options. All worker vehicles were assumed to be gasoline powered and all trucks were assumed to be diesel powered.

For worker vehicle, vendor truck, concrete truck, and haul truck trips, the vehicle fleet mix were based on the default parameters from CalEEMod 2016.3.2. For soil disposal trips, it was conservatively assumed that all soils would be transported to the Altamont Landfill in Livermore, which is near the border of the San Francisco Bay Area Air Basin. For trips with unknown destinations, such as worker vehicle, concrete truck, and miscellaneous vendor truck trips, the travel distance for each trip were based on default parameters from CalEEMod 2016.3.2 to calculate total vehicle miles traveled (VMT). Summaries of project-specific construction information and supporting calculations for on-road vehicle trips are included in **EIR Appendix G-2, Tables G-2.6** through **G-2.8**.

OFF-GASSING FROM ARCHITECTURAL COATINGS AND ASPHALT PAVING

ROG off-gassing from architectural coatings was calculated based on the square footage of the proposed building, an assumed VOC content of the paint, and an application rate. The VOC content of the paint is assumed to be consistent with the limits set in BAAQMD Regulation 8, Rule 3. Similarly, ROG off-gassing from paving was calculated based on the paved area of the proposed project and the VOC emission factor per acre of parking area. A copy of the assumptions and calculations for ROG off-gassing are included in **EIR Appendix G-2, Table G-2.9**.

Proposed Project – Construction Emissions

As shown in **Table 3.E.7: Emissions from the Proposed Project During Construction**, unmitigated NOx construction emissions from the proposed project or project variants (92 pounds per day) would exceed the threshold of significance for NOx, representing a significant impact. The unmitigated emissions of ROG, exhaust PM_{10}, and exhaust $PM_{2.5}$ from project construction would be below the thresholds of significance, representing a less-than-significant impact. The largest source of NOx emissions would be from off-road equipment, and the second largest source would be from on-road trucks.

Emission controls on construction equipment would be required to reduce the severity of the average daily NOx emissions, as specified in **Mitigation Measure M-AQ-1: Off-Road Construction Equipment Emissions Minimization**. This mitigation measure would require all off-road diesel-powered construction equipment to use engines that meet Tier 4 Final emission standards. It should be noted that the use of Tier 4 Final engines meets the Clean Construction Ordinance’s mandate to use the best available control technologies. The specific technology, use of Tier 4 equipment, is included as **Mitigation Measure M-AQ-1** to provide more specificity of the exact equipment needed to reduce construction criteria air pollutant impacts to less-than-significant levels.

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Table 3.E.7: Emissions from the Proposed Project During Construction

Emission Scenario	Source	Average Daily Emissions (lb/day) NOx	ROG	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Unmitigated Emissions	Off-Road Equipment	46.5	0.2	0.24	0.24
	On-Road Worker Vehicles	0.7	0.2	0.03	0.03
	On-Road Trucks	45.1	0.7	0.24	0.23
	Asphalt Paving/Architectural Coatings	NA	19.9	NA	NA
	Total Emissions	**92**	21	0.5	0.5
	Thresholds of Significance	54	54	82	54
	Above Threshold?	Yes	No	No	No
Mitigated Emissions (M-AQ-1)	Off-Road Equipment [NOTE A]	4.5	0.7	0.08	0.08
	On-Road Worker Vehicles	0.7	0.2	0.03	0.03
	On-Road Trucks	45.1	0.7	0.24	0.23
	Asphalt Paving/Architectural Coatings	NA	19.9	NA	NA
	Total Emissions	50	22	0.4	0.3
	Thresholds of Significance	54	54	82	54
	Above Threshold?	No	No	No	No

Notes: lb = pounds; NOx = nitrogen oxides; ROG = reactive organic gases; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; NA = not applicable

Bold and gray shaded values indicate exceedance of a significance threshold.

A The mitigated ROG emissions for the off-road equipment with all Tier 4 engines were slightly higher than the uncontrolled emissions for Tier 2 engines with Level 3 diesel particulate filters. This is because a 90 percent reduction in ROG emissions was uniformly applied to the use of Level 3 diesel particulate filters for Tier 2 engines; however, this reduction was not applied to the Tier 4 engine emissions which are more accurately based on tested emission rates for various ranges of engine horsepower. The actual emissions from Tier 2 engines equipped with Level 3 diesel particulate filters would be very similar to the emissions from a Tier 4 engine.

Source: See spreadsheet calculations in **EIR Appendix G-2, Tables G-2.1 through G-2.9**.

Mitigation Measure M-AQ-1: Off-Road Construction Equipment Emissions Minimization

The SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall comply with the following:

(A) Engine Requirements.

(1) All off-road equipment greater than or equal to 25 horsepower shall have engines that meet U.S. EPA or California Air Resources Board Tier 4 Final off-road emission standards.

(2) Where access to alternative sources of power is available, portable diesel engines shall be prohibited. If access to alternative sources of power is infeasible, portable diesel engines shall meet the requirements of Subsection (A)(1).

(3) Diesel engines, whether for off-road or on-road equipment, shall not be left idling for more than two minutes, at any location, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment (e.g., traffic conditions, safe operating conditions). The project sponsor team shall post legible and visible signs in English, Spanish, and Chinese, in designated queuing areas and at the construction site to remind operators of the two-minute idling limit.

(4) The project sponsor team shall instruct construction workers and equipment operators on the maintenance and tuning of construction equipment and require that such workers

and operators properly maintain and tune equipment in accordance with manufacturer specifications.

(B) Waivers.

(1) The San Francisco Planning Department Environmental Review Officer (ERO) may waive the equipment requirements of Subsection (A)(1) if: a particular piece of off-road Tier 4 Final equipment is not regionally available, not technically feasible, or would not produce desired emissions reduction due to expected operating modes. In granting the waiver, the project sponsor team must demonstrate with substantial evidence that the project construction does not exceed the BAAQMD threshold for NOx (54 lbs/day) by resulting in a net increase of average daily NOx emissions greater than 4 pounds per day. The project sponsor team must also demonstrate with substantial evidence that the overall combined construction and operational excess cancer risk does not exceed 7 per 1 million persons exposed at nearby sensitive receptors.

(C) Construction Emissions Minimization Plan.

(1) Before starting onsite construction activities, the project sponsor team shall submit a Construction Emissions Minimization Plan (Plan) to the ERO for review and approval. The Plan shall state, in reasonable detail, how the project sponsor team will meet the requirements of Section A.

(2) The Plan shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for every construction phase. The description may include, but is not limited to: equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel use and hours of operation.

(3) The project sponsor team shall ensure that all applicable requirements of the Plan have been incorporated into the contract specifications. The Plan shall include a certification statement that the project sponsor team agrees to comply fully with the Plan.

(4) The project sponsor team shall make the Plan available to the public for review onsite during working hours. The project sponsor team shall post at the construction site a legible and visible sign summarizing the Plan. The sign shall also state that the public may ask to inspect the Plan for the project at any time during working hours and shall explain how to request to inspect the Plan. The project sponsor team shall post at least one copy of the sign in a visible location on each side of the construction site facing a public right-of-way.

(D) Monitoring

(1) After start of construction activities, the project sponsor team shall submit biannual reports to the ERO documenting compliance with the Plan. After completion of construction activities and prior to receiving a final certificate of occupancy, the project sponsor team shall submit to the ERO a final report summarizing construction activities, including the start and end dates and duration of each construction phase, and the specific information required in the Plan.

Table 3.E.7, p. 3.E.47, presents the mitigated construction emissions from the proposed project or project variants, which assumes the use of all U.S. EPA- or air resources board-approved Tier 4 Final engines on all diesel equipment. With implementation of **Mitigation Measure M-AQ-1**, construction emissions of NOx would be reduced by about 46 percent and would no longer exceed the threshold of significance. Therefore, construction of the proposed project or project variants would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and the impact on regional air quality would be less than significant with mitigation.

Impact AQ-2: During operation, the proposed project or project variants would generate criteria air pollutant emissions at levels that would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment. (*Less than Significant*)

Operation of the proposed project or project variants could commence as early as 2026. The primary sources of pollutant emissions during project operation would include vehicle trips, energy use, stationary sources, and area sources such as the use of consumer products and architectural coatings. The net increase in operation-related emissions of criteria air pollutants relative to the existing transit facility operations was calculated in accordance with the Air Quality and Health Risk Assessment Methodology (see **EIR Appendix G-1**).

Methodology – Operational Emissions

Operation of the proposed project or project variants would generate a net increase in emissions from on-road vehicles associated with worker, residential, and retail trips, except for the Employee and Family Support Variant, which would generate a net increase in emissions from on-road vehicles associated with worker, residential, retail trips, and childcare-related trips. However, the Employee and Family Support Variant would generate incrementally lower emissions than the proposed project or other variants because it would have 56 fewer daily vehicle trips (from 3,208 net-new daily vehicle trips under the proposed project or other variants to 3,152 under this variant).[79] The proposed project or project variants would not generate a net increase in emissions from new bus trips, because all existing and new buses would be electric-powered. The net increase in emissions from other on-road vehicles during operation of the proposed project or project variants were estimated using the methodology described below and based on vehicle trip information provided by the traffic engineer, including daily vehicle trips rates and general fleet mix.

[79] Although the Employee and Family Support Variant would result in 52 more weekday p.m. peak hour trips than the proposed project or other variants; on a daily basis, it would generate fewer vehicle trips and as a result a lower overall pollutant load from long-term operation.

The net increase in VMT was calculated using project-specific vehicle trip generation data from the final travel demand analysis (see **EIR Appendix E-4**) and default travel distance assumptions from CalEEMod 2016.3.2. Because CalEEMod 2016.3.2 has not been updated to incorporate the latest vehicle emission factors from EMFAC2017, the VMT results from CalEEMod were used to calculate the net increase in vehicle emissions outside of CalEEMod by applying emission factors for running, idling, brake wear, and tire wear from EMFAC2017. Based on the final travel demand analysis for the proposed project, it was assumed that about 95 percent of the daily trips generated are light-duty automobiles and about 5 percent of the daily trips generated are medium-heavy-duty trucks. The emissions factors for the existing conditions (2020) and earliest date of operation (2026) were used for each vehicle type based on EMFAC2017's aggregate speed and model year options. In accordance with the Citywide health risk assessment, fugitive $PM_{2.5}$ emissions were estimated assuming that 91 percent of $PM_{2.5}$ emissions from exhaust, brake wear, and tire wear is resuspended as fugitive dust. Based on the air resources board's Entrained Road Travel methodology for paved road dust, fugitive PM_{10} emissions were estimated assuming that fugitive $PM_{2.5}$ emissions are approximately 15 percent of the fugitive PM_{10} emissions. The CalEEMod reports and a summary of the EMFAC2017 emission factors and on-road vehicle emissions calculations are included in **EIR Appendix G-3, Operation Criteria Air Pollutant Calculations and Supporting Documentation**.

The net increase in emissions from energy use and area sources was calculated using CalEEMod 2016.3.2. The selected land use (e.g., high-rise apartment) and input parameters (e.g., square footage) for the model are consistent with the final project description and parameters used for the final travel demand analysis prepared for the proposed project. It was assumed that there would be no woodstoves or fireplaces. Copies of the CalEEMod reports are included in **EIR Appendix G-3**.

Under the existing BAAQMD Permit to Operate, the transit facility is allowed to use up to about 350 gallons of solvents for graffiti removal and 200 gallons of solvents for brake pad cleaning per year, which would result in the daily average emission of about 2.9 pounds of ROG per day. The transit facility currently operates significantly below the permissible limits, using about 3 gallons of solvents for graffiti removal and 6 gallons of solvents for brake cleaning per year.[80] According to the Permit to Operate, the facility's current solvent use would result in less than 0.04 pounds of ROG emissions per day. The proposed replacement transit facility would continue to use solvents for bus cleaning activities in accordance with the emission limitations described under the facility's existing BAAQMD Permit to Operate.[81]

80 SFMTA, E-mail communication between Licinia Iberri, SFMTA; Peter Mye, SWCA; Patrick Sutton, Baseline; and the San Francisco Planning Department, June 16, 2021.
81 BAAQMD Permit to Operate, Plant #9427, 2500 Mariposa, San Francisco, CA 94110.

The proposed project or project variants would include up to three new diesel backup generators with a maximum power of 1,000 kilowatts. The net increase in emissions from diesel backup generators were calculated using CalEEMod 2016.3.2. The California Air Toxics Control Measure for Stationary Compression Ignition Engines and BAAQMD Regulation 9, Rule 8, restrict non-emergency use of emergency standby diesel-fueled compression ignition engines to a maximum of 50 hours per year; therefore, it was assumed that each emergency generator would operate 50 hours per year for testing and maintenance purposes. The generators would be permitted with the BAAQMD and would comply with applicable Best Available Control Technology and Best Available Control Technology for Toxics requirements. A copy of the CalEEMod report is included in **EIR Appendix G-3**.

Proposed Project – Operational Emissions

As shown in **Table 3.E.8: Emissions from the Proposed Project During Operation**, the net increase in unmitigated operational emissions from the proposed project or project variants would be below the threshold of significance for NOx, ROG, PM_{10}, and $PM_{2.5}$. Therefore, because the proposed project's or project variants' emissions would be below the operational thresholds of significance, operation of the proposed project or project variants would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment and the impact on regional air quality would be less than significant. As discussed above, the calculations above for long-term operational emissions are conservative (worst-case) because they do not account for emissions reductions that may occur through implementation of the proposed project's or project variants' TDM program or improvements to vehicle emissions overtime due to cleaner engine and fuel technologies.

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Table 3.E.8: Emissions from the Proposed Project During Operation

Emissions Source	Average Daily Emissions (lb/day)			
	NO_x	ROG	PM_{10}	$PM_{2.5}$
Existing Emissions				
Area	0.0	5.4	0.0	0.0
Energy	1.5	0.2	0.1	0.1
Mobile	5.8	0.5	5.9	1.0
BAAQMD Permit to Operate (Solvent Use)	0.0	0.04	0.0	0.0
Total Existing Emissions	***7.3***	***6.14***	***6.0***	***1.1***
Project Emissions				
Area	0.3	28.4	0.1	0.1
Energy	6.9	0.8	0.5	0.5
Mobile	7.7	0.4	11.3	2.5
BAAQMD Permit to Operate (Solvent Emission Limit)	0.0	2.9	0.0	0.0
Emergency Diesel Generators	4.0	0.9	0.1	0.1
Total Project Emissions	***18.9***	***33.4***	***12.1***	***3.3***
Net Project Emissions (lb/day)	12	24	6.1	2.2
Thresholds of Significance (lb/day)	54	54	82	54
Above Threshold?	No	No	No	No
Net Project Emissions (tons/year)	2.1	4.5	1.1	0.4
Thresholds of Significance (tons/Year)	10	10	15	10
Above Threshold?	No	No	No	No

Notes: lb = pounds; NO_x = nitrogen oxides; ROG = reactive organic gases; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter

Source: See CalEEMod reports and spreadsheet calculations in **EIR Appendix G-3**.

Impact AQ-3: Construction and operation of the proposed project or project variants would generate toxic air contaminants, including DPM, at levels which would expose sensitive receptors to substantial pollutant concentrations. ***(Significant and Unavoidable with Mitigation)***

Construction of the proposed project or project variants would generate the following local air pollutants of concern: running exhaust DPM and $PM_{2.5}$ from off-road equipment and on-road trucks, and fugitive $PM_{2.5}$ dust from on-road truck tire wear, brake wear, and resuspension of entrained roadway dust. Operation of the proposed project or project variants would also generate the following local air pollutants of concern: running exhaust DPM, $PM_{2.5}$, and/or TOG from on-road vehicles and emergency diesel generators, and fugitive $PM_{2.5}$ dust from on-road vehicle tire wear, brake wear, and resuspension of entrained roadway dust. The emissions of DPM, $PM_{2.5}$, and TOG during project construction and operation could pose a health risk to nearby sensitive receptors. A health risk assessment was conducted for the proposed project to evaluate the potential health risks to nearby sensitive receptors resulting from project implementation. Health risk assessment findings for the proposed project would also be applicable to the project variants including the Employee and Family Support Variant. As noted above on p. 3.E.40, the proposed residents and on-site childcare use would only be exposed to operational emissions from on-road vehicles and emergency generator sources (i.e., Scenario 2). The childcare use would be located along Bryant Street near 17th Street.

Methodology

The Citywide health risk assessment evaluated background excess cancer risks and $PM_{2.5}$ concentrations from existing known sources of air pollution, including permitted stationary sources (2014 data), on-road mobile sources (2020 traffic projections), Caltrain passenger diesel locomotives (2014 data), ships and harbor crafts (2017 data), and ferry boats (2017 data). Because offsite receptors within 1,000 feet of the project site are located within an area that currently meets the APEZ criteria for a Health Vulnerability ZIP code (90 per million excess cancer risk or a $PM_{2.5}$ concentration of 9.0 $\mu g/m^3$), a significant health risk impact exists even without the proposed project or project variants. That is, the background health risks already exceed the cumulative thresholds of significance.

A health risk assessment was conducted for the proposed project to determine if construction and/or operation would substantially contribute to existing health risks at offsite sensitive receptors. For informational purposes, the total health risks were also estimated by summing the background health risks from the Citywide health risk assessment with the health risks from the proposed project. Consistent with the Citywide health risk assessment, the health risk assessment prepared for the proposed project focuses on DPM, $PM_{2.5}$, and TOG because these, more so than other types of air pollutants, pose significant health impacts at the local level.[82] A detailed discussion of the methods used for this analysis is provided in the Air Quality and Health Risk Assessment Methodology in **EIR Appendix G-1**.

Consistent with the Citywide health risk assessment, near-field air dispersion modeling of DPM, $PM_{2.5}$, and TOG from project construction and operation was conducted using AERMOD. Dispersion of air pollutants from off-road construction equipment, on-road vehicles, and the emergency generators were modeled using the χ/Q ("chi over q") method, such that each source has a unit emission rate (e.g., 1 gram per second for volume sources). The annual average concentration profiles from the air dispersion model were then scaled according to the ratio between the unit emission rate and the actual emission rate from each source. The AERMOD source input summary files are included in **EIR Appendix G-4, Air Dispersion Modeling and Health Risk Assessment Calculations and Supporting Documentation**, as well as summary of the unit-emission conversion factors for each source of air pollution in **EIR Appendix G-4, Table G-4.3**.

Construction emission rates for off-road equipment and on-road vehicle sources were calculated based on the actual hours of activities over the shortest duration of expected construction (3 years).

[82] San Francisco Department of Public Health, 2020, San Francisco Citywide Health Risk Assessment: Technical Support Documentation, September 2020.

For modeling purposes, it is assumed that construction activities would occur Monday through Friday, between 7 a.m. and 8 p.m. Operational emission rates for on-road vehicles and emergency generator sources were modeled as a continuous source (i.e., emissions occur 7 days a week, 24 hours per day, 365 days per year). For on-road construction truck trips, the emission rates of DPM and $PM_{2.5}$ were estimated based on the assumption that each truck traveled around the entire perimeter of the project site. For on-road operational vehicle trips, the emission rates for DPM, $PM_{2.5}$, and TOG were estimated on the roadway segments near the maximally exposed individual resident based on the project's daily net increase in traffic volumes for light-duty vehicles, trucks, and buses. The net increase in electric-powered buses during project operation would not generate TACs from engine exhaust, but would contribute to the resuspension of fugitive $PM_{2.5}$ dust. Summaries of the on-road emission rate calculations during construction and operation are included in **EIR Appendix G-4, Tables G-4.1** and **G-4.2**.

To evaluate health impacts to offsite receptors, the receptors were modeled at locations co-located with the receptors used in the Citywide health risk assessment and within 1,000 feet of the project site. Receptors were modeled at a height of 1.8 meters or about 6 feet (for ground-level receptors) and 6 meters or about 20 feet (for second-story receptors). Nearby sensitive receptors (e.g., residents) are shown in **Figure 3.D.1** (see p. 3.D.9 in **EIR Section 3.D, Noise and Vibration**). The maximally exposed individual resident is the receptor point where air dispersion modeling indicates the proposed project would have the greatest health risk impact. The maximally exposed individual receptor was determined to be a second-story residential apartment near the northeast corner of Mariposa Street and Hampshire Street. The modeled concentration contours at the maximally exposed individual resident based on the unit emission rate for each air pollution source are included in **EIR Appendix G-4**.

HEALTH RISKS FROM PROJECT CONSTRUCTION AND OPERATION

According to the Citywide health risk assessment, the background excess cancer risk and $PM_{2.5}$ concentration at the offsite maximally exposed individual resident are 183.7 in a million and 10.74 $\mu g/m^3$, respectively. As shown in **Table 3.E.9: Existing Plus Project Lifetime Cancer Risk and $PM_{2.5}$ Concentration Contributions at Maximally Exposed Individual Resident from Project Construction and Operation**, the unmitigated excess cancer risk and $PM_{2.5}$ concentration at the offsite maximally exposed individual resident from existing background sources and construction and operation of the proposed project are 213.4 in a million and 10.84 $\mu g/m^3$, respectively. The unmitigated contribution to existing health risks at the offsite maximally exposed individual resident from construction and operation of the proposed project or project variants would result in a net increase in $PM_{2.5}$ of 0.10 $\mu g/m^3$, which is below the threshold of significance of 0.2 $\mu g/m^3$; however, the net increase in cancer risk from DPM and TOG would be 29.7 in a million, which exceeds the significance threshold of 7.0 in a million and represents a significant impact.

Table 3.E.9: Existing Plus Project Lifetime Cancer Risk and $PM_{2.5}$ Concentration at the Maximally Exposed Individual Resident from Project Construction and Operation

Emission Scenario	Source	Health Risks as MEIR: Excess Cancer Risk (per million)	Health Risks as MEIR: $PM_{2.5}$ ($\mu g/m^3$)
Background Health Risks (Citywide Health Risk Assessment)		183.7	10.74
Unmitigated Project Emissions	Off-Road Construction Equipment	17.66	0.051
	On-Road Construction Trucks	0.10	0.001
	On-Road Operational Vehicles	0.18	0.008
	Emergency Generators	11.80	0.039
	Existing Plus Project Health Risks	213.4	10.84
	Project Health Risks Contribution	**29.7**	0.10
	Thresholds of Significance	7.0	0.2
	Above Threshold?	Yes	No
Mitigated Project Emissions (**M-AQ-1** and **M-AQ-3**)	Off-Road Construction Equipment	6.22	0.018
	On-Road Construction Trucks	0.10	0.001
	On-Road Operational Vehicles	0.18	0.008
	Emergency Generators [NOTE A]	0.37	0.001
	Existing Plus Project Health Risks	190.5	10.77
	Project Health Risks Contribution	6.87	0.03
	Thresholds of Significance	7.0	0.2
	Above Threshold?	No	No

Notes: MEIR = maximally exposed individual resident; $PM_{2.5}$ = fine particulate matter; $\mu g/m^3$ = micrograms per cubic meter

Bold and gray shaded values indicate exceedance of the threshold of significance.

[A] The mitigated health risks shown for emergency diesel generators are the minimum health risk reductions required under **Mitigation Measure M-AQ-3** and are based on a combination of the use of Tier 4 engines, reduced annual testing limits (20 hours per year), and venting above the 75-foot roofline. Additional control measures described under **Mitigation Measure M-AQ-3** that could further reduce health risks from emergency diesel generators are presented in **Table 3.E.10**, p. 3.E.56.

Source: See supporting spreadsheet calculations and modeling inputs in **EIR Appendix G-4**, and health risk modeling results electronically submitted to the San Francisco Planning Department as **EIR Appendix G-5, Project Update to the Citywide Health Risk Assessment Database.**

Emission controls for off-road construction equipment would be required to reduce the overall health risks at offsite sensitive receptors during project construction, as specified in **Mitigation Measure M-AQ-1** (see pp. 3.E.47-3.E.48). Emission controls for emergency diesel generators would also be required to reduce the overall health risks at offsite sensitive receptors during project operation, as specified in **Mitigation Measure M-AQ-3: Emergency Diesel Generator Health Risk Reduction Plan**, below (see p. 3.E.57).

To reduce the overall cancer risk at the maximally exposed individual resident below the threshold of significance, the emission controls from the combination of **Mitigation Measures M-AQ-1** and **M-AQ-3** would be required to reduce the severity of exposures to DPM at the maximally exposed individual resident by at least 76.5 percent. **Mitigation Measure M-AQ-1** would require all off-road diesel-powered construction equipment to meet Tier 4 Final emission standards.

As shown in **Table 3.E.10: Emissions Control Measures to Reduce Health Risks at Maximally Exposed Individual Resident during Project Construction and Operation**, p. 3.E.56, implementation of **Mitigation Measure M-AQ-1** would reduce the overall cancer risk at the maximally exposed individual resident by about 38.5 percent. The remaining 38.0 percent reduction needed to reduce the cancer risk at the maximally exposed individual resident below the threshold of significance can be achieved through a combination of exhaust and operational control measures for the emergency diesel generators.

Table 3.E.10: Emissions Control Measures to Reduce Health Risks at Maximally Exposed Individual Resident during Project Construction and Operation

	Health Risks at MEIR		
Control Measures	**Excess Cancer Risk (per million)**	**$PM_{2.5}$ ($\mu g/m^3$)**	**Overall Health Risk Reduction** NOTE A
Off-Road Diesel Construction Equipment			
Uncontrolled	17.66	0.051	---
Tier 4 Final engines	6.22	0.018	38.5%
Emergency Diesel Generators			
Uncontrolled	11.80	0.039	---
Tier 4 Final engines	1.76	0.006	33.8%
Reduce annual testing limit (20 hours/year)	4.72	0.016	23.8%
Vent generator exhaust above the 75-foot roofline of the project building	6.17	0.021	18.9%
Vent generator exhaust on the west or north side of the project building NOTE B	2.44	0.008	31.5%
Tier 4 Final engines, Reduce annual testing limit (20 hours/year), and Vent generator exhaust above the 75-foot roofline of the project building	0.37	0.001	38.4%
Tier 4 Final engines, Reduce annual testing limit (20 hours/year), and Vent generator exhaust on the west or north side of the project building NOTE B	0.15	0.0005	39.2%
Battery-powered generators	0.00	0.000	39.7%

Notes: MEIR = maximally exposed individual resident; $PM_{2.5}$ = fine particulate matter; "---" = not applicable; $\mu g/m^3$ = micrograms per cubic meter; "≥" = more than or equal to

Blue shading indicates measure described under **Mitigation Measure M-AQ-1** for off-road construction equipment. Green shading indicates measures described under **Mitigation Measure M-AQ-3** for emergency diesel generators.

A The combination of **Mitigation Measures M-AQ-1** and **M-AQ-3** would reduce the overall excess cancer risk at the MEIR by at least 76.5 percent to below the threshold of significance, as shown in **Table 3.E.9**, p. 3.E.55.

B The maximum (i.e., worst-case) health risks associated with venting the generator exhaust on the west or north side of the project building are shown.

Mitigation Measure M-AQ-3 would require the use of exhaust and/or operational control measures for all emergency diesel generators to reduce the overall excess cancer risk at the maximally exposed individual resident by more than 38.0 percent. As shown in in **Table 3.E.10**, a combination of the use of Tier 4 Final engines, reduced annual testing limits (20 hours per year), and venting the generator exhaust above the 75-foot roofline or on the north or west side of the project building would reduce the overall cancer risk at the maximally exposed individual resident by at least 38.0 percent. Alternatively, the use of battery-powered generators would eliminate health risks associated with DPM from the generators entirely.

Mitigation Measure M-AQ-3: Emergency Diesel Generator Health Risk Reduction Plan

The SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as the project sponsor team shall comply with one of the following:

1. Require all emergency diesel generators to meet Tier 4 Final emission standards, reduce annual testing limit to 20 hours per year for each generator, and vent generator exhaust above the 75-foot roofline of the project building; or
2. Require all emergency diesel generators to meet Tier 4 Final emission standards, reduce annual testing limit to 20 hours per year for each generator, and vent generator exhaust on the west or north side of the project building; or
3. Require all emergency generators to be battery-powered; or
4. The project sponsor team shall retain a qualified air quality consultant to develop an Emergency Diesel Generator Health Risk Reduction Plan. The project sponsor team shall submit the plan to the San Francisco Planning Department Environmental Review Officer (ERO) for review and approval prior to issuance of a permit for emergency diesel generators from the San Francisco Department of Building Inspection or the Bay Area Air Quality Management District. The plan must include, for each emergency diesel generator, a description of the anticipated venting location, engine specifications, and annual maintenance testing procedures. The plan must demonstrate with substantial evidence that annual maintenance testing will not result in the project's overall construction and operational cancer risk exceeding 7 per one million persons exposed at nearby offsite sensitive receptors.

Additionally, the operator of the facility at which the generators are located shall be required to maintain records of the testing schedule for each emergency diesel generator for the life of that generator and to provide this information for review to the San Francisco Planning Department within three months of requesting such information.

As shown in **Table 3.E.9**, p. 3.E.55, implementation of **Mitigation Measures M-AQ-1** and **M-AQ-3** would reduce the excess cancer risk and $PM_{2.5}$ concentration at the maximally exposed individual resident by at least 76.9 percent to 6.87 in a million and 0.03 $\mu g/m^3$, respectively, which are both below the applicable thresholds of significance. As discussed in **Impact AQ-2**, pp. 3.E.49-3.E.52, the health risk assessment results are conservative because they do not account for the long-term operational emissions reductions that may occur through implementation of the proposed project's or project variants' TDM program.

As discussed under **Impact AQ-1**, pp. 3.E.41-3.E.49, emission controls for off-road construction equipment identified in **Mitigation Measure M-AQ-1** would reduce average daily construction emissions of NOx to below the thresholds of significance. These controls would also reduce emissions of ROG, exhaust PM, and exhaust $PM_{2.5}$ which were at levels below the established thresholds of significance prior to mitigation (see **Table 3.E.7**). As noted in **Table 3.E.10** above, these controls would reduce exposure of sensitive receptors to substantial pollutant concentrations and the overall health risks at offsite sensitive receptors during project construction by 38.5 percent. Although average daily emissions associated with off-road construction equipment use would be reduced because of controls identified in **Mitigation Measure M-AQ-1**, the modeled reductions are premised on a preliminary off-road construction equipment list and assumed intensity of daily use whereas the actual number and type of off-road construction equipment and the intensity of daily use of the off-road construction equipment could potentially be higher. With implementation of **Mitigation Measures M-AQ-1** and **M-AQ-3** the excess cancer health risk exposure would be reduced to just below the threshold of significance of 7.0 in a million (i.e., 6.87 in a million overall with 6.22 in a million attributable to off-road construction equipment after mitigation). The 38.5 percent reduction to the overall cancer risk at the maximally exposed individual resident attributable to **Mitigation Measure M-AQ-1** would not be assured because of potential increases to the off-road construction equipment roster and intensity of average daily use. As a result, the efficacy of the combination of **Mitigation Measures M-AQ-1** and **M-AQ-3** would also not be assured. Although a reasonable worst-case construction scenario for the construction air quality emissions modeling was employed and long-term operational benefits associated with the project's TDM program were not calculated, construction and operation of the proposed project or project variants could result in a substantial increase in the exposure of sensitive receptors to DPM, TOG, and $PM_{2.5}$ and the impact on local air quality is determined to be significant. No additional mitigation measures have been identified and therefore this impact is significant and unavoidable with mitigation.

HEALTH RISKS FROM PROJECT OPERATION ONLY

As shown in **Table 3.E.11: Existing Plus project Lifetime Cancer Risk and $PM_{2.5}$ Concentration Contributions at Maximally Exposed Individual Resident from Project Operation**, the unmitigated excess cancer risk and $PM_{2.5}$ concentration at the maximally exposed individual resident from existing background sources and operation of the proposed project or project variants are 213.5 in a million and 10.83 µg/m^3, respectively. The unmitigated cancer risk from operation of the proposed project or project variants would result in a net increase in $PM_{2.5}$ at the maximally exposed individual resident of 0.05 µg/m^3, which is below the threshold of significance of 0.2 µg/m^3; however, the net increase in cancer risk from DPM and TOG at the maximally exposed individual resident would be 24.75 in a million, which exceeds the significance threshold of 7.0 in a million and represents a significant impact.

The operational cancer risks summarized in **Table 3.E.11** are higher than the operational cancer risks shown in **Table 3.E.9**, p. 3.E.55, because the resident is assumed to be exposed to operational emissions for three additional years (when excluding the three years of construction) and the individual exposure is assumed to begin as an infant when the age sensitivity factor is higher.

Emission controls for the emergency diesel generators would be required to reduce the severity of exposures to DPM at offsite sensitive receptors during project operation, as specified in **Mitigation Measure M-AQ-3**. **Mitigation Measure M-AQ-3** would require the use of exhaust and/or operational control measures for all emergency diesel generators, such as the use of Tier 4 Final engines, reduced annual testing limits (20 hours per year), and venting the generator exhaust above the 75-foot roofline or on the west or north side of the project building. Alternatively, the use of battery-powered generators would eliminate health risks associated with DPM from the generators entirely.

Table 3.E.11: Existing Plus Project Lifetime Cancer Risk and $PM_{2.5}$ Concentration Contributions at Maximally Exposed Individual Resident from Project Operation

Emission Scenario	Source	Health Risks as MEIR: Excess Cancer Risk (per million)	Health Risks as MEIR: $PM_{2.5}$ ($\mu g/m^3$)
Background Health Risks (Citywide Health Risk Assessment)		183.7	10.74
Unmitigated Project Emissions	On-Road Operational Vehicles	0.56	0.008
	Emergency Generators	24.75	0.042
	Existing Plus Project Health Risks	209.0	10.79
	Project Health Risks Contribution	**25.3**	0.05
	Thresholds of Significance	7.0	0.2
	Above Threshold?	Yes	No
Mitigated Project Emissions (M-AQ-3)	On-Road Operational Vehicles	0.56	0.008
	Emergency Generators NOTE A	0.21	0.001
	Existing Plus Project Health Risks	184.4	10.75
	Project Health Risks Contribution	0.8	0.01
	Thresholds of Significance	7.0	0.2
	Above Threshold?	No	No

Notes: MEIR = maximally exposed individual resident; $PM_{2.5}$ = fine particulate matter; $\mu g/m^3$ = micrograms per cubic meter

Bold and gray shaded values indicate exceedance of the threshold of significance.

[A] The mitigated health risks shown for emergency diesel generators are the minimum health risk reductions required under **Mitigation Measure M-AQ-3** and are based on a combination of the use of Tier 4 engines, reduced annual testing limits (20 hours per year), and venting generator exhaust above the 75-foot roofline of the project building. Additional control measures described under **Mitigation Measure M-AQ-3** that could further reduce health risks from emergency diesel generators are presented in **Table 3.E.10**, p. 3.E.56.

Source: See supporting spreadsheet calculations and modeling inputs in **EIR Appendix G-4**, and health risk modeling results submitted electronically submitted to the San Francisco Planning Department as **EIR Appendix G-5**.

As shown in **Table 3.E.11**, implementation of **Mitigation Measure M-AQ-3** would reduce the excess cancer risk and $PM_{2.5}$ concentration at the maximally exposed individual resident by at least 97 percent to 0.8 in a million and 0.01 $\mu g/m^3$, respectively, which are both below the applicable thresholds of significance. Therefore, operation of the proposed project or project variants would not result in a substantial increase in the exposure of sensitive receptors to DPM, TOG, and $PM_{2.5}$ and the impact on local air quality would be less than significant with mitigation.

Impact AQ-4: The proposed project or project variants would not conflict with implementation of the 2017 Bay Area Clean Air Plan. ***(Less than Significant)***

The most recently adopted air quality plan for the San Francisco Bay Area Air Basin is the 2017 Bay Area Clean Air Plan.[83] The 2017 Bay Area Clean Air Plan is a road map that demonstrates how the Bay Area will, in accordance with the requirements of the California Clean Air Act, implement all feasible measures to reduce ozone precursors (ROG and NO_X) and reduce transport of ozone and its precursors to neighboring air basins. It also provides a climate and air pollution control strategy to reduce ozone, PM, TACs, and GHGs that builds upon existing regional, state, and national programs. In determining consistency with the 2017 Bay Area Clean Air Plan, this analysis considers whether the proposed project or project variants would (1) support the primary goals of the plan, (2) include applicable control measures from the plan, and (3) avoid disrupting or hindering implementation of control measures identified in the plan.

The goals of the 2017 Bay Area Clean Air Plan are to protect air quality and health at the regional and local scale and protect the climate. Air quality protection and the safeguarding of public health from harmful air pollutants is accomplished through meeting state and national ambient air quality standards. Climate protection is focused on reducing GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.[84] To meet these goals, the 2017 Bay Area Clean Air Plan recommends specific control measures and actions to reduce emissions and decrease concentrations of harmful air pollutants. To this end, the 2017 Bay Area Clean Air Plan includes 85 control measures aimed at reducing air pollutants in the air basin.[85] These control measures are grouped into various categories: stationary source sector, transportation sector, buildings sector, energy sector, agriculture sector, natural and working lands sector, waste sector, water sector, and super-GHG pollutants sector control measures. Many of these measures address stationary sources and will be implemented by BAAQMD using its permit authority and therefore are not intended for implementation through local planning efforts or project approval actions.

The 2017 Bay Area Clean Air Plan recognizes that, to a great extent, community design[86] dictates individual travel modes and that a key long-term control strategy to reduce emissions of criteria pollutants, TACs, and GHGs from motor vehicles is to channel future Bay Area growth into mixed-

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[83] BAAQMD, 2017 Bay Area Clean Air Plan, April 19, 2017, *http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en,* accessed May 5, 2021.

[84] The air district's 2030 GHG target is consistent with the California's GHG 2030 reduction target, per Senate Bill 32. The Air District's 2050 target is consistent with the state's 2050 GHG reduction target per Executive Order S-3-05.

[85] BAAQMD, 2017 Bay Area Clean Air Plan, Table 5-13.

[86] For people who live (and/or work) in low-density, car-oriented developments, the motor vehicle is often the only viable transportation option. In such situations, even the most robust strategy to promote alternative modes of travel can have, at best, only a very modest effect. In contrast, compact communities with a mixture of land uses make it much easier to walk, cycle, or take transit for at least some daily trips.

use pedestrian-friendly communities served by a range of viable transportation options where goods and services meet the day-to-day needs of residents and workers.

The control measures identified in the 2017 Bay Area Clean Air Plan that are most applicable to the proposed project or project variants are transportation sector, building sector, energy sector, natural and working lands sector, waste sector, and water sector control measures, some of which would be implemented as part of, but not limited to, the proposed project's or project variant's compliance with San Francisco's general plan, planning code, green building code, and requirements articulated in the greenhouse gas reduction strategy. The proposed project or project variants would incorporate multiple TDM measures into its operations to promote the use of transit, walking, and bicycling as viable options to privately owned vehicles. TDM measures of the proposed project or project variants have not been defined; however, as one of the components of the project is affordable housing (which exhibit fewer auto trips than market-rate housing) and onsite parking would not be provided, the TDM measures could include car-share parking, bicycle parking spaces, and commuter shower and locker facilities for employees. Additional TDM measures could include delivery supportive amenities (such as temporary storage for package delivery, which may reduce auto trips), bicycle sharing stations, and other approaches to discourage the use of single-occupant private vehicles. Many of the TDM measures and other features of the proposed project or project variants would align with the transportation control measures identified in Table 5-13 of the 2017 Bay Area Clean Air Plan (e.g., TR2-Trip Reduction Programs, TR3-Local and Regional Bus Service, TR9-Bicycle and Pedestrian Access and Facilities, TR13-Parking Policies, TR14-Cars and Light Trucks, and TR15-Public Outreach and Education).

Other features of the proposed project or project variants that would align with the buildings sector, energy sector, natural and working lands sector, waste sector, and water sector control measures of the 2017 Bay Area Clean Air Plan are as follows:

- Development of a building that incorporates battery-electric infrastructure into the replacement transit facility and residential and commercial components along with green roofs and/or solar photovoltaic systems (Buildings Sector-BL1 Green Buildings, BL2 Decarbonize Buildings, and BL4 Urban Heat Island Mitigation)
- Retaining or replacement of existing trees and planting of new trees, resulting in a net increase of new trees planted in the immediate project vicinity (NW2-Urban Tree Planting)
- Adherence to local policies that promote composting and that aim at achieving zero waste for both construction and operations (WA3-Green Waste Diversion and WA4-Recycling and Waste Reduction)
- Installation of high-efficiency fixtures and appliances to reduce potable water demand and a non-potable water reuse system (WR2-Support Water Conservation)

In addition, the impacts of the proposed project or project variants with respect to GHGs is discussed in the initial study (see **EIR Appendix B**, **Section E.9, Greenhouse Gas Emissions**). As stated there, the proposed project or project variants would be compliant with the City's

Greenhouse Gas Reduction Strategy and thus would not result in any significant impacts associated with an increase in GHGs or conflict with measures adopted for the purpose of reducing such emissions. The City's greenhouse gas compliance checklist for public projects list regulatory requirements, many of which are related to transportation, energy conservation, waste reduction, and water conservation and would align with those specific sectors of the 2017 Bay Area Clean Air Plan control measures.

The project site is located within one of the City's transit priority areas, indicating that the proposed project or project variants would be developed at a site in a walkable urban area near a concentration of regional and local transit service. There are multiple Muni bus stops within one block of the project site (see **EIR Section 3.C, Transportation and Circulation**, **Figure 3.C.3: Existing Transit Network in Project Vicinity**, p. 3.C.16). In addition, other viable transportation options would also be available to the residents and employees on the site, including a complete network of 15-foot-wide sidewalks adjacent to the site and protected bicycle lanes on 17th Street. The proposed development (under either the proposed project or the project variants) would be an urban infill development with neighborhood-serving uses in the immediate vicinity that would allow for many of the day-to-day needs to be met by walking, bicycling, or taking transit to or from the project site instead of taking trips via private automobile. These features of the proposed project or project variants would limit substantial growth in automobile trips and vehicle miles traveled. As discussed above under **Impact AQ-2**, the proposed project's or project variant's anticipated increase in net new vehicle trips would result in a less-than-significant increase in air pollutant emissions.

The transportation sector control measures that are identified in the 2017 Bay Area Clean Air Plan would be required (as applicable) under the general plan and the planning code, through the City's Transit First Policy, bicycle parking requirements, and transportation sustainability fees, along with the TDM program. The transportation sector, building sector, energy sector, natural and working lands sector, waste sector, and water sector control measures would also be required under the general plan, planning code, and green building code. Implementation of the applicable control measures identified in the 2017 Bay Area Clean Air Plan along with these policies, requirements, and fees would ensure the proposed project or project variants includes relevant transportation sector, building sector, energy sector, natural and working lands sector, waste sector, and water sector control measures specified in the 2017 Bay Area Clean Air Plan. Therefore, the proposed project and project variants would include applicable control measures identified in the 2017 Bay Area Clean Air Plan and would support the primary goals of the 2017 Bay Area Clean Air Plan.

Examples of a project that could cause the disruption or delay implementation of the 2017 Bay Area Clean Air Plan sector control measures are projects that would preclude the extension of a transit line or bike path, or projects that propose excessive parking beyond City parking requirements. The proposed project or project variants would not preclude the extension of a transit line or a bike path or any other transit improvement. Except for up to 12 car-share spaces, no parking would be provided for the proposed project's or the project variants' mix of uses (outside of the parking spaces for 213 buses and 97 non-revenue vehicles). For the reasons described above, the proposed project or project variants would not interfere with implementation of the 2017 Bay Area Clean Air Plan. As the proposed project or project variants would be consistent with the applicable air quality plan that demonstrates how the region will improve ambient air quality and achieve the state and federal ambient air quality standards, this impact would be less than significant, and no mitigation measures are necessary.

It should be noted that **Mitigation Measures M-AQ-1** and **M-AQ-3** would implement control measures consistent with measures in the Clean Air Plan that are not specifically applicable to development projects, such as the proposed project or project variants. For example, **Mitigation Measure M-AQ-1**, pp. 3.E.47-3.E.48, which requires use of cleaner, Tier 4 construction equipment, is consistent with the 2017 Bay Area Clean Air Plan Mobile Source Control Measure TR-22, "Construction, Freight and Farming Equipment," which calls for, among other things, incentives to retrofit construction equipment with diesel PM filters or upgrade to electric or Tier 4 engines. **Mitigation Measure M-AQ-3**, p. 3.E.57, which requires the proposed emergency generators to meet more restrictive emissions standards, would be consistent with the 2017 Bay Area Clean Air Plan stationary-source control measure SS-32, "Enforce BAAQMD Regulation 11, Rule 18: Reduction of Risk from Air Toxics Emissions at Existing Facilities," which supports implementing more stringent requirements for stationary sources like the proposed project's or project variant's emergency generators.

Impact AQ-5: The proposed project or project variants would not create objectionable odors that would affect a substantial number of people. ***(Less than Significant)***

The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. Although offensive odors do not cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and can cause citizens to submit complaints to local governments and regulatory agencies.

Projects with the potential to expose a substantial number of people to objectionable odors are deemed to have a significant impact. Facilities that may generate objectionable odors affecting a substantial number of people include wastewater treatment facilities, sanitary landfills, composting facilities, petroleum refineries, chemical manufacturing plants, and food processing facilities.

Construction

Construction of the proposed project or project variants would emit minor sources of odors. Exhaust odors from diesel engines, as well as ROG emissions from asphalt paving and the application of architectural coatings, may be considered offensive by some individuals. Odors from these sources would be localized and generally confined to the immediately surrounding area. Additionally, odors from diesel fumes, asphalt paving, and architectural coatings would be temporary and would disperse rapidly with distance from the source.

Therefore, construction-generated odors such as diesel fumes would not result in frequent exposure of sensitive receptors to objectionable odor emissions. Construction-related odor impacts from the proposed project or project variants would be less than significant, and no mitigation is necessary.

Operation

Operational land uses associated with the proposed project or project variants would be an expansion of an existing use (the bus storage and maintenance facility). It would also introduce new residential and typical urban retail and commercial uses. A records search indicates that the existing transit facility does not have a history of air quality or odorous substance complaints, and the new uses are not typically generators of substantial odor emissions. The proposed project or project variants would not involve siting a new public facility that would generate substantial odors and would not involve construction of new facilities to house new residents or attract new employees to a location with existing odor sources. Although there may be some potential for small-scale, localized odor issues to emerge around project sources such as solid waste collection, wastewater or stormwater collection/conveyance, etc., substantial odor sources and consequent effects on sensitive receptors would be unlikely as those sources would be located in the basement level. Therefore, the proposed project or project variants would have a less-than-significant impact with respect to generating objectionable odors affecting substantial numbers of people, and no mitigation is necessary.

CUMULATIVE IMPACTS

As described in the “Approach to Analysis” section, p. 3.E.31, the project-specific thresholds of significance for criteria air pollutants are based on levels by which new sources would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment. The proposed project’s and project variant’s criteria air pollutant emissions are addressed in **Impacts AQ-1** and **AQ-2**. Therefore, no separate cumulative criteria air pollutant analysis is required. The remainder of this cumulative impact section discusses the cumulative localized impacts to air quality that could result from the proposed project or project variants in conjunction with cumulative projects within 1,000 feet from the project’s maximally exposed individual resident, as recommended by the air district.[87] The cumulative health risk analysis included the review of cumulative projects within an approximately quarter-mile radius (or approximately 1,320 feet) of the project site to determine which projects are located within

[87] BAAQMD, CEQA Air Quality Guidelines, May 2017, p. 5-2.

1,000 feet of the offsite maximally exposed individual resident and could potentially contribute to health risks at the offsite maximally exposed individual resident. The contributions of TACs from sources beyond 1,000 feet of the offsite maximally exposed individual resident would be greatly attenuated by both distance and intervening structures, and their contribution would be expected to be minimal.

Impact C-AQ-1: The proposed project or project variants, in combination with cumulative development in the project area, would contribute considerably to cumulative health risk impacts on sensitive receptors. ***(Significant and Unavoidable with Mitigation)***

The offsite maximally exposed individual resident is located in an area that currently meets the APEZ criteria for a Health Vulnerability zip code (90 per million excess cancer risk or a $PM_{2.5}$ concentration of 9.0 $\mu g/m^3$) and, therefore, a significant health risk impact already exists. According to the Citywide health risk assessment, the background excess cancer risk and $PM_{2.5}$ concentration at the offsite maximally exposed individual resident are 183.7 in a million and 10.74 $\mu g/m^3$, respectively. As discussed under **Impact AQ-3**, a health risk assessment was conducted to determine whether the proposed project or project variants would substantially contribute to the existing health risks at the offsite maximally exposed individual resident. Health risks from cumulative projects not already included in the Citywide health risk assessment are discussed qualitatively, below, to determine if they could also substantially contribute to the existing health risks at the offsite maximally exposed individual resident.

Cumulative Projects

Eleven development projects and two transportation projects have been identified within a .25-mile radius of the proposed project or project variants that were not included in the Citywide health risk assessment. Descriptions of these cumulative projects are provided in **EIR Section 3.A, Introduction to EIR Chapter 3**, pp. 3.A.6-3.A.8, and shown on **Figure 3.A.1: Cumulative Projects** (p. 3.A.9). They are summarized below in **Table 3.E.12: Cumulative Projects Contributing to Health Risks at the Maximally Exposed Individual Resident**.

Air dispersion of emissions from a pollutant source results in a substantial decrease in the pollutant concentrations with distance. For example, studies show there is about a 70 percent reduction in DPM concentrations from vehicle exhaust within the first 500 feet downwind of a roadway.[88] As shown in **Table 3.E.12**, all projects involving the construction of a new building would be located at least 700 feet from the project's maximally exposed individual resident. At distances of more than 500 feet from the project's maximally exposed individual resident, any health risk impacts from these new construction projects are expected to be negligible.

[88] California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005, *http://www.arb.ca.gov/ch/handbook.pdf,* accessed May 5, 2021.

Table 3.E.12: Cumulative Projects Contributing to Health Risks at the Maximally Exposed Individual Resident

Locations	Distance to MEIR (feet)	Project Description
Development Projects		
1850 Bryant Street	700	The project proposes a five-story mixed-use building.
321 Florida Street	980	The project proposes a 10-story mixed-use building and may include an emergency diesel generator.
2435-2445 16th Street	1,050	The project proposes a seven-story residential building and may include an emergency diesel generator.
681 Florida Street	1,080	The project proposes a nine-story mixed-use building and may require an emergency diesel generator.
2750 19th Street	990	The project proposes a six-story mixed-use building.
2747 19th Street	1,150	The project proposes a five-story mixed-use building.
333-335 Potrero Avenue	680	The project proposes to renovate and build a three-story addition onto an existing building for a mixed-use development.
312 Utah Street	805	The project proposes a four-story residential building.
300 Kansas Street	1,400	The project proposes a six-story production, distribution, and repair building.
480 Potrero Avenue	Adjacent	The project proposes to renovate the ground floor of an existing six-story residential building to add one new residential unit.
2601 Mariposa Street	430	The project proposes to renovate and add a floor to the existing building.
Transportation Projects		
16th Street Improvement Project	825	The project proposes to implement improvements along 16th Street from Church to 3rd streets that will include transit-only lanes, transit bulbs, new traffic and pedestrian signals, as well as new streetscape amenities.
SFMTA Northeast Mission Parking Management Plan	0	No construction activities or operational sources of TACs are associated with the parking management plan.

Note: MEIR = maximally exposed individual resident

Source: San Francisco Planning Department, December 2020.

There are two projects located between approximately 430 and 680 feet from the project's maximally exposed individual resident that could require diesel construction equipment, but the scopes of these projects include renovations or additions to existing buildings and, therefore, are not expected to require substantial diesel construction activity. Therefore, because the above cumulative projects that could emit substantial diesel emissions from construction or operations are located far from the project site, it is not anticipated that health risks from any of the identified cumulative projects would combine with health risks from the proposed project or project variants to substantially increase the existing plus project health risks at the project's maximally exposed individual resident.

Project and Cumulative Project Contributions to Background Health Risks

As discussed above, cumulative projects within 1,000 feet of the offsite maximally exposed individual resident are not expected to substantially increase the existing background health risks at the maximally exposed individual resident. However, as discussed under **Impact AQ-3**, the proposed project or project variants would result in a substantial increase in the existing background health risks at the maximally exposed individual resident. As discussed above, p. 3.E.58, even with **Mitigation Measures M-AQ-1** and **M-AQ-3** required as conditions of approval for the proposed project or project variants, construction and/or operation of the proposed project or project variants would result in a substantial increase in the exposure of sensitive receptors to DPM, TOG, and $PM_{2.5}$ and the proposed project's or project variants' contribution to cumulatively significant health risk impacts would be significant and unavoidable with mitigation.

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F. WIND

INTRODUCTION

EIR Section 3.F, Wind, describes the proposed project's impacts on ground-level wind currents at various publicly accessible locations on and near the project site. The Environmental Setting and Regulatory Framework subsections include descriptions of the general wind characteristics in San Francisco, the effects of the natural and built environment on winds, the effects of pedestrian-level winds on people, the regulations used by the City to determine whether the wind impacts of a proposed project would result in ground-level wind currents that exceed defined pedestrian comfort and hazard criteria, and the details of the existing wind environment near the project site. The Impacts and Mitigation Measures subsection identifies the significance criterion for determining if wind impacts are significant under CEQA, describes the analytical approach and model specifications for wind tunnel tests, and presents the evaluation of potential wind impacts for three test scenarios under the proposed project: an existing scenario, which establishes the baseline wind conditions at and around the project site; a project scenario, which evaluates the proposed project's effects on ground-level wind currents; and a cumulative scenario, which evaluates the effects of the proposed project in combination with cumulative projects. The wind data cited in this section are based on the results of the wind tunnel study prepared for the proposed project by the engineering firm Rowan William Davies Irwin (RWDI).[1] See **EIR Appendix H, Pedestrian Wind Study**.

Issues identified in response to the Notice of Preparation (NOP) of an Environmental Impact Report and Notice of a Public Scoping Meeting (**EIR Appendix A**) related to the proposed project's physical environmental impacts were considered in preparing this analysis. The San Francisco Planning Department (planning department) received NOP comments related to wind that focused on general concerns with wind effects (see **EIR Chapter 1, Introduction**, pp. 1.3-1.5).

ENVIRONMENTAL SETTING

SAN FRANCISCO'S EXISTING WIND CONDITIONS

The difference in atmospheric pressure between two points on the earth causes air masses to move from the area of higher pressure to the area of lower pressure. This movement of air masses results in wind currents. Wind directions are reported as directions from which the winds blow.

In San Francisco, meteorological data collected from the United States Weather Bureau weather station atop the San Francisco Federal Building at 50 United Nations Plaza over a six-year period between 1945 and 1950 show that westerly through northwesterly winds are the most frequent and

1 Rowan Williams Davies & Irwin, Inc. (RWDI), Pedestrian Wind Study - SFMTA Potrero Yard Modernization Project, San Francisco, CA, September 4, 2020. See **EIR Appendix H**.

strongest winds during all seasons.[2] Of the 16 primary wind directions, four have the greatest frequency of occurrence: northwest (10 to 13 percent of all winds), west-northwest (14 to 26 percent of all winds), west (35 to 45 percent of all winds), and west-southwest (2 percent of all winds). They make up more than 60 percent of the general winds and more than 85 percent of the strongest winds and reflect the persistence of sea breezes.

In San Francisco, average wind speeds are highest during the summer and lowest during the winter. The strongest peak wind speeds occur in the winter when wind direction is most variable and strong southerly winds, which are frequent during the approach of a winter storm, occur. Wind speeds exhibit a shifting, but characteristic, pattern over the course of a day, i.e., the highest wind speeds generally occur during the mid-afternoon hours, while the lowest wind speeds often occur during early mornings. Based on over 40 years of recordkeeping, the highest mean hourly wind speeds (approximately 20 mph) occur mid-afternoon in July, while the lowest mean hourly wind speeds (in the range of 6 to 9 mph) occur throughout the day in November.

WIND EFFECTS FROM NATURAL AND BUILT ENVIRONMENT

The direction and speed of wind currents can be altered by natural features of the land and by buildings and structures. In San Francisco, trees and landscaping tend to be at their fullest in the summer months when wind speeds are higher on average, helping to absorb and control windiness near ground level. This is an advantage that San Francisco has over many of its northern city neighbors where the stronger winds occur in the winter months when trees and landscaping are less beneficial in improving the local wind environment. Typically, groups of buildings clustered together tend to act as obstacles that reduce wind speeds and slow winds near ground level, primarily due to the friction and drag of a structure's surface on winds. Building height, exposure, massing, and orientation are also factors that may affect wind speeds and nearby ground-level wind conditions.

Exposure is a measure of the degree to which a building or structure extends above the surrounding built environment into the wind stream. A building surrounded by taller structures is unlikely to cause adverse wind accelerations at the ground level, while even a small building can cause wind acceleration if it is freestanding and exposed. A building that stands alone or is much taller than the surrounding buildings can intercept and redirect winds that might otherwise flow overhead, bringing them down the vertical face of the building where they can create relatively strong and turbulent ground-level winds if unabated by setbacks, façade articulation, or architectural features on the vertical face.

[2] Arens, E. et al., "Developing the San Francisco Wind Ordinance and its Guidelines for Compliance," *Building and Environment*, 1989, Vol. 24, No. 4, pp. 297–303.

The massing and orientation (or profile) of a building affect how much wind a building intercepts and whether wind accelerations occur at ground level. Buildings oriented with a wide axis perpendicular to prevailing winds will generally cause greater ground-level wind acceleration than buildings oriented with a narrow axis perpendicular to prevailing winds. In general, slab-shaped buildings oriented perpendicular to the prevailing wind direction have the greatest potential to cause wind acceleration. Buildings with a geometrically complex shape or setbacks have a lesser effect.

Thus, wind impacts are generally caused by large building masses that are substantially taller than their surroundings, and by buildings oriented so that a large wall catches a prevailing wind, particularly if such a wall includes little or no articulation.

WIND EFFECTS ON PEOPLE

The comfort of pedestrians varies under different conditions of sun exposure, temperature, clothing, and wind speed.[3] Winds up to about 4 miles per hour (mph) have no noticeable effect on pedestrian comfort. With speeds from 4 to 8 mph, wind is felt on the face. Winds from 8 to 13 mph will cause clothing to flap and extend a light flag mounted on a pole. Winds from 13 to 19 mph will raise loose paper, dust, and dry soil. With winds from 19 to 26 mph, the force of the wind will be felt on the body. With winds from 26 to 34 mph, umbrellas are used with difficulty, there is difficulty in walking steadily, and wind noise is unpleasant. Winds over 34 mph can result in loss of balance, and gusts can blow people over.[4]

REGULATORY FRAMEWORK

While there are no specific federal or state regulations which deal with wind effects on publicly accessible areas, San Francisco has established several provisions, policies, and procedures that provide the framework to evaluate potential wind impacts from new development and to determine whether wind conditions are suitable for pedestrian activities.

LOCAL REGULATIONS

San Francisco Planning Code Section 148

San Francisco Planning Code (planning code) section 148, Reduction of Ground-level Wind Currents in Downtown Commercial (C-3) Districts, requires buildings in C-3 zoning districts to be shaped so as not to cause ground-level wind currents to exceed defined pedestrian comfort and hazard criteria. The pedestrian comfort and hazard criteria for certain zoning districts elsewhere in

[3] Lawson, T. V., and A. D. Penwarden, "The Effects of Wind on People in the Vicinity of Buildings," Proceedings of the Fourth International Conference on Wind Effects on Buildings and Structures, London, 1975, Cambridge University Press, Cambridge, U.K., 1976, pp. 605-622.

[4] National Oceanic and Atmospheric Administration, Beaufort Wind Scale, *https://www.weather.gov/mfl/beaufort*, accessed December 15, 2020.

the city (the Downtown Residential Districts, the Folsom and Main Residential/Commercial Special Use District, the Van Ness Special Use District, and certain zoning districts in the South of Market neighborhood) are the same as those established for the C-3 zoning districts by section 148 (see also section 243, section 249.1, and section 263.11).

The pedestrian comfort and hazard criteria are based on pedestrian-level wind speeds that include the effects of turbulence; these are referred to as "equivalent wind speeds" (defined in the planning code as "an hourly mean wind speed adjusted to incorporate the effects of gustiness or turbulence on pedestrians").

COMFORT CRITERIA

Section 148 establishes equivalent wind speeds of 7 mph for seating areas and 11 mph for areas of substantial pedestrian use.[5] For projects subject to section 148, the comfort criteria require that wind speeds not exceed these levels more than 10 percent of the time year-round between 7 a.m. and 6 p.m.

HAZARD CRITERION

Section 148 establishes a wind hazard criterion of an equivalent wind speed of 26 mph.[6] Under section 148, new buildings and additions to buildings may not cause wind speeds that meet or exceed this hazard criterion. For projects subject to section 148, no exception may be granted during the review for entitlements for buildings that result in winds that exceed the hazard criterion.

WIND CONDITIONS IN THE PROJECT VICINITY

The proposed project is in the northeast portion of San Francisco's Mission District. The 4.4-acre site (equivalent to two city blocks) is bounded by 17th, Hampshire, Mariposa, and Bryant streets. It is occupied by the SFMTA's Potrero Yard transit facility which consists of a predominantly single-story maintenance and operations building and an asphalt-paved bus yard on the east and west portions of the site, respectively. The site's grade elevation changes by approximately 27 feet

[5] The wind comfort criteria are defined in terms of equivalent wind speed, which is an average wind speed (mean velocity), adjusted to include the level of gustiness and turbulence. Equivalent wind speed is defined as the mean wind velocity, multiplied by the quantity (1 plus 3 times the turbulence intensity) divided by 1.45. This calculation magnifies the reported wind speed when turbulence intensity is greater than 15 percent.

[6] The wind hazard criterion is derived from the wind condition that would generate a three-second gust of wind at 20 meters per second, a commonly used guideline for wind safety. This wind speed, on an hourly basis, is a 26-mph average for a full hour. Because the original Federal Building wind data were collected at one-minute averages, the 26-mph hourly average is converted to a one-minute average of 36 mph, which is used to determine compliance with the 26 mph one-hour hazard criterion in the planning code. (Arens, E. et al., "Developing the San Francisco Wind Ordinance and its Guidelines for Compliance," *Building and Environment*, 1989, Vol. 24, No. 4, pp. 297–303.)

from the low southwest corner (Mariposa/Bryant streets) to the high northeast corner (17th/Hampshire streets).

Existing buildings in the immediate area are predominantly two to nine stories. To the north is Franklin Square, an approximately 4.4-acre open space, and the Potrero Center retail complex and parking lot. The pedestrian comfort criterion of 11 mph is established in planning code section 148 for the C-3 zoning districts and is not applicable to the project site. As discussed below, wind modeling of existing conditions indicates that wind speeds at 46 of the 70 grade-level test point locations around the project site and vicinity currently exceed the pedestrian comfort criterion (see **Figure 3.F.1: Locations of Wind Study Test Points)**. The remaining 24 test point locations comply with the comfort criterion. The average equivalent wind speed for the wind comfort analysis at all locations is approximately 13 mph.

Under existing conditions, three of the 70 test point locations currently exceed the wind hazard criterion of 26 mph for more than one hour per year for a total of 58 hours per year. The highest wind speed occurs along 17th and Hampshire streets, immediately north and east of the project site.

These conditions exist due to the Franklin Square open space and lack of buildings taller than 80 feet in the upwind areas west of Bryant Street and north of 17th Street. This allows the prevailing northwesterly, west-northwesterly, and westerly winds direct access to this area with relatively little disruption from intervening buildings. With a relatively unobstructed path northwesterly to westerly winds are redirected downward and channeled to the south at ground level. Thus, the prevailing winds are sufficiently strong and turbulent at and near ground level at the intersection of 17th and Hampshire streets to create hazards. Existing wind speeds within publicly accessible pedestrian areas surrounding the project site are also sufficient to affect pedestrian comfort, particularly during the summer afternoons when winds tend to be stronger on average.

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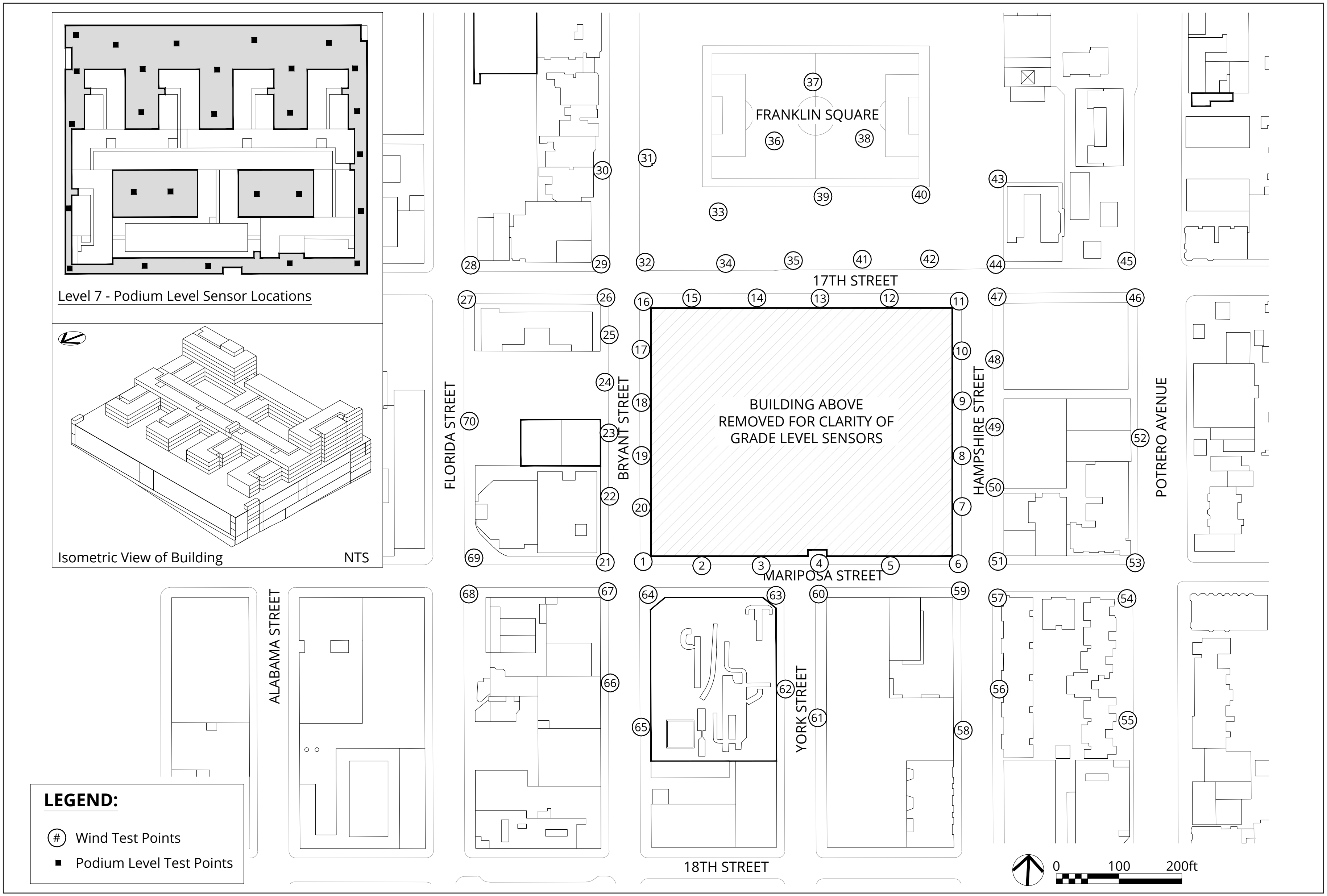

Source: RWDI, September 2020

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FIGURE 3.F.1: LOCATIONS OF WIND STUDY TEST POINTS

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE THRESHOLD

San Francisco Administrative Code chapter 31 directs the planning department to identify environmental effects of a project using as its base the environmental checklist form set forth in Appendix G of the CEQA Guidelines. As it relates to wind, Appendix G asks if the project would:

- create wind hazards in publicly accessible areas of substantial pedestrian use.

To assess whether a project would result in a significant impact under the CEQA, the planning department uses the planning code's hazard criterion as defined by section 148. That is, the City determines whether a project would cause equivalent wind speeds to reach or exceed the 26-mph wind hazard criterion. If a project would cause a new wind hazard or exacerbate an existing wind hazard in a publicly accessible area of substantial pedestrian use, it would be considered a significant wind impact for the purposes of CEQA.

As also described above, section 148 establishes wind comfort criteria for the C-3 zoning districts, whereby a project shall not cause ground-level wind currents to exceed, more than 10 percent of the time, 11 mph in areas of substantial pedestrian use, and 7 mph in public seating areas. In San Francisco, exceedances of the wind comfort criteria are not significant environmental impacts for the purpose of CEQA; thus, this EIR section focuses on the wind hazard analysis. The proposed project's wind effects relative to the pedestrian comfort criteria are presented in **EIR Appendix H** for informational purposes only, along with information on wind speeds at grade-level test locations within the existing 17th Street bicycle lane, and do not factor into the determination of significance.

APPROACH TO ANALYSIS

The project site is not located in a zoning district subject to the provisions of section 148 or any other planning code sections that include provisions related to ground-level wind currents (i.e., the required project approvals do not include exceptions from the wind comfort criteria established in section 148). However, for purposes of CEQA the hazard criterion is used to determine the significance of winds, and an exceedance of this criterion is considered a significant impact pursuant to CEQA.

Project Features

The proposed project consists of the construction of a new 13-story, 150-foot-tall structure, as measured along Mariposa Street (not including elevator and mechanical penthouses). It would replace the existing transit facility with a new transit facility and joint development (residential and commercial components). The proposed project would also include a request to reclassify the height limit for the project site from 65 to 150 feet. The proposed project has the potential to affect ground-level wind conditions around and near the project site.

The proposed project would have two volumetric components rising to an overall height of up to 150 feet. A three-level (or six-story), 75-foot-tall podium element for the new transit facility, the commercial component, and portions of the residential component would occupy the full site except for a 5-foot-wide planting strip along the northern property line. The transit facility podium would be surmounted by a vertical element for the remainder of the residential component (three- to seven-story residential structures ranging in height from 30 to 70 feet). The tallest portions of the new residential development atop the transit facility podium would be located on the southern portion of the site. The three- to seven-story residential structures atop the transit facility podium would be set back from the north, east, south, and west edges of the 75-foot-tall podium element.

The proposed project also includes construction of new open space on the rooftop of the podium, along its northern portion where the three-story residential structures atop the transit facility podium are set back from the north edge of the 75-foot-tall podium element. This new open space may be available to the public but is now currently contemplated as open space for use by building residents and the SFMTA.

The proposed project also includes four project variants as described in **EIR Chapter 2, Project Description**, pp. 2.56-2.58. The proposed building position, height, and bulk/massing of the project variants would be the same as those of the proposed project. Therefore, wind impacts of the project variants would be identical to those of the proposed project and no separate analysis of the project variants is necessary.

Technical Standards

At a height of 150 feet, the proposed project would be substantially taller than existing nearby buildings and has the potential to intercept winds that might otherwise flow overhead. These winds can be redirected down the vertical face of the building and alter ground-level wind conditions on the sidewalks along Bryant, 17th, Hampshire, and Mariposa Streets and beyond. For these reasons, the proposed project is required to undergo wind tunnel testing. Any proposed development project in San Francisco that requires a wind tunnel analysis must follow the standard methodology established by the planning department. Under the standard methodology, the wind tunnel analysis relies on wind data collected from the United States Weather Bureau weather station atop the Federal Building at 50 United Nations Plaza. Wind data from 7 a.m. to 6 p.m. are used, because this time period represents peak pedestrian activity in an urban setting.

RWDI conducted a wind tunnel test of the proposed project using a 1:300 scale model of the proposed project and surrounding buildings within a 1,500-foot radius[7] of the project site. The scale model, which is equipped with permanently mounted wind speed sensors, was placed inside an atmospheric boundary layer wind tunnel. Using 16 wind directions (in 22.5-degree increments) wind tunnel tests were then conducted for the project site and vicinity using the following three different scenarios:

1. Existing Conditions: This scenario consists of the existing structures on the project site and the existing surrounding buildings.[8,9]
2. Existing Conditions Plus Proposed Project: This project scenario consists of the proposed project and the existing surrounding buildings. As described in **EIR Chapter 2, Project Description**, on p. 2.18 under "Project Background" due to the public and private nature of the joint development the building design is at an early stage. Therefore, the scale model of the proposed project tested in the wind tunnel lacks façade articulation or architectural features beyond the setbacks defined above – at the ground level and on the podium.[10]
3. Proposed Project Plus Cumulative: For this cumulative scenario, which includes the proposed project and the existing surrounding buildings, a 1,500-foot radius was established around the project site.[11]

The number and locations of the wind study test points were selected by the wind consultant and the planning department based on the presence of public areas on and around the project site and how the proposed project could affect pedestrian-level wind patterns throughout the project vicinity (see **Figure 3.F.1**, p. 3.F.6). Pedestrian-level wind speeds were measured at 70 locations for each of the three scenarios at an effective-full-scale height of approximately 6 feet above ground, which is the standard height used for assessing wind effects on pedestrians.

The section 148 wind hazard criterion of 26 mph is defined by a wind speed that is measured and averaged over a period of one hour. When stated on the same time basis as the comfort criteria wind speeds, the hazard criterion wind speed (26 mph averaged over a single one-hour, or approximately 0.0114 percent of the time in a year) is equivalent to a one-minute average of 36 mph. Thus, test results presented in the wind tunnel report for the proposed project and in this section of the EIR use the one-minute average of 36 mph for the hazard criterion.

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7 The American Society of Civil Engineers has established a minimum standard of an 820-foot radius for wind tunnel testing. RWDI uses a 1,500-foot radius, because that is the largest radius that can be covered by the scale model that would fit into the wind tunnel. In addition, buildings that are more than 1,500 feet from a project site would have little to no effects on winds on and around the project site in a densely developed urban environment such as San Francisco.

8 Wind tunnel testing typically does not include trees or landscaping or topography as a baseline or project condition thus presenting reasonable worst case test scenarios for purposes of the CEQA analysis.

9 RWDI, Appendix B1, Image 2A, Wind Tunnel Study Model – Existing Configuration, p. 1 and Figure 2.A, Pedestrian Wind Hazard Conditions – Existing, February 21, 2020.

10 RWDI, Appendix B1, Image 2B, Wind Tunnel Study Model – Existing + Project Configuration, p. 2 and Figure 2.B, Pedestrian Wind Hazard Conditions – Existing + Project, March 4, 2020.

11 RWDI, Appendix B1, Image 2C, Wind Tunnel Study Model – Project + Cumulative Configuration, p. 3 and Figure 2.C, Pedestrian Wind Hazard Conditions – Project + Cumulative, March 4, 2020.

IMPACT EVALUATION

Impact WI-1: The proposed project or project variants would create wind hazards in publicly accessible areas of substantial pedestrian use in the vicinity of the project site. ***(Less than Significant with Mitigation)***

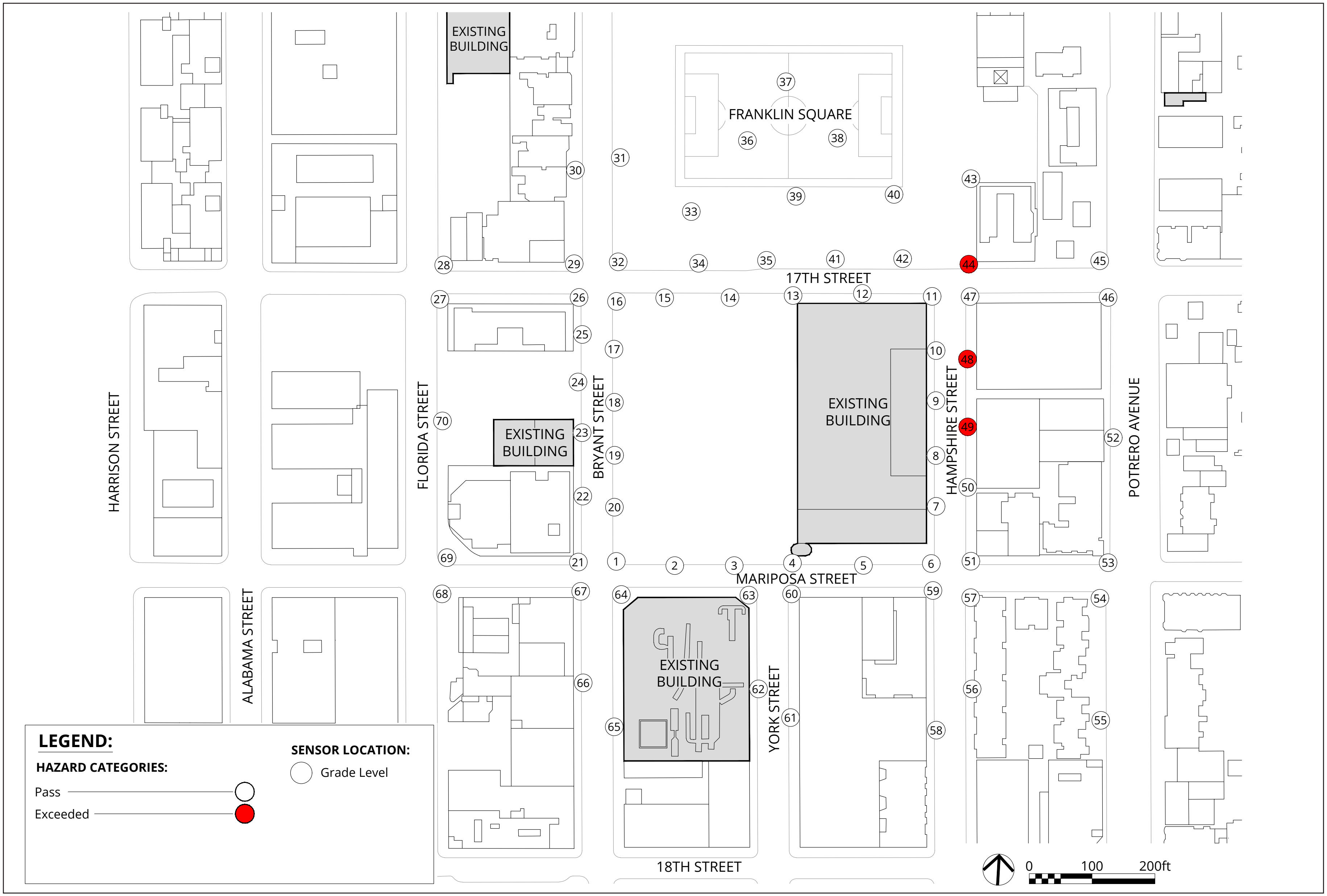
Wind Hazard Analysis

The study area is prone to hazardous wind conditions at specific locations on 17th and Hampshire streets. Under existing conditions, three of the 70 test points exceed the hazard criterion, with the total number of hours exceeding the hazard criterion reaching 58 hours per year. The test points at which the hazard criterion is exceeded are as follows: on the north sidewalk of 17th Street near the intersection with Hampshire Street; on the eastern sidewalk of Hampshire Street south of the intersection with 17th Street; and at the midblock of the eastern sidewalk of Hampshire Street (see test points 44, 48, and 49 on **Figure 3.F.2: Wind Hazard Results – Existing Scenario**). The test results presented in **Table 3.F.1: Wind Hazard Analysis Results – Existing, Project and Cumulative Scenarios (Without Mitigation)**, pp. 3.F.13-3.F.14, use the one-minute average of 36 mph for the wind hazard criterion. Exceedances range from a one-minute average of 37 mph at test point 49 to a one-minute average of 47 mph at test point 44.

A new 150-foot-tall structure with limited setbacks for the 75-foot-tall podium element and no façade articulation, architectural features (canopies and marquees), or landscaping would adversely affect ground-level wind currents. When compared to existing conditions, implementation of the proposed project would change wind patterns such that two new exceedances (test points 1 and 11) would be created and one existing hazard criterion exceedance (test point 49) would be eliminated, resulting in a net change of one new exceedance. (See test points 1, 11, 44, and 48 on **Figure 3.F.3: Wind Hazard Results – Project Scenario**.) Test point 1 is on the northeast corner of the Bryant/Mariposa sidewalk. Test point 11 is on the southwest corner of the 17th/Hampshire intersection.

At the two test points locations where exceedances would be created with the proposed project or project variants, wind speeds would increase over existing conditions as follows:

- Test point 1 – from a one-minute average of 24 mph under existing conditions to 42 mph with the proposed project or project variants, with an increase of approximately 18 hours annually when the wind hazard is exceeded
- Test point 11 – from a one-minute average of 35 mph under existing conditions to 37 mph with the proposed project or project variants, with an increase of approximately 2 hours annually when the wind hazard is exceeded



Source: RWDI, March 2020

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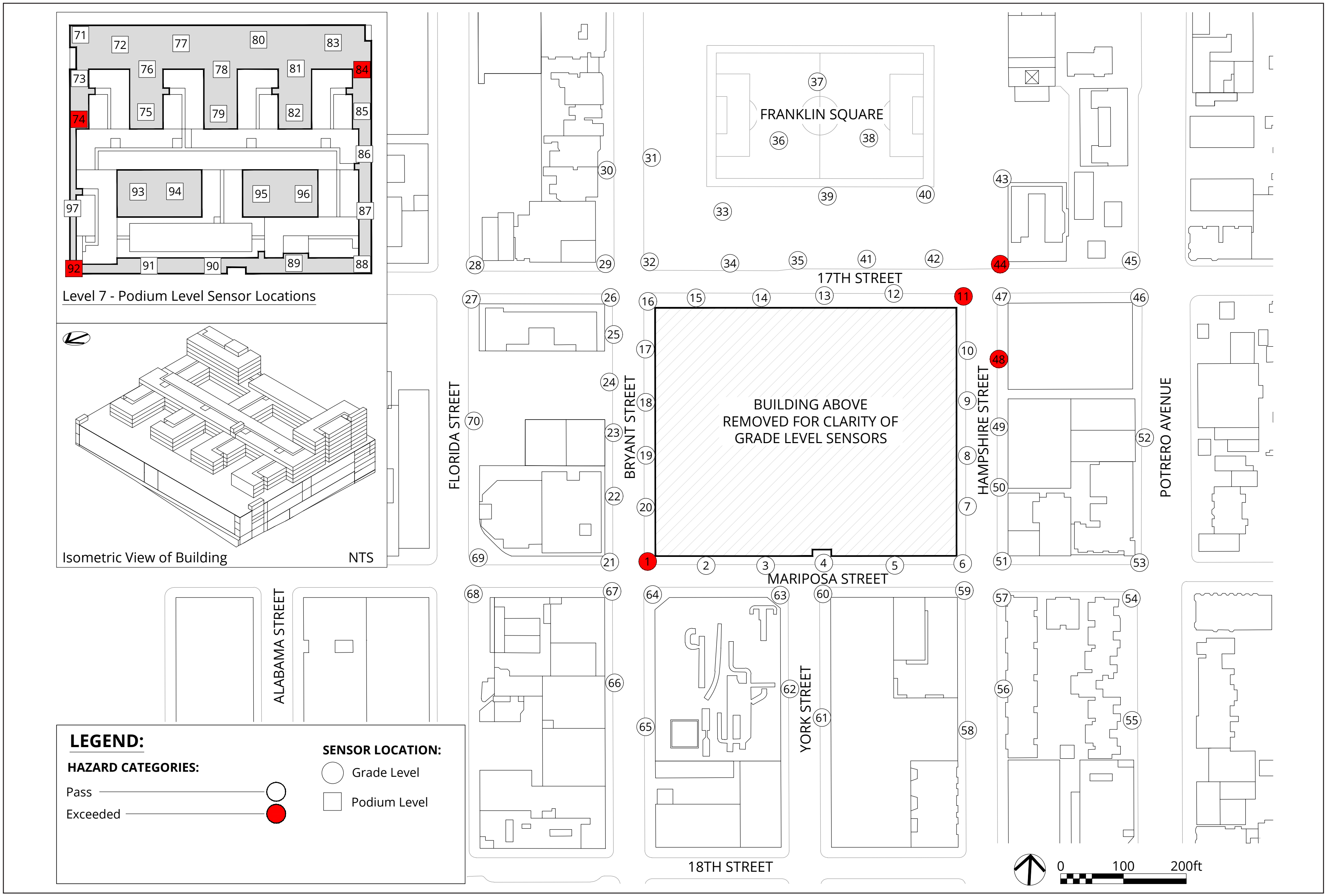
FIGURE 3.F.2: WIND HAZARD RESULTS – EXISTING SCENARIO



Source: RWDI, March 2020

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FIGURE 3.F.3: WIND HAZARD RESULTS – PROJECT SCENARIO

Table 3.F.1: Wind Hazard Analysis Results – Existing, Project and Cumulative Scenarios (Without Mitigation)

Location Number	Hazard Criterion (mph)	Existing Scenario			Project Scenario				Cumulative Scenario				
		Wind Speed Exceeded 1 Hour per Year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Exceeds	Wind Speed Exceeded 1 Hour per Year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds	Wind Speed Exceeded 1 Hour per Year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Hours Change Relative to Project	Exceeds
1	36	24	0		42	18	18	n	36	1	1	17	n
2	36	26	0		29	0	0		33	0	0	0	
3	36	25	0		28	0	0		26	0	0	0	
4	36	25	0		20	0	0		19	0	0	0	
5	36	25	0		18	0	0		18	1	0	0	
6	36	19	0		19	0	0		19	0	0	0	
7	36	20	0		20	0	0		21	0	0	0	
8	36	21	0		21	0	0		22	0	0	0	
9	36	25	0		16	0	0		18	0	0	0	
10	36	29	0		16	0	0		17	0	0	0	
11	36	35	0		37	2	2	n	38	5	5	3	n
12	36	27	0		30	0	0		30	0	0	0	
13	36	28	0		26	0	0		24	0	0	0	
14	36	27	0		25	0	0		21	0	0	0	
15	36	24	0		19	0	0		17	0	0	0	
16	36	22	0		35	0	0		30	0	0	0	
17	36	23	0		28	0	0		26	0	0	0	
18	36	24	0		25	0	0		28	0	0	0	
19	36	22	0		27	0	0		25	0	0	0	
20	36	23	0		31	0	0		26	0	0	0	
21	36	24	0		33	0	0		31	0	0	0	
22	36	14	0		22	0	0		20	0	0	0	
23	36	17	0		21	0	0		21	0	0	0	
24	36	24	0		30	0	0		23	0	0	0	
25	36	10	0		23	0	0		24	0	0	0	
26	36	19	0		23	0	0		24	0	0	0	
27	36	25	0		24	0	0		31	0	0	0	
28	36	19	0		18	0	0		39	5	5	5	n
29	36	21	0		23	0	0		24	0	0	0	
30	36	10	0		20	0	0		18	0	0	0	
31	36	23	0		23	0	0		23	22	0	0	
32	36	20	0		31	0	0		27	0	0	0	
33	36	25	0		25	0	0		22	0	0	0	
34	36	25	0		24	0	0		24	0	0	0	
35	36	26	0		26	0	0		26	0	0	0	
36	36	26	0		25	0	0		26	0	0	0	
37	36	30	0		28	0	0		27	4	0	0	
38	36	30	0		29	0	0		29	0	0	0	
39	36	27	0		26	0	0		26	0	0	0	
40	36	28	0		26	0	0		27	14	0	0	
41	36	26	0		27	0	0		27	0	0	0	
42	36	27	0		27	0	0		28	0	0	0	
43	36	32	0		29	0	0		31	0	0	0	

Location Number	Hazard Criterion (mph)	Existing Scenario			Project Scenario				Cumulative Scenario				
		Wind Speed Exceeded 1 Hour per Year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Exceeds	Wind Speed Exceeded 1 Hour per Year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds	Wind Speed Exceeded 1 Hour per Year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Hours Change Relative to Project	Exceeds
44	36	47	55	e	45	36	-19	e	45	34	-21	-3	e
45	36	31	0		28	0	0		25	0	0	0	
46	36	35	0		30	0	0		33	0	0	0	
47	36	33	0		31	0	0		32	0	0	0	
48	36	38	2	e	43	30	28	e	43	30	28	0	e
49	36	37	1	e	35	0	-1	--	37	1	0	1	e
50	36	30	0		22	0	0		23	0	0	0	
51	36	26	0		16	0	0		16	0	0	0	
52	36	21	0		17	0	0		18	0	0	0	
53	36	21	0		18	0	0		19	0	0	0	
54	36	30	0		15	0	0		16	0	0	0	
55	36	20	0		18	0	0		17	0	0	0	
56	36	26	0		21	0	0		22	0	0	0	
57	36	32	0		16	0	0		15	0	0	0	
58	36	21	0		16	0	0		16	0	0	0	
59	36	30	0		18	0	0		19	0	0	0	
60	36	22	0		24	0	0		21	0	0	0	
61	36	31	0		21	0	0		22	0	0	0	
62	36	21	0		14	0	0		14	0	0	0	
63	36	34	0		32	0	0		28	0	0	0	
64	36	29	0		33	0	0		33	0	0	0	
65	36	31	0		28	0	0		29	0	0	0	
66	36	20	0		26	0	0		22	0	0	0	
67	36	22	0		24	0	0			0	0	0	
68	36	22	0		21	0	0		24	0	0	0	
69	36	23	0		23	0	0		20	0	0	0	
70	36	28	0		25	0	0		28	0	0	0	
		Average	**Sum**	**Sum**	**Average**	**Sum**	**Sum**	**Sum**	**Average**	**Sum**	**Sum**	**Sum**	**Sum**
		25	**58**	**3**	**25**	**86**	**28**	**4**	**25**	**76**	**18**	**-10**	**6**
			Existing, e	3			Existing, e	2				Existing, e	3
							New, or increased time, p					New, or increased time, p	
							New, at new location, n	2				New, at new location, n	3
							Eliminated by Proposed Project, --	1				Eliminated by Proposed Project, -	0

Source: RWDI, Appendix B1, Table 2.1: Wind Hazard Conditions – Grade Level, March 4, 2020. See **EIR Appendix H**.

At test point 44 where the exceedance would remain, wind speeds would decrease from a one-minute average of 47 mph under existing conditions to 45 mph with the proposed project or project variants. This would result in a reduction of approximately 19 hours annually when the wind hazard is exceeded.

At test point 48 where the exceedance would also remain, wind speeds would increase from a one-minute average of 38 mph under existing conditions to 43 mph with the proposed project or project variants. This would result in an increase of approximately 28 hours annually when the wind hazard is exceeded.

At test point 49 where the exceedance would be eliminated, wind speeds would fall from a one-minute average of 37 mph under existing conditions to 35 mph with the proposed project or project variants. This would result in a reduction of approximately 1 hour annually when the wind hazard is exceeded.

In addition to a net increase of one hazard exceedance location, the total number of hazard exceedance hours per year under the proposed project or project variants would also increase for a total duration of 86 hours annually. This would represent an increase over existing conditions of approximately 28 hours annually when the wind hazard is exceeded. Under the proposed project or project variants, exceedances would range from a one-minute average of 37 mph at test point 11 to a one-minute average of 45 mph at test point 44. The remaining 66 locations tested in the study area currently comply with the City's wind hazard criterion.

Thus, implementation of the proposed project or project variants would result in a net increase of one wind hazard exceedance resulting in substantial changes to ground-level wind conditions in a publicly accessible area of substantial pedestrian use. As a result, the proposed project or project variants would have a significant wind impact.

As noted on p. 3.F.9, the physical model tested in the wind tunnel did not include topography, street trees, or other landscaping. The physical model also did not include a building volume with façade articulation or architectural details beyond the 5-foot-deep setback along 17th Street for the podium and the setback of the vertical elements on the podium. Thus, mitigation in the form of changes to the building's massing and design would be required to reduce the impact to a less-than-significant level (see **Mitigation Measure M-WI-1: Design Measures to Reduce Project-Specific Wind Impacts**, p. 3.F.17).

RWDI, in consultation with the planning department and the San Francisco Municipal Transportation Agency (SFMTA), refined the model in various ways to address the project-specific wind hazard exceedance at test point 1. The architectural detailing and building mass changes identified as potential design measures that could reduce project-specific wind impacts included the following:

- a recessed building corner[12] at the building's southwest corner
- vertical wind screens at grade level
- vertical elevated screens on the west façade
- porous façades on portions of the west, north, and east elevations
- landscaping on adjacent sidewalks

The physical model was also updated so the existing, project and cumulative scenarios include the influence of local terrain changes at the Franklin Square open space as well as existing landscaping.

The wind reduction measures identified in **Mitigation Measure M-WI-1** were tested to determine if they help reduce ground-level wind conditions (see **EIR Appendix H, Pedestrian Wind Study, September 2020** and Appendix B2 and Appendix B3 of the wind study). The testing of the mitigated project scenarios indicates the following model changes and building design measures would 1) incorporate existing terrain and landscaping into the existing conditions baseline and 2) enable reduction of the significant wind impact to a less-than-significant level:

- Wind hazard exceedances under updated existing conditions would be reduced from three locations to two locations and the exceedance locations would shift from test points 44, 48, and 49 to test points 44 and 47. The total number of hours the wind hazard criterion would be reached or exceeded would decrease by 28 hours, from 58 hours per year under the model that does not reflect local terrain changes, street trees, or other landscaping to 30 hours per year under the updated physical model that does include these features.[13]
- Wind hazard exceedances under the mitigated project scenario would be reduced from four to two with test point 44 remaining an exceedance, test point 47 eliminated, a new exceedance at test point 48, and no exceedances at test points 1 and 11. The total number of hours the wind hazard criterion would be reached or exceeded would decrease by 68 hours, from 86 hours per year under the unmitigated project scenario to 18 hours per year for the mitigated project scenario.[14]
- The introduction of porous façades (at 50 percent porosity) on portions of the west, north, and east elevations; a recessed corner at the building's southwest corner, and proposed landscaping on adjacent sidewalks proved to be the most effective wind control measures.

Implementation of **Mitigation Measure M-WI-1** would reduce the impact to a less-than-significant level. Due to the preliminary nature of the current design and the potential refinements to the proposed building mass after the completion of the developer selection process, further wind tunnel testing and/or refinement of wind reduction measures may be warranted. The revised project

[12] Massing setbacks from the property line to create a notch at a building corner.
[13] RWDI, Image 2A, Wind Tunnel Study Model – Existing Configuration (Revised), p. 4, Figure 2.A, Pedestrian Wind Hazard Conditions – Existing (Revised), July 2, 2020, and Table 2.1, Wind Hazard Conditions (Revised). See **EIR Appendix H, Pedestrian Wind Study, September 2020**.
[14] RWDI, Image 2B, Wind Tunnel Study Model – Existing + Project Configuration (Revised), p. 5, Figure 2.B, Pedestrian Wind Hazard Conditions – Existing + Project (Revised), July 2, 2020, and Table 2.1, Wind Hazard Conditions (Revised).

design would be reviewed by the planning department to determine if a new wind tunnel test or a new qualitative report is required, in accordance with **Mitigation Measure M-WI-1**. Implementation of **Mitigation Measure M-WI-1** would ensure that the proposed project or project variants would incorporate design measures with demonstrated effectiveness in reducing ground level wind speeds and therefore, would not result in substantial changes to ground-level wind conditions in a publicly accessible area of substantial pedestrian use.

Mitigation Measure M-WI-1: Design Measures to Reduce Project-Specific Wind Impacts

The project sponsor team shall retain a qualified wind consultant to prepare, in consultation with the San Francisco Planning Department (planning department), a wind impact mitigation report that identifies design measures to reduce the project's wind impacts in the project scenario. Prior to certification of the Final Environmental Impact Report, the project sponsor team shall submit the wind impact mitigation report to the planning department for its final review and approval. The wind impact mitigation report shall incorporate updated information on the building design based on a list of potential wind reduction measures identified below, along with the estimated effectiveness of each measure to reduce the identified off-site wind hazards.

- Porous façades on portions of the north, east and west sides for natural ventilation as part of the heating, ventilation, and air conditioning strategy for the new transit facility at the second and third levels
- Recessed building corner up to 12 feet in height at the southwest corner of proposed building near Bryant/Mariposa intersection
- Vertical elevated screens on portions of the second and third levels of the west façade (Bryant Street)
- Vertical wind screens at grade level on the adjacent Bryant Street sidewalk near the Bryant/Mariposa intersection

Such wind reduction design measures may include additional on-site landscaping, or equivalent wind-reducing features; and off-site wind reduction measures such as landscaping, streetscape improvements or other wind-reducing features, such as wind screens.

The project sponsor team shall implement as many of the design measures identified in the wind impact mitigation report as needed to reduce the proposed project's or project variant's potential to create a new wind hazard or exacerbate an existing wind hazard in publicly accessible areas of substantial pedestrian use to less-than-significant levels. The final wind impact mitigation report should not find that the project produces a net increase of the already identified wind hazard exceedances. The planning department shall approve the final list of wind reduction measures that the project sponsor team shall implement.

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CUMULATIVE IMPACTS

Impact C-CR-1: The proposed project or project variants, in combination with cumulative projects in the vicinity, would not alter wind in a manner that would make a cumulatively considerable contribution to a significant cumulative wind impact. ***(Less than Significant with Mitigation)***

Wind Hazard Analysis

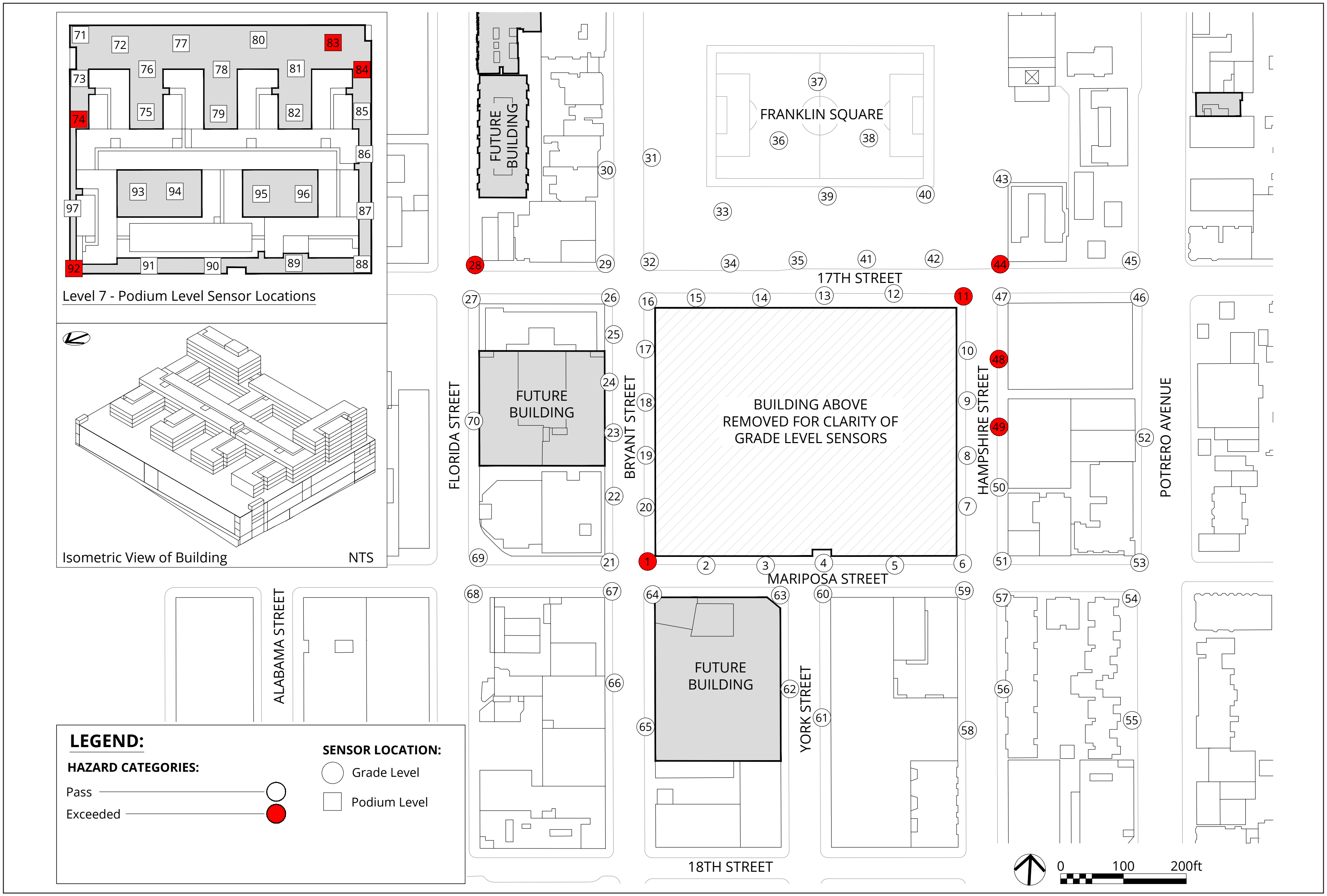
For the cumulative scenario, the following development projects are included in the wind study model (see **Figure 3.A.1** and **Table 3.A.1** on pp. 3.A.7-3.A.9 in **EIR Section 3.A**):

- 2435-2445 16th Street: a seven-story (68/78 feet) residential development
- 1850 Bryant Street: a five-story (68 feet) mixed-use development
- 321 Florida Street: a 10-story (104 feet) mixed-use development
- 333-335 Potrero Avenue: a five-story (64/74 feet) mixed-use development
- 2601 Mariposa Street: a 10-foot addition to an existing commercial building (75 feet)
- 681 Florida Street: a nine-story (87/96 feet) mixed-use development
- 2750 19th Street: a six-story (68/78 feet) mixed-use development

These cumulative projects are either approved but unbuilt or under review with the planning department and are close enough to interact with the proposed project or project variants to alter ground-level wind conditions in publicly accessible areas of substantial pedestrian use near the project site. The wind study model used project plans where available; however, for some cumulative projects, final plans were not available and simplified massing models were used.

See **Table 3.F.1**, p. 3.F.13, for a summary of the test results and **Figure 3.F.4: Wind Hazard Results – Cumulative Scenario**. When compared to existing conditions, the cumulative scenario would increase the number of test points that would exceed the hazard criterion and the number of hours per year that winds would exceed the hazard criterion. Implementation of the cumulative scenario would change wind patterns such that three new exceedances (test points 1, 11, and 28) would be created and all existing hazard exceedances would remain (test points 44, 48, and 49), resulting in a net change of three new exceedances.

The same two test points that would newly exceed the hazard criterion under the project scenario (test points 1 and 11) would also exceed the hazard criterion under the cumulative scenario. One additional exceedance of the hazard criterion would be created west of the project site at the northeast corner of the 17th/Florida streets intersection (test point 28) under the cumulative scenario. All three hazard exceedances along the east sidewalk of Hampshire Street would also remain under cumulative conditions as under existing conditions, with the location furthest south on Hampshire Street (test point 49) reappearing as a hazard exceedance unlike the project scenario under which it was eliminated.



Source: RWDI, March 2020

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FIGURE 3.F.4: WIND HAZARD RESULTS – CUMULATIVE SCENARIO

Although test point 28 did not appear as a project-specific new hazard exceedance, the proposed project or project variants could interact with other cumulative development in the immediate vicinity of that test point (321 Florida Street, 2435-2445 16th Street, and 1850 Bryant Street) due to its proximity (approximately 200 feet to the west) and its size in relation to other proposed buildings to create a significant cumulative impact to which it may contribute considerably. The new hazard exceedances at test points 1 and 11 are clearly attributable to the proposed project or project variants. Therefore, under the cumulative scenario a net increase of one new hazard exceedance would be caused by interactions of the proposed project or project variants with cumulative development, as the hazard exceedance at the intersection of 17th and Florida streets would not occur under the project scenario.

In summary, under the cumulative scenario six test points would exceed the hazard criterion, compared to three test points with existing conditions and four test points under the project scenario. The total number of hazard exceedance hours would increase to 76 hours, compared to the 58 hours per year under existing conditions and 86 hours per year under the project scenario.

For the reasons above, the proposed project or project variants, in combination with cumulative projects in the vicinity, would have a significant cumulative wind impact, and the proposed project or project variants would make a cumulatively considerable contribution to a significant cumulative wind impact. However, with implementation of the design measures discussed above (introduction of porous façades, a recessed corner, street trees) in **Mitigation Measure M-WI-1**, test results indicate the following for the cumulative scenario:

- Wind hazard exceedances under the mitigated cumulative scenario would be reduced from six to two with test point 44 remaining a hazard exceedance, test point 47 eliminated, a new hazard exceedance at test point 48, and no hazard exceedances at test points 1, 11, and 28. The total number of hours the wind hazard criterion would be reached or exceeded would decrease by 65 hours, from 76 hours per year under the unmitigated cumulative scenario to 11 hours per year.

Therefore, with mitigation, the proposed project's or project variants' contribution to cumulative wind impacts would be reduced to a less-than-significant level. No additional mitigation measures are necessary.

G. SHADOW

INTRODUCTION

EIR Section 3.G, Shadow, addresses the shadow impacts of the proposed project or project variants on publicly accessible open spaces and recreation facilities in the vicinity of the project site. The Environmental Setting discussion identifies existing publicly accessible open spaces in the site's vicinity and describes existing shadows on existing publicly accessible open spaces. The Regulatory Framework specifies the City's applicable regulations related to shadow and solar access. The Impacts discussion analyzes whether the proposed project or project variants would shade parks and open spaces in a manner that substantially and adversely affects the use and enjoyment of publicly accessible open spaces. The Impacts subsection also evaluates the potential for the proposed project or project variants to combine with cumulative projects in the vicinity, resulting in potentially cumulative shadow effects. The analysis, calculations, and shadow diagrams have been prepared by PreVision Design, an independent shadow consultant, as part of a San Francisco Planning Code (planning code) section 295-compliant shadow study for the proposed project.[1] The shadow study prepared for the proposed project is the primary source of information for this EIR section (see **EIR Appendix I)**.

Issues identified in response to the Notice of Preparation (NOP) of an EIR and Notice of Public Scoping Meeting (**EIR Appendix A**) related to the proposed project's physical environmental impacts were considered in preparing this analysis. The San Francisco Planning Department (planning department) received general comments related to shadow effects (see **EIR Chapter 1, Introduction**, pp. 1.3-1.5).

ENVIRONMENTAL SETTING

EXISTING OPEN SPACE NEAR THE PROJECT SITE

The only publicly accessible outdoor open space within the northeast portion of the Mission District that is potentially within reach of the proposed project's or project variants' shadow is Franklin Square.[2] (See **Figure 2.1: Project Site Location**, p. 2.4, in **EIR Chapter 2, Project Description**.) This open space is under the jurisdiction of the San Francisco Recreation and Park Commission (recreation and park commission) and is subject to the provisions of the Sunlight Ordinance, as

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[1] PreVision Design, Shadow Analysis Report for the Proposed SFMTA Potrero Yard Project Per CEQA and San Francisco Planning Section 295 Standards, April 12, 2021 (see **EIR Appendix I**).

[2] This determination was made based on PreVision Design's shadow fan (presented below under "Approach to Analysis," p. 3.G.10) which shows the maximum reach of project shadow throughout the entire day and entire year. In Chaan Kajal, a recreation and park commission property at Folsom and 17th streets, and the Utah and 18th Mini-Park (also a recreation and park commission property) are not within the reach of project shadow under planning code section 295. They are therefore eliminated from further review of shadow impacts.

articulated in planning code section 295 (discussed below under "Regulatory Framework," pp. 3.G.7-3.G.9).

Franklin Square

Franklin Square is a 4.44-acre (193,327 square feet) public park under the jurisdiction of the San Francisco Recreation and Park Commission (recreation and park commission) and the San Francisco Recreation and Park Department (recreation and park department). The rectangular open space is located in the northeast portion of the Mission neighborhood on Assessor's Block 3963, Lot 001. It is bounded by 16th Street to the north, 17th Street to the south, the mapped but unbuilt Hampshire Street to the east (right-of-way currently used for parking), and Bryant Street to the west. The park hours of operation are from 5 a.m. to 12 a.m. (midnight).

Existing land uses in the vicinity of Franklin Square include the Potrero Center retail complex to the north, the project site (Potrero Yard) to the south, commercial uses to the east, and a mix of residential and retail/commercial uses to the west.

Park Features

Franklin Square is a landscaped open space directly north of the project site on a prominent serpentine rock outcrop bounded by concrete retaining walls and above the grade of surrounding streets and sidewalks, e.g., along 16th Street. Originally a landscaped Victorian park developed in the late 1890s with large areas of grass, trees, and meandering paths, it was completed after the 1906 Earthquake. In 1984 a large soccer field was added to the park. Franklin Square now features a large fenced-in soccer field[3] at its center and a gated children's play area near the southwest corner of the park (see **Figure 3.G.1(a): Franklin Square Amenities** and **Figure 3.G.1(b): Franklin Square Children's Play Area Detail**).

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[3] Use of this recreational facility is reserved through the recreation and park department as a "permit only" facility in use between 8 a.m. and 10 p.m. daily. It is typically reserved by various youth and adult athletic clubs and school groups.

Source: PreVision Design, 2021

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FIGURE 3.G.1(a): FRANKLIN SQUARE AMENITIES

Source: PreVision Design, 2020

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FIGURE 3.G.1(b): FRANKLIN SQUARE CHILDREN'S PLAY AREA

As shown on **Figure 3.G.1(a)**, outside the perimeter of the soccer field, there are grassy and landscaped areas, picnic areas with benches, paved walkways and benches, public restrooms, and an adult fitness area and parcourse, which are not fenced. The vegetation and landscaping outside of the soccer field primarily consists of open grassy areas punctuated by mature trees varying in height from 10 to 30 feet with dense tree canopies along the park's western edge and southwestern corner, with smaller saplings along the northern, southern, and western edges. The principal entries to the park are located on the corners of 16th and Bryant streets and 17th and Bryant streets, with an additional stairway and Americans with Disabilities Act entry located mid-block along 17th Street between Bryant and Hampshire streets. Parking is provided along the eastern edge in the Hampshire Street right-of-way. The soccer field, children's play area, and other park amenities and infrastructure have been improved over time, with the most recent renovations to the athletic area, parcourse, and lighting.[4]

CHILDREN'S PLAY AREA

As shown on **Figure 3.G.1(b)**, The children's play area, along the south-central portion of park, is fenced and consists of multiple play structures and areas with surrounding benches, tables, and landscaping. This provides a separated activity area for children and seating for adults who supervise them. The play structures and areas include jungle gyms, merry-go-rounds, slides, swings, sculptural animal structures for climbing, and a replica train and tracks. The children's play area is set back from 17th and Bryant streets, to the south and east, respectively, and is visually separated by pathways and a landscaped area.

Park Use

Franklin Square has consistent demand throughout the year due to its location in an increasingly dense mixed-use neighborhood with a deficiency of open spaces[5] and ease of access by public transit. People pass through the park and use the park in a variety of ways, including use of the soccer field and children's play area by nearby schools and childcare centers. PreVision Design conducted 30-minute observations at Franklin Square during the morning, midday, and afternoon on February 27, 2020, and March 1, 2020.[6] Observations noted that the park is used throughout the day, with a concentration of users during the times when the soccer field is reserved, and in the morning and afternoons when the park is used for activities such as walking/exercising, dog walking, and playing in the children's play area. During these times, the number of users in the park ranged from approximately 39 to 176, with the two principal destinations of park users being

[4] San Francisco Recreation and Parks Department, Franklin Square Improvement Project, *https://sfrecpark.org/1140/Franklin-Square-Improvement-Project*, accessed December 15, 2020.

[5] San Francisco Planning Department, Mission Area Plan, *https://generalplan.sfplanning.org/Mission.htm#MIS_SOS*, accessed December 15, 2020.

[6] Two site visits were performed in the morning, two at midday, and two late in the day, with one visit from each pair on a weekday and one on a weekend.

the soccer field and the children's play area. Users of the soccer field (both as game participants and observers) accounted for most park users. The children's play area was also observed to be used across all visits, with the number of users ranging from one on the weekday afternoon visit to 18 (six adults and 12 children) observed on the weekend morning visit. Overall, observed peak use at the park occurred during weekend morning and midday hours. The observed intensity of use varied between the observation times but could be characterized as high for the soccer field, moderate for the children's playground, and low for other park features.

Existing Shadow on Park

Based on historic San Francisco weather patterns, the times of the year with the most sunshine and the lowest levels of rain and/or fog are spring and fall. The height limits surrounding Franklin Square vary from 85 feet to the north, 65 feet to the south, 65 to 68 feet to the east, and 55 to 85 feet to the west. Existing buildings to the north across 16th Street, the east toward Potrero Avenue, the west toward Florida Street, and the south across 17th Street range from one- to nine-story story buildings (with the tallest at 95 feet including permitted elements such as parapets and penthouse enclosures). These existing buildings cast shadow on Franklin Square. As a result, the east and west sides of the park are generally shadowed in the morning, sunny during midday, and shadowed during the afternoon. The north, central, and southern portions of the park are generally sunny throughout the middle of the day year-round.

OTHER OPEN SPACE

Privately Owned Public Open Space

The nearest privately owned public open space (77 South Van Ness Avenue) is located approximately 1 mile to the northwest and is not within the reach of the project shadow.

No other open space, community gardens, or other types of outdoor community-serving facilities or privately owned public open spaces are located in the immediate project vicinity and within the potential reach of project shadow.

Public Sidewalks and Streets

There is a complete network of public sidewalks on both sides of the streets that bound the project site – 17th, Hampshire, Mariposa, and Bryant streets – as well as the project vicinity. Existing buildings typically cast shadows throughout the day and throughout the year on adjacent and nearby sidewalks. In general, the public sidewalks and streets in the project vicinity are shadowed in the early morning and the late afternoon and receive the greatest amount of sunlight during the middle of the day, with more shading occurring in the fall and winter, when the sun is lower on the horizon. However, the sidewalks along 17th and Bryant streets and immediately adjacent to the project site are generally not shaded because the predominantly single-story structure is located on the eastern half of the site, i.e., there is no building frontage along 17th and Bryant streets.

REGULATORY FRAMEWORK

SAN FRANCISCO GENERAL PLAN

The San Francisco General Plan (general plan) contains objectives and policies that are related to preserving sunlight on open spaces and other public areas. These objectives and policies are found in the Recreation and Open Space Element (ROSE), the Urban Design Element, as well as applicable area plans.

Recreation and Open Space Element (ROSE)

Policy 1.9 in the general plan's ROSE states:

> Solar access to public open space should be protected. In San Francisco, presence of the sun's warming rays is essential to enjoying open space. Climatic factors, including ambient temperature, humidity, and wind, generally combine to create a comfortable climate only when direct sunlight is present. Therefore, the shadows created by new development nearby can critically diminish the utility and comfort of the open space.
>
> Shadows are particularly a problem in downtown districts and in neighborhoods immediately adjacent to the downtown core, where there is a limited amount of open space, where there is pressure for new development, and where zoning controls allow tall buildings. But the problem potentially exists wherever tall buildings near open space are permitted.
>
> Properties under the jurisdiction of the Recreation and Park Department or designated for acquisition are protected by a voter-approved Planning Code amendment. It restricts the construction of any structure exceeding forty feet in height that would cast a shadow that is adverse to the use of the park from between one hour after sunrise to one hour before sunset, unless it is determined that the impact on the use of the space would be insignificant. In determining whether a new shadow cast by a development is adverse to the use of a particular property, the City considers several quantitative and qualitative criteria, including the size of the park property, the amount of existing shadow, and the timing, size, location, and duration of the new shadow and the public good served by the building.
>
> The City should support more specific protections elsewhere to maintain sunlight in these spaces during the hours of their most intensive use while balancing this with the need for new development to accommodate a growing population in the City.

Urban Design Element

Policy 3.4 in the general plan's Urban Design Element calls for the promotion of building forms that will respect and improve the integrity of open spaces and other public areas. Buildings to the south, east, and west of parks and plazas should be limited in height or effectively oriented so as not to prevent the penetration of sunlight to such parks and plazas. Large buildings and developments should, where feasible, provide ground-level open space on their sites, well situated for public access and for sunlight penetration.

Mission Area Plan

Objective 5.3 of the Mission Area Plan describes the creation of a network of "Green Connector" streets in the Mission District, including 17th Street, that connect open spaces and improve walkability, aesthetics, and ecological sustainability of the Mission. The objective also emphasizes pedestrian connections between the Mission District and other neighborhoods that foster an enjoyable pedestrian environment by minimizing shade, maximizing sidewalk width, and providing amenities such as lighting and street furniture. Existing primary pedestrian connections include those along 16th Street and 24th Street, and the objective identifies Potrero Avenue for inclusion as a primary pedestrian connection.

Policy 5.3.7 identifies the Mission Public Realm Plan (also called the Mission District Streetscape Plan, drafted in October 2010) as the document to detail the differing design needs of different types of streets in the Mission. **Policy 3.1.2** states that the design of new, mixed-use infill development in the Northeast Mission Industrial Zone should strengthen the area's industrial character through appropriate materials, massing, and setback. Finally, **Policy 3.1.12** requires height limits and upper-story setbacks along alley frontages to maintain adequate light and air to sidewalks.

SAN FRANCISCO PLANNING CODE

Section 101.1

In November 1986, the voters of San Francisco approved Proposition M (the Accountable Planning Initiative), which added section 101.1 to the planning code and established eight Priority Policies. These Priority Policies shall be the basis upon which inconsistencies in the general plan are resolved. Priority Policy No. 8 calls for the protection of parks and open space and their access to sunlight and vistas.

Prior to issuing a permit for any project which requires an initial study under CEQA; prior to issuing a permit for any demolition, conversion, or change of use; and prior to taking any action which requires a finding of consistency with the general plan, the City is required to find that the proposed project or legislation would be consistent with the Priority Policies.

Section 147

Planning code section 147, added in 1985, establishes additional design guidelines for new buildings and additions in C-3 Downtown Commercial, South of Market Mixed Use, and Eastern Neighborhoods Mixed Use Districts where the height exceeds 50 feet. It requires such projects to be shaped to minimize shadow on public plazas and other publicly accessible spaces other than those protected under planning code section 295 (described below). The amount of area shadowed, the duration of the shadow, and the importance of sunlight to the type of open space being shadowed are important factors to consider when determining compliance with this criterion.

Section 295

In 1984, San Francisco voters approved an initiative known as "Proposition K, The Sunlight Ordinance," which was codified in 1985 as planning code section 295 (section 295). Section 295 prohibits the approval of "any structure that would cast any shade or shadow upon any property under the jurisdiction of, or designated for acquisition by, the Recreation and Park Commission" unless the San Francisco Planning Commission (planning commission), with review and comment by the recreation and park commission, has found that the shadows cast by a proposed project would not have an adverse impact on the use of the property. Section 295 does not apply to structures that do not exceed 40 feet in height. The period analyzed is from the first hour after sunrise until the last hour before sunset.

On February 7, 1989, pursuant to Proposition K, the planning commission and the recreation and park commission adopted a joint resolution adopting criteria for determination of significant shadows in 14 downtown parks, as described in a February 3, 1989, memorandum to the planning commission and the recreation and park commission regarding "Proposition K, The Sunlight Ordinance." These criteria establish an "absolute cumulative limit" (ACL) for new shadow allowed on these parks, as well as qualitative criteria for allocating the ACL among individual development projects. The ACL for a particular park is expressed as a percentage of the theoretical annual available sunlight on that park. The difference between the ACL and the amount of existing shadow on a particular park is commonly referred to as the "shadow budget" for that park. The shadow budget is then allocated to individual projects within the ACL based on qualitative criteria established for each park, which vary by park but may include factors such as the time of day, the time of year, shadow characteristics (size, duration, location), and the public good served by the building casting the shadow.

The planning commission and the recreation and park commission have not established an ACL for new shadow on Franklin Square.

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE THRESHOLDS

The threshold for determining the significance of impacts in this analysis is consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been adopted and modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable threshold is used.

A project would result in a significant shadow impact if the project would:

- Create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces.

The thresholds for determining the significance of shadow impacts in San Francisco pursuant to CEQA and section 295 are different. The significance threshold for environmental review addresses a broader array of shadow-related considerations that may include not only quantitative criteria, but also how affected open spaces are used; time of day and/or time of year of use and/or shadowing; physical layout and facilities affected; the intensity, size, shape, and location of the shadow; and the proportion of open space affected. If the planning department determines, based on these factors, that the use of an affected open space or recreational facility would be substantially and adversely affected, then the impact would be significant for the purposes of CEQA. There may be situations under which new shadow that would be considered significant under section 295 would not have a significant environmental impact under CEQA because quantity of net new shadow is only a part of the consideration used in the evaluation of a shadow's significance.

The determination as to whether the proposed project complies with section 295 would occur independently of this EIR's analysis and evaluation of shadow impacts. The purpose of the analysis in this EIR is to provide the public and City decision-makers with information that sufficiently describes the proposed project's shadow in terms of the types of parks and open spaces that it would affect, when and where the shadow would occur, what the anticipated duration of the shadow would be, and whether the shadow could substantially and adversely affect any activities or uses in the subject parks or open spaces.

APPROACH TO ANALYSIS

Project Features

The project site is currently occupied by the existing predominantly single-story maintenance and operations building and asphalt-paved bus yard on the east and west portions of the site, respectively. The grade elevation of the development changes approximately 27 feet from the lowest southwest corner to the highest northeast corner.

A new transit facility with residential and commercial components would be constructed on the 4.4-acre site, replacing the predominantly single-story maintenance and operations building and asphalt-paved bus yard. It would comprise two volumetric components: a three-level, 75-foot-tall podium element for the new transit facility, which would occupy the full site except for a 5-foot-wide planting strip along the northern property line, and three- to seven-story residential structures atop the podium rising to an overall height of 150 feet, as measured along Mariposa Street, not including the elevator or mechanical room enclosures. (See **Figure 2.4: Proposed Massing – South (Mariposa Street) Elevation, Figure 2.5: Proposed Massing – West (Bryant Street) Elevation, Figure 2.6: Proposed Massing – North (17th Street) Elevation**, and **Figure 2.7: Proposed Massing – East (Hampshire Street) Elevation**, pp. 2.25-2.28, in **EIR Chapter 2, Project Description**.) The proposed building may cast shadow on parks, recreational facilities, and publicly accessible spaces in the vicinity of the site. The tallest portions of the new residential development atop the transit facility podium would be located on the southern portion of the site, which would minimize shadow impacts on Franklin Square. (See **Figure 2.19: Proposed Joint Development Floors 7-13**, p. 2.43.)

The proposed project would include construction of pedestrian streetscape improvements to adjacent sidewalks and streets as well as new open space on the rooftop of the proposed transit facility podium, along its northern portion where the residential structures are set back from the property line. This new open space may be available to the public but is now currently contemplated as open space for use by building residents and the SFMTA employees.

The proposed project also includes four project variants as described in **EIR Chapter 2, Project Description**, pp. 2.56-2.58. The proposed building position, height, and bulk/massing of the project variants would be the same as those of the proposed project. Therefore, shadow impacts of the project variants would be identical to those of the proposed project and no separate analysis of the project variants is necessary.

Technical Standards

The shadow study prepared by PreVision Design for the proposed project follows the criteria adopted by the recreation and park commission and the San Francisco Planning Commission in 1987 and 1989 (see **EIR Appendix I**). As stated,

> “Shadow is quantitatively measured by multiplying the area of the shadow by the amount of time the shadow is present on the open space, in units called square-foot-hours (sfh). Determining the annual net new shadow load generated by a project begins with a calculation of the number of square foot-hours [of sunlight] that would theoretically fall on a qualifying publicly accessible open space each day from an hour after sunrise to an hour before sunset summed over the course of a year, ignoring all shadow from any source. This total is referred to as the Theoretical Annual Available Sunlight (TAAS) for that park. The second step is the calculation of the baseline (or current) shading conditions, which factors in the square foot-hours of shadow cast by existing buildings and other structures on the open space. Lastly, the shadow effects of

> the project are calculated, with the difference between the baseline shadow condition and project shadow condition considered being net new project shadow. The amount of shadow is defined as the shadow in square foot-hours cast by the project divided by the TAAS, expressed as a percentage.
>
> "Further, in addition to quantitative criteria, the adopted criteria set forth qualitative criteria for evaluation of shadow. Those criteria for assessing net new shadow are based on existing shadow profiles [graphics], important times of day, important seasons in the year, location of the net new shadow, size, and duration of net new shadows and the public good served by buildings casting net new shadow."

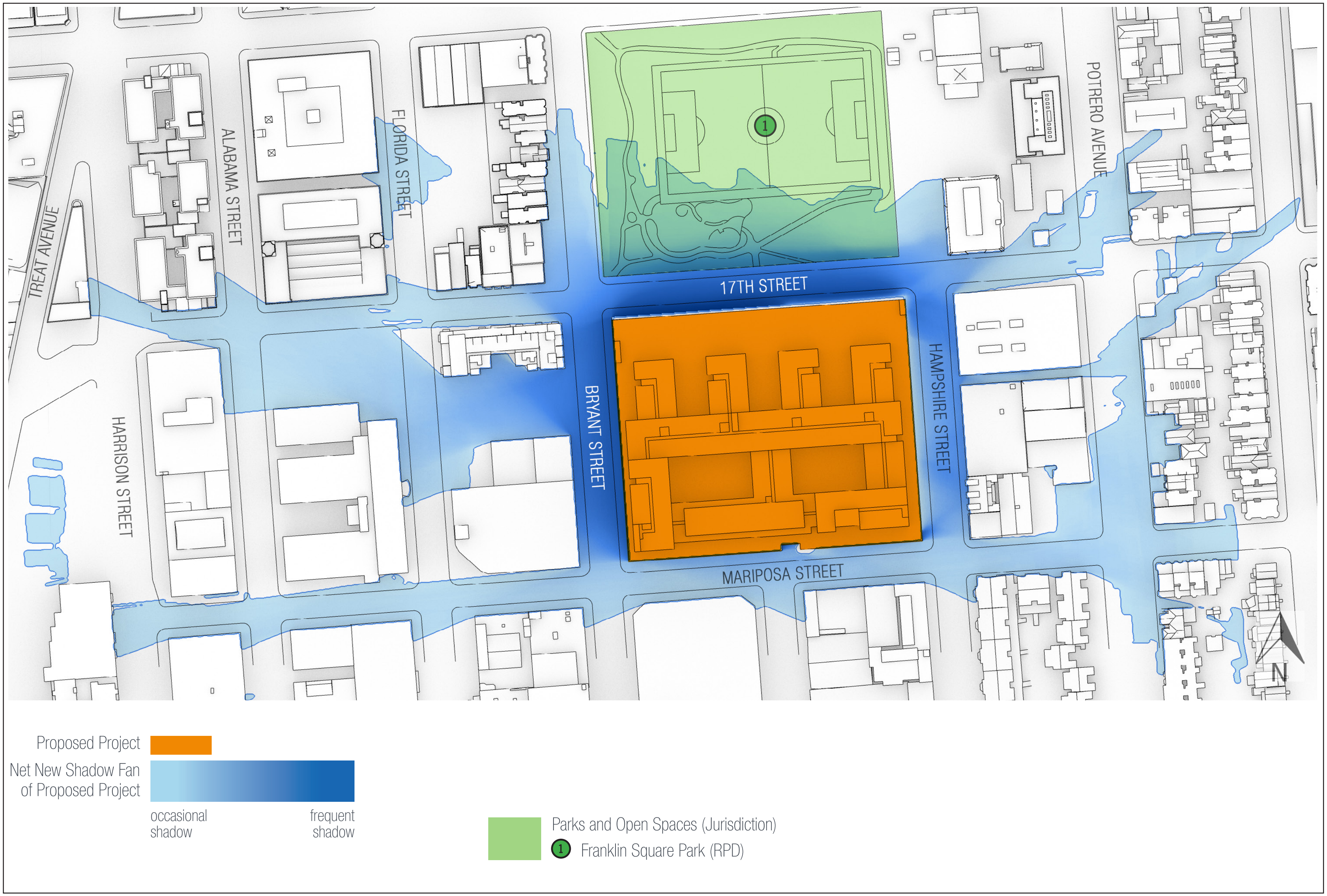
The quantitative and qualitative analyses described above were performed for both Franklin Square as a whole and, in a breakout analysis, the children's play area in Franklin Square in particular.

Shadow Fan

In order to determine whether any properties under the jurisdiction of the recreation and park commission could potentially be affected by project shadow, PreVision Design prepared a "shadow fan" diagram (see **Figure 3.G.2: Net New Shadow Fan in Relation to Franklin Square**). The shadow fan is a tool that plots the maximum potential reach of project shadow over the course of a year (from one hour after sunrise until one hour before sunset for the spring and fall equinoxes and summer and winter solstices) relative to the location of nearby open spaces, recreation facilities, and publicly accessible parks. The shadow fan accounts for topographical variation and existing shadow cast by existing buildings. The shadow fan is used by the planning department as the basis for initially identifying which open spaces, recreation facilities, and parks merit further study. Those that are outside the maximum potential reach of project shadow do not require further study.

Shadow Model

PreVision Design developed a digital shadow model using site survey data and project data that was used to evaluate the project's shadow impacts on Franklin Square. Existing buildings adjacent to and in the vicinity of the affected park were identified and modeled using 2010 LIDAR (Light Intensity Distance and Ranging) data and architectural plans and records for newer buildings. Additionally, to assess the cumulative conditions, PreVision Design obtained or generated 3D models of cumulative projects with potential to generate additional net new shadow on the same publicly accessible open space shown to be affected by the proposed project. The digital model reflects a minimum level of detail and includes only those surrounding buildings that are needed to represent the shadows that could fall on the surface of Franklin Square from one hour after sunrise to one hour before sunset, as defined in section 295.



Source: PreVision Design, 2021

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FIGURE 3.G.2: NET NEW SHADOW FAN IN RELATION TO FRANKLIN SQUARE

Consistent with section 295, for the purposes of describing the timing of shadow impacts on parks in this EIR section, the "beginning of the day" refers to a point in time that is one hour after sunrise on given day. Correspondingly, the "end of the day" refers to one hour before sunset. These times fluctuate throughout the year based on the day and season.

SHADOW CALCULATIONS

The model produces a spreadsheet that quantifies the amount of shadow cast by existing buildings, the amount of net new shadow cast by the proposed project, and the remaining amount of sunlight on the subject open space over the course of a year.[7] Additionally, the same calculations are performed for the cumulative conditions (baseline plus project, and plus cumulative projects). The shadow is measured at 15-minute intervals beginning on the summer solstice and then once a week for half a year until the winter solstice.[8] The shadow calculations serve as the basis for the quantitative discussion of shadow impacts.

SHADOW DIAGRAMS

Using a computer program that accounts for building heights and topography, PreVision Design has prepared shadow diagrams for Franklin Square, which were used to evaluate project shadow impacts. Fog, rain, overcast days, and shadows from trees, existing or proposed, are not taken into account when illustrating existing sources of shadow in these diagrams (notwithstanding that existing shadow from trees may be relevant to how visitors use park facilities). Shadow diagrams are "snapshots" taken at a particular representative time of day and day of the year. They illustrate the extent and location of shadows cast by existing buildings, net new shadow from a proposed building, and areas of sunlight on the subject open space. A "sweep" is a series of shadow diagrams from a particular day that demonstrates how shadows move across a specific space within a certain timeframe. Shadow diagrams may also serve as the basis for the qualitative discussion of shadow impacts because they graphically represent where new shadow may affect open spaces.

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7 The shadow calculations are included in **EIR Appendix I**. The tables are provided for June 21 to December 20. All other dates in a year match one of these dates and are called "mirror" dates. The mirror date for each day in the tables is listed under the date of the table.

8 It is not necessary to sample the other half of the year (from the winter solstice to the summer solstice), because shadow behaves symmetrically at the solstices, and yields the same values in reverse order.

PROJECT-SPECIFIC IMPACT EVALUATION

Impact SH-1: The proposed project or project variants would not create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces. (*Less than Significant*)

Franklin Square

Most of Franklin Square is unshaded through the middle of the day (between 10:30 a.m. and 1:30 p.m.) year-round. Existing shadow is cast primarily along its eastern and western sides during early morning and morning timeframes (before 10:30 a.m.) and the afternoon and late afternoon timeframes (after 1:30 p.m.), respectively.

As shown in **Figure 3.G.2**, the proposed project or project variants at 150 feet in height would increase the net new annual shadow on the southern portion of Franklin Square over the course of the year. Net new project shadow would affect pathways, landscape/grass areas, the adult fitness area, the children's play area, and a small portion of the soccer field.

For slightly less than half the year during spring and summer (approximately 24 weeks), the project shadow would not reach Franklin Square at any time of the day. Project shadow would occur annually for approximately 28 weeks between September 14 (around the fall equinox) through March 28 (around the spring equinox). During the affected period, project shadow would be cast throughout the day and would sweep across the southern portion of the park starting in the early mornings, receding at midday, and increasing again in the afternoons. The times of year which would be most affected by project shadow are the fall and winter months in the mornings (between 8 a.m. and 11:00 a.m.). The duration of project-generated net new shadow would vary throughout the year, with the maximum net new shadow occurring in the fall and winter months, with 8 hours and 48 minutes being the longest daily duration. On average, project shadow would have an average daily duration of approximately 6 hours and 13 minutes.

Shadow from the proposed project or project variants would reach its maximum on December 20 and December 21 at 8:19 a.m. when the project shadow would cover an area of 56,153 square feet in the southern portion of the park before receding as the morning progresses. Net new shadow would be present on the park's southwestern corner at 8:19 a.m. (the beginning of the daily analysis period) and sweep across the park from west to east, while also retreating to the south until midday, then encroaching northward into the late afternoon through 3:54 p.m. (the end of the daily analysis period). (See **Figure 3.G.3: Maximum Net New Project Shadow on Franklin Square, 8:19 AM on December 20/December 21**.) Also, on December 20 and December 21 at 8:19 a.m., shadow from existing buildings would cover 38,213 square feet, comprising 20 percent of the park's area. Net new project shadow would cover an additional 29 percent of the park's area at this time, leaving 51 percent of the park in sunlight at that time.

Source: PreVision Design, 2021

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FIGURE 3.G.3: MAXIMUM NET NEW PROJECT SHADOW ON FRANKLIN SQUARE, 8:19 AM ON DECEMBER 20 / DECEMBER 21

As discussed above, new project shadow would occur from September through March in the southern half of the park during the early morning/mornings and in the late afternoons. Park features such as the soccer field, the children's play area, the pathways, landscape and grassy areas as well as the adult fitness area along the southern edge of the park would receive more shadow and for a longer duration with the proposed project development than under existing conditions.

Certain types of activities are more affected by changes in shadow than others. Of the activities that occur in Franklin Square, sitting on benches or seating areas within the children's play area would be more affected by changes in shadow because people would be in a single location for an extended duration. Based on the park use surveys conducted for the shadow study, the soccer field is the space that exhibits the greatest amount of use, followed by the children's play area. Other areas of the park such as the pathways, landscaped and grassy areas, and the adult fitness area at the southwestern corner of the park were less used, or used for transitory purposes such as walking to the soccer field or for jogging.[9] These activities would be less affected by changes in shadow because people typically do not remain at any one location for an extended duration; they are moving between shaded and unshaded portions of Franklin Square. Thus, as the shadow sweeps across the southern portion of the park, shadows caused by the proposed project or project variants would not displace any park users who wish to avoid shadow, as the soccer field would receive only minimal shadow (for approximately 30 minutes in the morning an hour after sunrise) and other park users could move to the northern half of the park. Soccer field usage was observed to be high during the weekend site visit; however, the small area affected would not have had a likely effect on the observed uses. Additionally, at these times, the northern portion of the park would continue to be unshaded by existing and project shadow and would be available to those park users seeking sunlight. Furthermore, the landscape and grassy areas as well as the adult fitness area along the southern edge of the park were observed to have substantially lower levels of use and could be characterized as somewhat less sensitive to the addition of net new shadow due to the observed levels and nature of their uses.

Franklin Square Children's Play Area

The children's play area is 11,075 square feet (approximately 0.25 acre). Under existing conditions, the play area is predominantly unshaded throughout the day and throughout the year, with only very small amounts of shadow occurring in the summer at the eastern edge of the play area in the early morning (before 8:00 a.m.) and at the western edge in the late afternoon.

As shown in **Figure 3.G.2**, the proposed project or project variants at 150 feet in height would increase the net new annual shadow on the children's play area over the course of the year. For slightly more than half the year during spring and summer (approximately 28 weeks), the project

[9] The number of users present in the park over the course of half an hour ranged from 39 to 176 people, with use of soccer field accounting for 50 to 75 percent of use.

shadow would not reach the children's play area at any time of the day. Project shadow would occur annually for approximately 24 weeks between September 28 (around the fall equinox) through March 14 (around the spring equinox). During the affected period, project shadow would be cast throughout the day and would sweep across all parts of the play area starting in the early mornings and again in the late afternoons. The times of year which would be most affected by project shadow are the fall and winter months in the mornings (between 8 a.m. and 11 a.m.). The duration of project-generated net new shadow would vary throughout the year, with the maximum net new shadow occurring in the fall and winter months, with 5 hours and 20 minutes being the longest daily duration. On average, project shadow would have an average daily duration of approximately 2 hours and 28 minutes.

Shadow from the proposed project would reach its maximum on December 20 and December 21 at 8:30 a.m. when the project shadow would cover the whole play area. Net new shadow would be present on the play area starting at 8:19 a.m. (the beginning of the daily analysis period), with maximum coverage at 8:30 a.m. Shadow would cover the entire play area in the early morning and begin to recede southward at 8:45 a.m. and continue receding as the morning progresses. Shadow would move off the play area at approximately 11:15 am, and then return at approximately 1:45 p.m. and sweep across the southern and southeast portions of the play area through the afternoon until 3:54 p.m. (the end of the daily analysis period). (See **Figure 3.G.4: Maximum Net New Project Shadow on Franklin Square Play Area, 8:30 AM on December 20/December 21**.) Net new project shadow would affect all portions of the play area.

As discussed above, new project shadow would occur from September through March on the play area during the early morning/mornings and in the afternoons. All portions of the play area would receive more shadow and for a longer duration with project development than under existing conditions.

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Source: PreVision Design, 2021

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FIGURE 3.G.4: MAXIMUM NET NEW PROJECT SHADOW ON FRANKLIN SQUARE PLAY AREA, 8:30 AM ON DECEMBER 20 / DECEMBER 21

Based on the park use surveys conducted for the shadow study, the children's play area was used across all observation visits. Slightly elevated usage was observed around the morning and midday periods compared to the afternoon periods, and on weekends versus weekdays. Additionally, based on information provided by the recreation and park department, Franklin Square is also regularly used on a daily basis during weekdays by schools and childcare centers in the vicinity.[10] Thus, it is likely that the presence of new shadow would be noticed by users of the play area, particularly during the morning periods across the affected fall and winter months. This effect would be less noticeable to park users in the winter months, which tend to have more rain and/or fog and lower temperatures than the spring and fall months. These environmental factors typically result in lower park usage, especially in the morning hours during winter when children are typically dropped off at schools and/or childcare centers. Users of the play area during this affected period would observe a project shadow that sweeps across the park but does not cover the whole play area except for a short period between 8:19 a.m. and 9:00 a.m. Thus, shadows caused by the proposed project or project variants would not displace any users of the play area who wish to avoid shadow because users could move to the northern portion of the play area as the morning progresses to midday or further out to other areas of the larger Franklin Square. At these times, the northern portion of the play area and other areas of the surrounding park would be unshaded by existing and project shadow and would be available to those park users seeking sunlight.

Conclusion

Implementation of the proposed project or project variants would increase the shadow on Franklin Square including a portion of the soccer field, the children's play area, the adult fitness area, the pathways, and landscape and grass areas along the southern portion of Franklin Square. Based on observed usage of Franklin Square including its soccer field and children's play area -- the two most used park features -- the modeled reach of project shadow would not be expected to adversely affect the use and enjoyment of this public open space. The limited effect of project shadow on park users would be attributable to the limited duration of the shadow during the year (i.e., no project shadow would reach Franklin Square during spring and summer); the period of the year and the limited times of shadow on the days when shadow would reach Franklin Square (i.e., the fall and winter months in the morning hours and late afternoons); the nature of the observed uses (i.e., more active use of park features); and the extent of new shadow (i.e., limited primarily to the southern portion of Franklin Square with the remainder of Franklin Square unshaded). The new shading would be unlikely to affect users of Franklin Square who use it during the midday period and for those who engage in more active recreational activities. For these reasons, project shadow on Franklin Square would have a limited effect on the use and enjoyment of the open space, resulting in a less-than-significant shadow impact. No mitigation measures are necessary.

[10] The New School (K-12) and two childcare centers (Sweet Peas at 2730 17th Street and Project Commotion at 2095 Harrison Street) are located in the project vicinity.

Nearby Sidewalks and Streets

The proposed project or project variants would cast net new shadow on nearby sidewalks and streets throughout the year to the extent that these areas are not already shaded by existing buildings that line streets (see **Figure 3.G.2**, p. 3.G.13). At certain times of day and year, the proposed project or project variants would cast net new shadow on nearby sidewalks, including those along 17th, Bryant, Mariposa, and Hampshire streets.

Net new project shadow on nearby sidewalks would be transitory in nature and would not affect the use and enjoyment of sidewalks in the area, which function primarily as public pathways for pedestrians. Additionally, the Green Connections corridor along 17th Street, immediately north of the project site, is a recreational resource identified in the ROSE. Given that sidewalks are typically used by pedestrians traveling between destinations and not as a recreational resource, the increase in shadowed area for pedestrians and bicyclists traversing the corridor (on the signed bicycle route) would not be adversely affected by additional shadow occurring on one block of a long linear route. Overall, the proposed project or project variants would not increase the amount of shadow on the sidewalks above levels that are common and generally expected in developed urban environments. For these reasons, the proposed project or project variants would have a less-than-significant shadow impact on the use of sidewalks and streets.

CUMULATIVE IMPACT EVALUATION

Impact C-SH-1: The proposed project or project variants in combination with cumulative projects in the vicinity would not create new shadow in a manner that substantially and adversely affects the use and enjoyment of publicly accessible open spaces. The proposed project or project variants would not make a cumulatively considerable contribution to a significant cumulative shadow impact. (*Less than Significant*)

Figure 3.G.5: Cumulative Projects with Net New Shadow on Franklin Square illustrates the following four cumulative projects in relation to Franklin Square:

- 2435-2445 16th Street: a seven-story (78 feet) residential development
- 1850 Bryant Street: a five-story (68 feet) mixed-use development
- 321 Florida Street: a 10-story (107 feet) mixed-use development
- 333-353 Potrero Avenue: a five-story (68 feet) mixed-use development

The cumulative projects are located to the east, west, and southwest of Franklin Square. None are adjacent but all are one block away. These cumulative projects were considered for their potential to create net new shadow that would combine with project shadow on Franklin Square.

Source: PreVision Design, 2020

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FIGURE 3.G.5: CUMULATIVE PROJECTS WITH NET NEW SHADOW ON FRANKLIN SQUARE

Franklin Square

Due to the close proximity of the project site to Franklin Square, shadow caused by the proposed project or project variants would account for the largest shadow load on the park. Shadow from cumulative projects in the vicinity would occur in areas of the park that would also be affected by the proposed project or project variants. The cumulative shadow from other projects would be primarily attributable to the 321 Florida Street project, which would cast shadow on the western and southern portions of park in the summer, fall, and winter in late afternoons (at the end of the daily analysis period). Shadow from the 2435-2445 16th Street project would have a similar shadow pattern as the 321 Florida Street project but shading on the western portion of the park attributable to that project would be very limited due to its proposed height, location, and the presence of existing shadow. Shadow from the 1850 Bryant Street project would reach the southwestern portion of Franklin Square during winter afternoons at the end of the daily analysis period (one hour before sunset). Shadow from the 333-353 Potrero Avenue project would not reach Franklin Square at any time during the year.

Under cumulative conditions, the proposed project or project variants would combine with cumulative projects to cast daily shadow on the park in the morning and afternoons throughout the year. The time of year which would be most affected by cumulative shadow would be the fall and winter months in the mornings (between 8 a.m. and 11:00 a.m.). The duration of cumulative net new shadow would vary throughout the year, with the minimum net new shadow occurring in the summer months (54 minutes) and the maximum net new shadow occurring in the fall and winter months (8 hours and 48 minutes). Under cumulative conditions, the dates with the single largest net new shadow area and the longest shadow duration would occur on the same dates as under project conditions (December 20 and December 21). Similarly, the maximum area and duration of shadow under cumulative conditions would be the same as the maximum area and duration of shadow under project conditions. Thus, maximum net new shadow on the park would also occur December 20 and December 21, when cumulative shadow would fall across the southern half of Franklin Square throughout the day, affecting pathways, landscape and grass areas, the adult fitness area, the children's play area, and portions of the soccer field.

Additional net new shadow from the cumulative projects would also occur in the late afternoon on December 20 and December 21 from 3:15 p.m. to 3:54 p.m. The additional net new shadow would fall on the western and southern portions of the park, affecting pathways, landscape and grass areas, and a small portion of the soccer field for approximately 30 minutes. The northwest corner of the soccer field would receive additional net new cumulative shadow from the 321 Florida Street project. This additional net new cumulative shadow would occur for a short duration (15 minutes or less) in the late afternoon. The southern edge of the park would receive additional net new cumulative shadow from the 1850 Bryant Street project. This additional net new cumulative shadow would also occur for a short duration (30 minutes or less) in the late afternoon. Based on the park use survey and due to the short duration and small area affected, it is unlikely this shadow would affect the users of the soccer field or the pathways, landscape and grass areas along the park's northwest corner, or the park's western or southern edges.

In addition, the majority of the additional net new cumulative shadow that would be primarily attributable to the 321 Florida Street project would occur in the summer months in the late afternoon near the end of the daily analysis periods (one hour before sunrise). This net new cumulative shadow area would cover 26,903 square feet on the western and southern thirds of the park, representing approximately 14 percent of the total park area. This additional net new cumulative shadow would be present for 55 minutes on average and would last for up to a maximum duration of 1 hour and 11 minutes.

Franklin Square Children's Play Area

Shadow from the 321 Florida Street and 1850 Bryant Street cumulative projects would cause new shadow on the children's play area. Shadow from the 2435-2445 16th Street and 333-353 Potrero Avenue projects would not reach the play area at any time during the year. Cumulative net new shadow from the proposed project or project variants, combined with cumulative projects in the vicinity, would increase the amount of shadow on the play area throughout the year.

Additional net new cumulative shadow on a small area along the play area's southern edge would occur on December 20 and December 21 from the 1850 Bryant Street project but only in the late afternoon around 3:45 p.m. for 15 minutes or less. The additional net new cumulative shadow on the play area from the 321 Florida Street project would occur in the summer months in the late afternoon. This additional net new cumulative shadow would encroach on the western edge of the play area around 7:00 p.m. It would affect more than half of the play area for approximately 30 minutes (between 7:00 p.m. and 7:36 p.m.). The park use survey shows reduced activity in the play area in the late afternoon and early evenings when the additional net new cumulative shadow would occur. However, as existing shadows from existing development are also moving toward the play area at this time, visitors to the play area during the later afternoon/early evening would experience the addition of cumulative shadow as the arrival of shadow on portions of the play area 20 to 30 minutes earlier than experienced under existing conditions.

Conclusion

Implementation of the proposed project or project variants and cumulative projects would increase the shadow on Franklin Square, including a portion of the soccer field, the children's play area, the adult fitness area, the pathways, and landscape and grass areas along the western and southern portions of Franklin Square. Based on observed park usage including its soccer field and children's play area -- the two most used park features -- the modeled reach of cumulative shadow would not be expected to adversely affect the use and enjoyment of this public open space even though additional net new cumulative shadow would reach the western edge of the park in the summer months in the late afternoon/early evening, a period of generally lower usage.

The limited effect of the additional net new cumulative shadow would be attributable to the duration and timing of the additional shadow (a maximum of 1 hour and 11 minutes during the early evening in the summer), the lower number of park users during the late afternoon and early evening, and the fact that other areas of the park including the play area would be available to visitors. Thus, additional net new cumulative shadow from other projects in the vicinity would not adversely affect the use and enjoyment of this public open space and, when combined with shadow from the proposed project or project variants, would not result in a significant cumulative shadow impact. No mitigation measures are necessary.

Nearby Sidewalks and Streets

The proposed project or project variants in combination with cumulative projects in the vicinity would create net new shadow on nearby streets and sidewalks at times of day and throughout the year when these areas are not already shaded by existing buildings in the area. At certain times of day and year, cumulative shadow would be cast by the proposed project or project variants and cumulative projects on nearby sidewalks, including those along 17th, Bryant, Mariposa, and Hampshire streets.

Most of the sidewalks in this area are already shaded by existing buildings at different times of day and at different times of year. Although implementation of the proposed project or project variants and the cumulative projects would add net new shadow to the sidewalks in the project vicinity, these shadows would be transitory in nature, would not substantially affect the use of the sidewalks, and would not increase shadows above levels that are common and generally expected in a densely developed urban environment. Thus, cumulative shadow impacts on sidewalks in the area would be considered less than significant for the same reasons that project-level shadow impacts would be considered less than significant.

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4. OTHER CEQA CONSIDERATIONS

EIR Chapter 4, Other CEQA Considerations, discusses growth-inducing impacts, significant unavoidable impacts, significant irreversible impacts, and areas of known controversy related to the proposed project or project variants.

A. GROWTH-INDUCING IMPACTS

As required by section 15126.2(d) of the California Environmental Quality Act (CEQA) Guidelines, an environmental impact report (EIR) must consider the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Growth-inducing impacts can result from the elimination of obstacles to population growth, such as a major expansion of a wastewater treatment plant, or through economic growth that would, in turn, generate increased employment or demand for housing and public services.

The transit component of the proposed project or project variants is part of the San Francisco Municipal Transportation Agency's (SFMTA's) Building Progress Program, and the replacement transit facility is one of the outcomes from the agency's comprehensive outreach to SFMTA staff and stakeholders (see "Project Background," starting on p. 2.15 of **EIR Chapter 2, Project Description**). The SFMTA's planning process is part of an integrated approach premised on transit fleet plan projections developed in coordination with the Association of Bay Area Governments' (ABAG's) regional economic, land use, and population projections for 2040 and the San Francisco County Transportation Authority's travel demand model for the City.[1] Therefore, the transit components of the proposed project or project variants would not directly induce population growth.

The project site is in a priority development area (PDA) as designated by ABAG, specifically the Eastern Neighborhoods PDA.[2] PDAs are locally identified areas that are located near transit and have infill development opportunities; they are part of a regional planning initiative led by ABAG and the Metropolitan Transportation Commission (MTC). The initiative links land use and transportation planning and promotes a connected and more compact land use pattern. Under the initiative, future growth in the region would be focused in the community-identified PDAs. PDAs are also important components of Plan Bay Area, which is the regional planning effort undertaken in response to the Sustainable Communities Strategy (Senate Bill 375), a state law passed in 2008. Plan Bay Area focuses much of the region's projected growth within the PDAs. San Francisco

[1] SFMTA, 2014 SFMTA Transit Fleet Management Plan, March 2014, pp. 3-4.

[2] MTC and ABAG, Priority Development Areas (Plan Bay Area 2050). July 15, 2020, *https://opendata.mtc.ca.gov/datasets/priority-development-areas-plan-bay-area-2050?geometry=-126.461%2C37.142%2C-118.117%2C38.659,* accessed May 13, 2021.

elected officials and agency staff have participated in the Sustainable Communities Strategy development process since its inception, and the San Francisco Planning Department (planning department) updates the City's long-range land use allocation every four years based on the most recent ABAG forecast for the Sustainable Communities Strategy.

As stated under **Impact PH-1**, initial study p. 20, the proposed project or project variants would add 575 new housing units, accommodating approximately 1,357 new residents and 548 net new jobs to the project site (see **EIR Appendix B**). The growth projections prepared by ABAG for Plan Bay Area's Projections 2013 and updated in May 2019 for San Francisco County anticipate a population of 1,169,485 people in 2040 (an increase of 360,340 people between 2010 and 2040) and 872,510 jobs in 2040 (an increase of 295,660 jobs between 2010 and 2040). As described on initial study p. 21, the population increase attributable to the proposed project or project variants would represent about 0.4 percent of the projected population growth between 2010 and 2040 for San Francisco; and the employment increase attributable to the proposed project or project variants would represent about 0.2 percent of the employment growth projected between 2010 and 2040 for San Francisco. Therefore, the proposed project or project variants would not make up a substantial portion of citywide growth, and the population and employment increases would be accommodated within planned growth. As described on initial study pp. 21 and 22, the 575 new housing units would represent between 4.3 and 4.7 percent of the projected household growth in the Eastern Neighborhoods PDA (with a projected increase of 12,170 households between 2010 and 2040), while the 548 new jobs would represent 5.6 percent of the employment growth projected for the Eastern Neighborhoods PDA (with a projected increase of 9,820 jobs) over the same period.[3]

The estimated population of the City and County of San Francisco in 2019 was approximately 881,549 residents.[4] When compared to existing conditions, the proposed project or project variants would represent an incremental increase in the local population. However, this population growth would not be substantial or unplanned, as no expansion of roads or other public infrastructure related to energy, water supply or wastewater/stormwater collection and conveyance system expansions, or public services would be needed to accommodate the project-related population. Additionally, the proposed project's approximately 1,357 residents would represent a small fraction of the expected increase in population Citywide, as projected in Plan Bay Area. Therefore, the proposed project or project variants would not induce unplanned population growth; rather, the proposed project or project variants would accommodate the need for housing within the City.

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[3] MTC and ABAG, Plan Bay Area Final Forecast of Jobs, Population and Housing, Appendix B: Housing Growth by Jurisdiction and PDA, July 2013, p. 58, *http://files.mtc.ca.gov/library/pub/28450.pdf*, accessed March 26, 2021.

[4] U.S. Census Bureau, QuickFacts, San Francisco County, California, Population and Housing Unit Estimates for San Francisco County, California, 2010-2019, https://www.census.gov/quickfacts/sanfranciscocountycalifornia, accessed May 7, 2021.

In ABAG's Projections 2013, San Francisco is projected to have an estimated 1.32 workers per household.[5] As discussed on initial study p. 23, the proposed project or project variants would result in an increase in Citywide employment with the addition of 548 jobs for the new transit facility and new residential and commercial uses. The proposed project's or project variants' employees would generate a potential demand for about 415 new residential units; this employee-generated housing demand would represent less than 1 percent[6] of projected household growth between 2010 and 2040, if all these employees relocated to San Francisco and required new housing. Such a small increase in employee-generated housing demand would not necessitate the construction of new housing in itself and would not constitute substantial unplanned growth. Furthermore, the new housing that would be developed with the proposed project would contribute new units to the City's housing stock and could potentially accommodate some of the new employment-related housing demand.

As evaluated in initial study **sections E.12, Recreation, E.13, Utilities and Service Systems,** and **E.14, Public Services**, the proposed project or project variants would not require the expansion of roads, public infrastructure, or public services that would accommodate additional increased development opportunities offsite that could cause additional offsite physical changes to the environment (see **EIR Appendix B**).

In summary, the increase in the number of residents and employees on the project site would not result in a substantial or unplanned increase in the population of the Eastern Neighborhoods PDA or the City. Furthermore, the proposed project or project variants would not result in the extension of infrastructure into undeveloped areas; the extension of infrastructure systems beyond what is needed to serve project-specific demand; construction of a residential project in an area that is undeveloped or sparsely developed; or removal of obstacles to population growth (such as provision of major new public services to an area where those services are not currently available).

B. SIGNIFICANT UNAVOIDABLE IMPACTS

In accordance with section 21100 (b)(2)(A) of CEQA and with sections 15126(b) and 15126.2(b) of the CEQA Guidelines, the purpose of this section is to identify significant environmental impacts that could not be eliminated or reduced to less-than-significant levels by implementation of mitigation measures.

The proposed project or project variants would result in the significant and unavoidable project-level impacts described below.

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5 ABAG, *Projections 2013,* pp. 74 and 75.

6 With 548 new onsite employees and 1.32 workers per household, there would be an increase of approximately 415 households (548 ÷ 1.32), compared to the Plan Bay Area-projected increase of 137,885 households between 2010 and 2040. The 415 households represent 0.3 percent of 137,885, which is less than 1 percent.

Historic Architectural Resources (EIR Section 3.B)

As identified in **EIR Section 3.B, Historic Architectural Resources**, under **Impact CR-1**, pp. 3.B.29-3.B.32, demolition of the post-earthquake reinforced concrete car barn at 2500 Mariposa Street, designed by master Michael M. O'Shaughnessy, under the proposed project or project variants would result in a significant and unavoidable impact. The Potrero Trolley Coach Division Facility has been determined as eligible for inclusion in the California Register of Historical Resources under Criterion 1 (Events) and Criterion 3 (Architecture/Design/Construction) and is considered a historic resource under CEQA. Implementation of **Mitigation Measures M-CR-1a: Documentation of Historical Resource**, **M-CR-1b: Salvage Plan**, **M-CR-1c: Interpretation of the Historical Resource**, and **M-CR-1d: Oral Histories**, pp. 3.B.29-3.B.32, would lessen the impact of the proposed project; however, these mitigation measures would not reduce this impact to a less-than-significant level. Therefore, this impact would be considered significant and unavoidable.

Air Quality (EIR Section 3.E)

As identified in **EIR Section 3.E, Air Quality**, under **Impact AQ-3**, pp. 3.E.52-3.E.59, construction and operation of the proposed project or project variants would result in significant and unavoidable impacts related to exposure of sensitive receptors to substantial pollution concentrations resulting in excess cancer health risk exposure. Implementation of **Mitigation Measure M-AQ-1: Off-Road Construction Equipment Emissions Minimization** and **Mitigation Measure M-AQ-3: Emergency Diesel Generator Health Risk Reduction Plan**, pp. 3.E.47-3.E.48 and p. 3.E.57, respectively, would lessen the impact of the proposed project or project variants; however, **Mitigation Measure M-AQ-1** may not reduce the construction-related contributions to emissions of toxic air contaminants resulting in excess cancer health risk exposure of sensitive receptors under project and cumulative conditions. **Mitigation Measure M-AQ-3** would reduce the operation-related contribution to the excess cancer health risk exposure.

Project contributions to emissions of toxic air contaminants such as diesel particulate matter for construction and operational phases would be attributable to the number and types of construction equipment, the number of construction truck trips, the addition of three onsite emergency diesel generators, and, to a lesser extent, increased vehicle trips attributable to construction workers and the proposed land uses. The air quality mitigation measures, which would effectively reduce modeled project contributions to below the significance criterion for excess cancer health risk exposure (i.e., 7 parts per million), are premised on construction emissions from information provided by the SFMTA, i.e., the number and types of construction equipment, expected duration of average daily use, and the number of construction truck trips; some (or all) of which may increase. Thus, even with implementation, the proposed project or project variants could generate toxic air contaminants that result in excess cancer health risk exposure to sensitive receptors. The project-level and cumulative air quality impacts associated with excess cancer health risk exposure would therefore remain significant and unavoidable with mitigation.

EIR Chapter 5, Alternatives, presents a range of alternatives (Alternative A: No Project Alternative; Alternative B: Full Preservation Alternative, Alternative C: Partial Preservation Alternative, and Alternative D: Transit Facility Plus Commercial Only Alternative) that would meet most of the project objectives and could avoid or substantially lessen one or more of the significant impacts of the demolition and site redevelopment under the proposed project or project variants. The chapter includes preservation alternatives that would retain, in whole or in part, historic character-defining features of the project site and a reduced density alternative that would develop a smaller project primarily focused on the replacement of the transit facility. Alternative A: No Project Alternative would avoid all impacts of the proposed project or project variants. The historic preservation alternatives (Alternatives B and C) would each avoid or substantially lessen the significant historic architectural resource impact, the significant air quality impacts, and one or more other significant impacts that were identified for the proposed project or project variants. Alternative B would not cause material impairment to the resource and, unlike the proposed project or project variants, would not result in a significant and unavoidable impact related to demolition of a historical resource or excess cancer health risk. The transit facility plus commercial only alternative (Alternative D) would also reduce one or more significant and unavoidable impacts, e.g., air quality impacts, but would not avoid or substantially lessen the significant historic architectural resource impact.

C. SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

In accordance with section 21100(b)(2)(B) of CEQA and section 15126.2(c) of the CEQA Guidelines, an EIR must identify any significant irreversible environmental changes that could result from implementation of the proposed project. This may include uses of non-renewable resources during the initial and continued phases of a project that may be irreversible as a large commitment of resources makes removal or non-use thereafter unlikely, and secondary impacts that commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with a project. According to the CEQA Guidelines, irretrievable commitments of resources should be evaluated to ensure that such current consumption is justified.

The project site is currently an urban site developed with one building and an asphalt-paved bus storage yard that would be redeveloped as a new transit facility with residential and commercial joint development components. As such, no irreversible environmental changes, such as those that might result from construction of a large-scale mining project, hydroelectric dam, or other industrial project that specifically alters non-renewable resources, would result from development of the proposed project or project variants.

No significant irreversible environmental damage related to environmental accidents is anticipated to occur with implementation of the proposed project or project variants. Compliance with federal, state, and local regulations related to the handling, transport, and disposal of hazardous materials during demolition, construction, and operation of the new transit facility, as well as the limited hazardous materials associated with the operation of the new residential and commercial joint development uses, would reduce the potential for the proposed project or project variants to cause significant irreversible environmental damage. (See **Section E.18, Hazards and Hazardous Materials**, of the initial study in **EIR Appendix B**.)

Consumption of nonrenewable resources includes increased energy consumption, conversion of agricultural lands to urban uses, and loss of access to mineral reserves. No agricultural lands would be converted and no access to mining reserves would be lost with construction of the proposed project or project variants. (See **sections E.19, Mineral Resources**; **E.20, Energy**; and **E.21, Agriculture and Forestry Resources**, of the initial study in **EIR Appendix B**.)

Resources consumed during construction would include lumber, concrete, gravel, asphalt, masonry, metals, and water. Similar to the existing uses on the project site, the proposed project or project variants would irreversibly use water and solid waste landfill resources. However, the proposed project or project variants would not involve a large commitment of resources relative to existing conditions or supply, nor would it consume any of those resources wastefully. (See S**ection E.12, Utilities and Service Systems**, of the initial study in **EIR Appendix B**.)

The proposed project or project variants would not include service by a natural gas provider; however, operation of the proposed project or project variants would require the use of energy, including energy produced from nonrenewable fossil fuels. In California, energy consumption in buildings is regulated by Title 24 of the California Code of Regulations. Title 24 includes standards that regulate energy consumption for the heating, cooling, ventilation, and lighting of residential and nonresidential buildings. In San Francisco, documentation demonstrating compliance with Title 24 standards is required to be submitted with a building permit application. Compliance with Title 24 standards is enforced by the San Francisco Department of Building Inspection. The proposed project (or project variants) is an infill development that would include new construction on a developed site. The proposed project or project variants would be required to comply with the standards of Title 24 and the requirements of the 2019 San Francisco Green Building Ordinance. Because the proposed project or project variants would be required to meet or exceed the energy conservation requirements in the San Francisco Green Building Ordinance, which itself includes energy conservation requirements that exceed those in the California Building Code, energy would not be used in a wasteful, inefficient, or unnecessary manner. (See **sections E.9, Greenhouse Gas Emissions** and **E.20, Energy**, of the initial study in **EIR Appendix B**.)

The new transit facility would continue to store and maintain the all-electric trolley bus fleet and non-revenue vehicles as well as diesel- and gasoline-fueled buses and non-revenue vehicles. Thus, operation-related energy consumption for the new transit facility would include a limited amount of diesel and gasoline fuels associated with the operation and maintenance of SFMTA's bus fleet and non-revenue vehicles, and three new emergency generators. Additionally, fossil fuel consumption for the proposed project or project variants would include vehicle fuel used by residents, employees, and visitors of the transit facility and joint development components as expressed through vehicle miles traveled. Electricity for the all-electric trolley bus fleet and non-revenue vehicles would be part of the operation-related energy-consumption for the new transit facility upon occupancy and re-initiation of transit service. As noted above, in the short term some non-revenue diesel- or gasoline-fueled vehicles would continue to be stored and maintained. The SFMTA's expected conversion of both its revenue and non-revenue fleet and its storage and maintenance yards, divisions, and facilities is expected to increase over time as the Muni transitions to an all-electric fleet by the year 2035. Operation-related energy-consumption would also include electricity used for building space heating and lighting (uses that are covered by Title 24, discussed above) as well as for operation of equipment and machines, for both the new transit facility and joint development components. (See **sections E.9, Greenhouse Gas Emissions** and **E.20, Energy**, of the initial study in **EIR Appendix B**.)

Energy conservation design features to meet state and local goals for energy efficiency and renewable energy have been incorporated into the project design to reduce wasteful, inefficient, and unnecessary consumption of energy during construction and operation. The proposed project or project variants would be built to Leadership in Energy and Environmental Design Gold certification, thus minimizing the amount of fuel, water, or energy used. The rooftops would be developed with a mix of green roof and/or solar photovoltaic systems. The proposed project or project variants would also incorporate transportation demand management measures into its design, such as 12 car-share parking spaces and bicycle parking, that would help to minimize the amount of transportation fuel consumed. (See **Section E.9, Greenhouse Gas Emissions** of the initial study in **EIR Appendix B**.)

The proposed project or project variants would introduce residential and commercial uses to the project site as joint development components. As discussed in the initial study under **Section E.13, Utilities and Service Systems**, p. 53, the project site is within an urban area that is served by water storage, treatment, and distribution facilities; combined wastewater and stormwater collection, storage, treatment, and disposal facilities; and solid waste collection and disposal service systems (see **EIR Appendix B**). The proposed project or project variants would use best-practice water conservation devices and techniques. On October 27, 2020, the San Francisco Public Utilities Commission approved a water supply assessment for the proposed project or project variants and determined that adequate water supplies are available to meet project demand and cumulative retail water demand in normal and wet years (roughly nine out of ten years), with systemwide rationing required in dry years (approximately one out of ten years). Additionally, the relatively small volume of water demand generated by the proposed project or project variants would not exacerbate any projected shortfalls if the Bay-Delta Plan Amendment is implemented. Because the water demand estimated for the proposed project or project variants could be accommodated by the existing and planned supply anticipated under the commission's 2015 Urban Water Management Plan, it would not result in a substantial increase in water use on the project site such that existing water supply entitlements and water resources would need to be expanded. Furthermore, the project sponsor and general contractor would minimize the use of potable water during construction to the extent feasible, and would comply with Ordinance 175-91, which requires that non-potable water be used for dust-control activities when feasible. The proposed project or project variants would not involve the wasteful, inefficient, or unnecessary consumption of water resources. (See **sections E.13, Utilities and Service Systems**, and **E.17, Hydrology and Water Quality**, of the initial study in **EIR Appendix B**.)

D. AREAS OF KNOWN CONTROVERSY AND ISSUES TO BE RESOLVED

EIR Chapter 1, Introduction, describes the public review process and summarizes the comments received on the Notice of Preparation (NOP) of an Environmental Impact Report and Notice of a Public Scoping Meeting. During the NOP public scoping period, a total of eight comments were provided: one speaker provided oral comments at the virtual public scoping meeting held on September 2, 2020, and seven comment letters and emails were submitted to the planning department.

To the extent the comments received on the NOP relate to environmental issues, they are addressed in the EIR and initial study. Any comments related to project merits that cannot be addressed through the CEQA process will be provided to decision-makers as part of the entitlement process. Controversial issues for the proposed project, as expressed by community members and agency stakeholders, include the following:

- Rehabilitation of the existing site as an alternative
- Reevaluation of the need for the project given 2020 changes in housing and transit demand due to the COVID-19 response
- Preservation of the existing onsite historical architecture
- Impacts to bicyclists, including accident rate changes
- Noise impacts on residents
- Impacts to the industrial uses in the Mission District neighborhood
- Impacts related to affordable housing in the project vicinity and rent increases

- Impacts on neighborhood characteristics such as the existing architectural character that includes small manufacturing, live-work lofts, and historic buildings
- Parking for Muni workers in the project vicinity and impacts on Muni workers as well as businesses and residents in the vicinity
- Wind and shadow impacts on residents
- Impacts on Franklin Square due to the increased number of local residents and employees
- Impacts on birds, including nesting birds
- Artificial lighting impacts on wildlife

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5. ALTERNATIVES

A. INTRODUCTION

EIR Chapter 5, Alternatives, presents an analysis of alternatives to the Potrero Yard Modernization Project at 2500 Mariposa Street, as required by the California Environmental Quality Act (CEQA). This chapter is divided into four main sections: Section A, Introduction; Section B, Description and Analysis of Alternatives; Section C, Environmentally Superior Alternative; and Section D, Alternatives Considered but Rejected.

Section A, Introduction, presents a discussion of the CEQA requirements for the analysis of alternatives to the proposed project or project variants. It lists the project objectives, provides a summary of significant impacts, and delineates the CEQA-compliant alternatives screening and selection process used to develop a reasonable range of potentially feasible project alternatives that could avoid or substantially lessen the significant impacts identified in this environmental impact report (EIR) for the proposed project or project variants while still meeting most of the project's basic objectives.

Section B, Description and Analysis of Alternatives, identifies each of the selected alternatives, contrasts the characteristics and impacts of the selected alternatives with those of the proposed project or project variants, evaluates the ability of each alternative to meet most of the project's basic objectives, and provides a detailed description of the selected alternatives and an analysis of the selected alternatives' environmental impacts. Because the impacts of the proposed project are substantially the same as those for each of the four project variants, the alternatives impact analysis does not include a separate comparative analysis for project variants. Three of the project variants—the Emergency Exit Relocation Variant, the Active 17th Street Variant, and the Employee and Family Support Variant—would be feasible variants with any of the alternatives. As described below, the Joint Development Lobby Relocation Variant would not be a feasible variant with any of the project alternatives. (See **EIR Chapter 2, Project Description**, pp. 2.56-2.58, for a detailed description of each of the project variants.) Therefore, for purposes of this alternatives chapter, references to project variants are to the three feasible variants.

Four alternatives are evaluated: a No Project Alternative (Alternative A), two historic preservation alternatives (Alternative B: Full Preservation Alternative and Alternative C: Partial Preservation Alternative), and a Transit Facility Plus Commercial Only Alternative (Alternative D). **Table 5.1: Comparison of Characteristics of the Proposed Project and EIR Alternatives**, pp. 5.18-5.22, compares the main characteristics of the proposed project to the alternatives. More detailed discussion of each alternative is presented in Section B, starting on p. 5.15.

Following the analysis of the alternatives, Section C, Environmentally Superior Alternative, identifies the environmentally superior alternative among the alternatives considered. The environmentally superior alternative is generally defined as the alternative that would result in the least adverse environmental impacts to the project site and affected environment. Section D, Alternatives Considered but Rejected, discusses alternatives that were considered but rejected by the lead agency and identifies the reasons for their elimination from detailed consideration in the EIR.

ALTERNATIVES SELECTION

This discussion describes the methodology used to select alternatives to the proposed project or project variants for detailed CEQA analysis, with the intent of developing potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified in **EIR Chapter 3, Environmental Setting and Impacts**, and in the initial study (**EIR Appendix B**) while still meeting most of the project's basic objectives. The proposed project or project variants would adversely affect a historic architectural resource by demolishing the maintenance and operations building and all its character-defining features (see **EIR Section 3.B, Historic Architectural Resources**, p. 3.B.13). Construction of the proposed project or project variants would also result in significant air quality impacts related to exposure of sensitive receptors to substantial pollutant concentrations resulting in excess cancer health risk exposure under project and cumulative conditions[1] (see **EIR Section 3.E, Air Quality**, pp. 3.E.52-3.E.59 and 3.E.65-3.E.67**)**. The impact to the historic architectural resource and the air quality impacts were the only significant and unavoidable impacts identified. As a result, historic preservation alternatives and one reduced density project alternative (addressing air quality impacts) have been developed that would avoid or substantially lessen such significant and unavoidable impacts while still meeting most of the project's basic objectives. This chapter identifies a reasonable range of alternatives, including historic preservation alternatives and a reduced density alternative addressing air quality impacts (health risk), that fulfill CEQA criteria and evaluates the alternatives for their comparative abilities to meet most of the project's basic objectives and avoid or substantially lessen significant environmental effects that would occur with the proposed project or project variants.

CEQA REQUIREMENTS FOR ALTERNATIVES ANALYSIS

CEQA Guidelines section 15126.6(a) states that an EIR must describe and evaluate a reasonable range of alternatives to the proposed project or project variants that would feasibly attain most of its basic objectives but avoid or substantially lessen any identified significant environmental effects of the proposed project or project variants. The EIR must include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project or project variants. An EIR is not required to consider every conceivable alternative to a proposed

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[1] The air quality analysis regarding health risk impacts prepared for the proposed project and project variants demonstrated the air quality health risk impact was below the significance threshold. However, given that the construction equipment list and assumptions modeled are preliminary, there is uncertainty such that this impact has been identified as a significant air quality impact.

project or project variants. Rather, it must consider a reasonable range of potentially feasible alternatives to foster informed decision-making and public participation.

CEQA, the CEQA Guidelines, and case law on the subject have found that feasibility can be based on a range of factors and influences. CEQA Guidelines section 15364 defines "feasibility" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." CEQA Guidelines section 15126.6(f)(1) states that the factors that may be taken into account when addressing the feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (if the site is not already owned by the proponent). CEQA Guidelines section 15126.6(f)(3) states that an EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative." The final determination of feasibility will be made by City and County of San Francisco (City) decision-makers based on substantial evidence in the record, which includes, but is not limited to, information presented in the EIR, comments received on the Draft EIR, and responses to those comments.

In addition, the range of alternatives considered in an EIR must include a no project alternative (CEQA Guidelines section 15126.6(e)(1)) and an environmentally superior alternative (CEQA Guidelines section 15126.6(e)(2)). The CEQA Guidelines provides the following direction about no project alternatives:

- The no project alternative analysis shall "discuss the existing conditions…as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and policies and consistent with the available infrastructure and community services." (section 15126.6(e)(2))
- In an EIR on "a development project on identifiable property, the 'no project' alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this 'no project' consequence should be discussed." Thus, "…where failure to proceed with the project would not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (section 15126.6(e)(3)(B))

The environmentally superior alternative is the alternative that best avoids or lessens any significant impacts of the proposed project or project variants, even if the alternative would impede to some degree attainment of the project objectives or would be more costly (CEQA Guidelines section 15126.6(b)). If it is determined that the "no project" alternative would be the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other project alternatives (CEQA Guidelines section 15126.6(e)(2)).

- An EIR must also identify and briefly discuss any alternatives that were considered by the lead agency but rejected as infeasible during the scoping process (CEQA Guidelines section 15126.6(c)). In identifying alternatives, primary consideration is given to alternatives that would reduce significant impacts while still meeting most of the basic project objectives. Alternatives typically rejected from further consideration are those that would have impacts identical to or more severe than the proposed project or project variants or those that would not meet most of the basic project objectives.

PROJECT OBJECTIVES

CEQA Guidelines section 15124 states that the description of the project shall contain the following information but should not supply extensive detail beyond that needed for evaluation and review of the environmental impact." Among the basic informational requirements is a statement of objectives sought for the proposed project or project variants. CEQA Guidelines section 15124(b) clarifies the need for this requirement as follows:

> "…A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project and may discuss project benefits."

As stated in the CEQA Guidelines, alternatives to a project selected for analysis in an EIR must substantially lessen or avoid any of the significant environmental impacts associated with the proposed project or project variants while still meeting most of the project's basic objectives. The San Francisco Municipal Transportation Agency (SFMTA) has identified seven basic objectives and seven additional objectives for the Potrero Yard Modernization Project.

Basic Objectives

1) Rebuild, expand, and modernize the SFMTA's Potrero Bus Yard by 2026 to efficiently maintain and store a growing Muni bus fleet according to the SFMTA Fleet Plan and Facilities Framework schedule.
2) Construct the first SFMTA transit facility with infrastructure for battery electric buses to facilitate Muni's transition to an all-electric fleet, in accordance with San Francisco and California policy.
3) Construct a new public asset that is resilient to earthquakes and projected climate change effects, and provides a safe, secure environment for the SFMTA's employees and assets.
4) Improve working conditions of the SFMTA's workforce of transit operators, mechanics, and front-line administrative staff through a new facility at Potrero Yard.
5) Achieve systemwide master plan priorities by consolidating two currently scattered transit support functions at Potrero Yard:

- o Improve and streamline transit operator hiring by consolidating the SFMTA's operator training function in a new, state-of-the-art facility.
- o Support efficient Muni operations by consolidating the Street Operations division in a modern, convenient facility.

6) Implement inclusive and transparent stakeholder engagement in designing this project and completing the CEQA process.
7) Create a development that is financially feasible, meaning that the public asset can be funded by public means and public transportation funds are used only for the bus yard component.

Additional Objectives

8) Enhance safety and reduce conflicts between transit, commercial vehicles, bicyclists, drivers, and pedestrians in the project site vicinity.
9) Improve the architectural and urban design character of the project site by replacing the existing fences and blank walls with more active, transparent street walls, to the extent feasible.
10) Maximize the reuse of this 4.4-acre site in a central, mixed-use neighborhood by creating a mixed-use development and providing dense housing and striving to maximize the number of affordable units on the site.
11) Increase the City's supply of housing by contributing to the Mayor's Public Lands for Housing goals, the San Francisco General Plan Housing Element goals, and the Association of Bay Area Governments' Regional Housing Needs Allocation for San Francisco by optimizing the number of dwelling units, including affordable housing, particularly near transit.
12) Support transit-oriented development and promote the use of public transportation through an innovative and comprehensive transportation demand management program.
13) Ensure that joint development is able to fund its own construction and ongoing management without reliance on City subsidy other than what is originally assumed as part of the project budget while ensuring that SFMTA's transportation funds are only allocated for the transit use.
14) Demonstrate the City's leadership in sustainable development by constructing an environmentally low-impact facility intended to increase the site's resource efficiency.[2]

The ability of each of the selected alternatives to achieve the basic and additional project objectives is discussed briefly in Section B, Alternatives Analysis, after the description and analysis of each of the alternatives.

2 The proposed project or project variants and each of the selected alternatives would be designed and constructed to meet the United States Green Building Council and Leadership in Energy and Environmental Design (LEED) requirements at the Gold level.

SUMMARY OF SIGNIFICANT IMPACTS

As stated in the CEQA Guidelines, project alternatives must avoid or substantially lessen significant impacts of the proposed project or project variants. The significant impacts of the proposed project or project variants identified in **EIR Chapter 3** and in the initial study (**EIR Appendix B**) are summarized below.

Significant and Unavoidable Impacts

As identified in **EIR Section 3.B**, the proposed project or project variants would result in the following significant and unavoidable historic architectural resources and air quality impacts after implementation of **Mitigation Measures M-CR-1a: Documentation of Historical Resource**, **M-CR-1b: Salvage Plan**, **M-CR-1c: Interpretation of the Historical Resource**, and **M-CR-1d: Oral Histories**, pp. 3.B.29-3.B.32; and **Mitigation Measures M-AQ-1: Off-Road Construction Equipment Emissions Minimization** and **M-AQ-3: Emergency Diesel Generator Health Risk Reduction Plan** (pp. 3.E.47-3.E.48 and p. 3.E.57, respectively:

Historic Architectural Resources (EIR Section 3.B)

- The proposed project or project variants would cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5 of the CEQA Guidelines. (*See **Impact CR-1** [substantial change in the significance of a historic resource due to demolition of a historic structure] on pp. 3.B.29-3.B.32.*)

Air Quality (EIR Section 3.E)

- Construction and operation of the proposed project or project variants would generate toxic air contaminants, including DPM [diesel particulate matter], at levels which would expose sensitive receptors to substantial pollutant concentrations. (*See **Impact AQ-3** [project contribution to substantial pollutant concentrations such as DPM, TOG, and $PM_{2.5}$ and excess cancer health risk exposure] on pp. 3.E.52-3.E.59.*)
- The proposed project or project variants, in combination with cumulative projects in the vicinity, would contribute considerably to cumulative health risk impacts on sensitive receptors. (*See **Impact C-AQ-1** [cumulatively considerable contribution to significant cumulative health risk impact] on pp. 3.E.65-3.E.67.*)

Significant Impacts Mitigated to Less-Than-Significant Levels

The proposed project or project variants would have the following potentially significant impacts, all of which could be mitigated to a less-than-significant level with implementation of identified mitigation measures, as described in detail in **EIR Chapter 3** and in the initial study (**EIR Appendix B**):

Noise (EIR Section 3.D)

Construction of the proposed project or project variants would generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the San Francisco Noise Ordinance or applicable standards of other agencies. (*See **Impact NO-1** on pp. 3.D.34-3.D.44.*)

- Construction of the proposed project or project variants would generate excessive groundborne vibration or groundborne noise levels. (*See **Impact NO-2** on pp. 3.D.44-3.D.47.*)
- Operation of the proposed project or project variants would generate a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan, or applicable standards of other agencies. (*See **Impact NO-3** on pp. 3.D.48-3.D.51.*)
- Construction noise as a result of the proposed project or project variants, combined with construction noise from cumulative projects in the vicinity, would cause a substantial temporary increase in ambient noise levels. (*See **Impact C-NO-1** on pp. 3.D.52-3.D.53.*)
- Operation of the proposed project or project variants, combined with operation noise from cumulative projects in the vicinity, would cause a substantial permanent increase in ambient noise levels in the project vicinity. (*See **Impact C-NO-2** on pp. 3.D.53-3.D.56.*)

Air Quality (EIR Section 3.E)

- During construction, the proposed project or project variants would not generate significant fugitive dust emissions, but would generate criteria air pollutant emissions at levels which would result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment. (*See **Impact AQ-1** on pp. 3.E.41-3.E.49.*)

Wind (EIR Section 3.F)

- The proposed project or project variants would create wind hazards in publicly accessible areas of substantial pedestrian use in the vicinity of the project site. (*See **Impact WI-1** on pp. 3.F.10-3.F.17.*)

Tribal Cultural Resources (initial study topic E.5)

- Construction of the proposed project or project variants could cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074. *(See **Impact TCR-1**, initial study pp. 36-38 [**EIR Appendix B**].)*
- The proposed project or project variants, in combination with cumulative projects in the vicinity, would not result in significant cumulative tribal cultural resources impacts. *(See **Impact C-TCR-1**, initial study p. 38 [**EIR Appendix B**].)*

Geology and Soils (paleontological resources) (initial study topic E.16)

- The proposed project or project variants could directly or indirectly destroy a unique paleontological resource or site. *(See **Impact GE-6**, initial study pp. 104-109 [**EIR Appendix B**].)*

ALTERNATIVES SCREENING

In accordance with CEQA Guidelines section 15126.6(a), this EIR examines a reasonable range of alternatives to the proposed project or project variants, or to the location of the project. An alternative selected for analysis must meet three criteria: (1) the alternative would attain most of the project's basic objectives, (2) the alternative would avoid or substantially lessen the significant environmental impacts of the proposed project or project variants, and (3) the alternative would be potentially feasible. As discussed on p. 5.3, an EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. Furthermore, an EIR need not consider every conceivable alternative but must consider a reasonable range of alternatives to foster informed decision-making and public participation.

Screening Process

The alternatives selection process for the proposed project or project variants identified alternatives that would avoid or substantially lessen the significant and unavoidable historic architectural resource impact. The alternatives selection process also considered a reduced density alternative to address the significant and unavoidable air quality impacts associated with the exposure of sensitive receptors to substantial pollutant concentrations resulting in excess cancer health risk. In most cases where impacts were determined to be less than significant with mitigation, alternative strategies were not warranted because feasible and effective mitigation measures have been identified for avoiding those significant impacts. The alternatives considered were then reviewed for their feasibility, and the potentially feasible alternatives were then screened for their ability to meet most of the basic project objectives.

This process resulted in development of the final or selected project alternatives, which were determined to represent a reasonable range of alternatives to the proposed project or project variants. As described below, the alternatives selected for detailed analysis included a comprehensive range of historic preservation alternatives, including a full preservation alternative and partial preservation alternative. Additionally, a reduced density alternative was selected to specifically address the significant and unavoidable air quality impacts.

Alternatives to Avoid or Substantially Lessen Significant Impacts

The only significant and unavoidable impacts identified for the proposed project or project variants, as summarized above, would be the demolition of the historic maintenance and operations building (the Potrero Trolley Coach Division Facility) and the exposure of sensitive receptors to substantial pollutant concentrations under project and cumulative conditions. Impacts on historic architectural resources would be avoided or substantially lessened by retaining all or some of the historical resource proposed for demolition, and rehabilitating the retained historical resource for modern transit vehicle entry/exit requirements consistent with The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings (Secretary's Standards).[3] The no project alternative would avoid this impact. As described below, the preservation alternatives would develop a building similar in scale to the proposed project or project variants (i.e., rising to 150 feet including a 75-foot-tall transit facility podium), but would cover less of the 4.4-acre site on the ground floor due to the retained historic resource and would have less floor area for each floor so as to allow proper setbacks of new construction from the retained historic resource.

The significant and unavoidable air quality impacts related to exposure of sensitive receptors to substantial pollutant concentrations resulting in excess cancer health risk exposure would be lessened by limiting the scale of construction. The no project alternative would avoid this impact. Each preservation alternative would constitute a reduced density alternative and have a reduced construction program that could lessen the significant and unavoidable air quality impacts related to excess cancer health risk exposure. Similarly, an alternative, which would replace the transit facility with an expanded and upgraded transit facility and include the ground-floor commercial use without residential uses, would also be a reduced density alternative. This alternative would have a substantially reduced construction program compared to the project or other alternatives that would substantially lessen the excess cancer health risk exposure associated with project implementation.

Preservation Alternatives

San Francisco Planning Department (planning department) staff, in coordination with the SFMTA and the transit facility design and urban design team (HDR and Sitelab), outlined various approaches to the retention of enough of the on-site historic structure so that it would remain recognizable as an early 20th-century car barn, in particular from the corner of Mariposa and Hampshire streets, and therefore retain sufficient integrity as an individual resource eligible for listing in the California Register under Criteria 1 and 3. Primary attention was focused on the retention of character-defining features present during the period of significance (1915-1948) that convey the site's historical significance under Criterion 1 (Events) for its association with the early days of the San Francisco Municipal Railway, and in particular the expansion of Muni service south of Market Street, and Criterion 3 (Design/Construction) as an example of a type (municipal car barn), period of construction (post-earthquake/World War I), method of construction (reinforced-concrete), as well as the "work of a master," City Engineer Michael M. O'Shaughnessy.[4]

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3 U. S. Department of the Interior, National Park Service (Kay D. Weeks and Anne E. Grimmer), The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstruction of Historic Buildings, 1995, *https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf*, accessed March 11, 2021.

4 VerPlanck Historic Preservation Consulting, Historic Resource Evaluation, Potrero Trolley Coach Division Facility, 2500 Mariposa Street, San Francisco, California, October 2, 2017, Appendix A - DPR 523 A and B Forms for San Francisco Municipal Railway Potrero Car Barn, June 12, 2008. See **EIR Appendix D-1**.

Furthermore, approaches to relating new construction to the retained historical resource were outlined in the development of preservation alternatives with respect to the height and bulk of new construction and setbacks from the retained historical resource.

The development of preservation alternatives focused primarily on avoiding or lessening the substantial adverse change to character-defining features of the historical resource. In addition, existing site constraints were also considered for these alternatives to evaluate whether an alternative was feasible and capable of meeting most of the basic project objectives. Such considerations include the following: the need for providing efficient horizontal and vertical bus circulation, the need for providing sufficient storage of the transit fleet (buses and non-revenue vehicles), the requirements for providing improved maintenance working areas, and the operational requirements for providing a transit facility with adequate and seismically safe infrastructure for a fleet of new battery electric buses and non-revenue vehicles, as well as the existing fleet.

Multiple preservation alternatives were therefore explored to determine (1) if the significant impact of the demolition of the existing historical resource could be avoided or substantially lessened, and (2) if the massing of new construction could be sculpted and/or oriented to limit effects on the retained historical resource and to retain critical transit facility functions as much as possible and achieve the SFMTA's additional objectives related to development of onsite housing. Thus, the range of alternatives considered in this EIR represents the continuation and expansion of the transit facility and the introduction of joint development uses, including new residential uses atop the transit facility podium. The range of alternatives also includes Alternative D, a transit facility and commercial use only alternative that does not propose residential development atop the transit facility podium. Although Alternative D would not avoid or substantially lessen the identified significant and unavoidable historic architectural resource impact of the proposed project or project variants, it would avoid or substantially lessen the identified significant and unavoidable air quality impacts as required under CEQA. Further, Alternative D would provide City-decisionmakers and the public an understanding of the impacts attributable to the transit facility with commercial uses only, i.e., in the event that the residential component of the joint development would not be developed.

HISTORIC PRESERVATION COMMISSION

On October 7, 2020, in order to solicit early input on the development of CEQA-related, preservation-focused alternatives, the planning department and the SFMTA requested review and comment on the proposed preservation alternatives by the Historic Preservation Commission

(HPC) pursuant to HPC Resolution No. 0746.[5,6] The preservation alternatives presented to the HPC reflected considerations of the character-defining features of the existing maintenance and operations building, the ability to meet the project's basic and additional objectives, and potential feasibility, and are described below.[7] See **Figure 5.1(a): Character-Defining Features of the Potrero Trolley Coach Division Facility** and **Figure 5.1(b): Character-Defining Features of the Potrero Trolley Coach Division Facility** for photographs of the Potrero Trolley Coach Division Facility and its character-defining features. Also see **EIR Appendix D** for the Historic Resource Evaluation and Parts I and II of the Historic Resource Evaluation Response.

The HPC reviewed full and partial preservation alternatives that focused on retaining the historic resource's character-defining features, most of which are associated with the office wing of the maintenance and operations building (office wing) along Mariposa and Hampshire streets on the southeast portion of the site. Under the full preservation alternative presented to the HPC, the existing office wing along with the east elevation of the maintenance shops wing (shops wing) along Hampshire Street would be retained. The new transit facility would be constructed on the remainder of the project site. This would require demolition of a portion of the shops wing to the north of the retained office wing and west of east elevation of the retained shops wing. New construction would be set back from the north and west edges of the retained office wing and from the retained east elevation of the shops wing along Hampshire Street, with additional setbacks for development atop the transit facility podium. Under the partial preservation alternative, the office wing would also be retained; however, the shops wing would not be retained. New construction would be developed with shallower setbacks from the north and west edges of the retained office wing and no setbacks from Hampshire Street, north of the retained office wing.

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5 HPC Resolution No. 0746 (approved March 15, 2015) clarifies expectations for the evaluation of significant impacts to historic resources and the preparation of preservation alternatives in a Draft EIR.

6 San Francisco Planning Department, Memo to the Historic Preservation Commission, Hearing Date: October 7, 2020, Case No. 2019-021884ENV, 2500 Mariposa Street (Potrero Yard), re: Review and Comment on Preservation Alternatives for Draft EIR, October 7, 2020.

7 See **Table 3.B.1**, p. 3.B.13, in **EIR Section 3.B, Historic Architectural Resources**, for the final list of character-defining features as identified in the planning department's Historic Resource Evaluation Response, Part I, 2500 Mariposa Street, September 25, 2020 (see **EIR Appendix D-2**, p. 4).

Image 1: View northeast of office wing primary façade along Mariposa Street.

Image 2: View northwest of office wing primary façade along Mariposa Street (left), and secondary façade along Hampshire Street (right).

Image 3: View northwest of secondary façade along Hampshire Street. Note the change in parapet height where the office wing (left) meets the shops wing (right).

Image 4: View southwest of shops wing secondary façade along Hampshire Street. Phototaken from the corner of Hampshire Street and 17th Street.

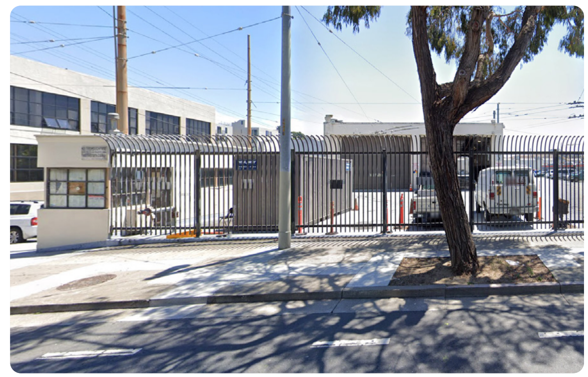
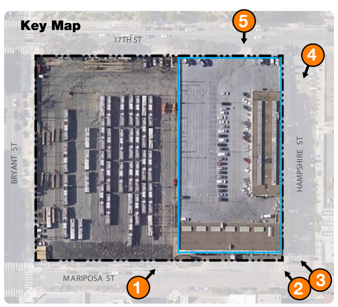


Image 5: View south of shops wing tertiary façade along 17th Street.



Character-Defining Features

- Overall height and massing of the two-story office wing and the remaining portions of the original shops wing along Hampshire Street, including its flat roof
- Fenestration pattern on office wing (Mariposa and Hampshire Streets only) consisting of large vehicular openings at the first floor and groups of three double-hung metal windows at the second-floor level
- Remaining molded concrete and cement plaster ornament on Mariposa and Hampshire Streets, including re-entrant corner detailing, pilaster separating the vehicular openings and door hoods, molded intermediate cornice, continuous lug sill beneath the windows, shallow cornice, and medallion featuring original Muni logo. Some of this detailing continues along the west and east (Hampshire Street) façades of the office wing, as well as on the shops wing on Hampshire Street
- Remaining pedestrian door surround on Hampshire Street façade of office wing with inscription above
- Remaining door trim on westernmost vehicular bay on Mariposa Street
- Surviving double-hung, six-over-six, metal windows on office wing
- Flagpole

Source: SITELAB urban studio

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 5.1(a): CHARACTER-DEFINING FEATURES OF THE POTRERO TROLLEY COACH DIVISION FACILITY

Image 6: Detail view of office wing primary façade. Note character defining features including molded concrete and cement plaster ornament, fenestration pattern of groups of three double-hung metal windows, medallion featuring original Muni logo, and flagpole

Image 7: Detail view of office wing secondary façade. Note character-defining features including molded concrete and cement plaster ornament, reentrant corner detailing, double-hung metal windows, and pedestrian door surround.

Image 8: Detail view of office wing primary façade. Note character-defining features include remaining door trim of westernmost bay.

Image 9: Detail view of office wing primary façade. Note character-defining features include large vehicular openings, double-hung windows, and medallion featuring original Muni logo.

Image 10: Detail view of office wing's primary (Mariposa Street) and secondary façades (Hampshire Street). Note character-defining features include the fenestration pattern of groups of three double-hung metal windows at the second floor level with a continuous lug sill, large vehicular openings at the first floor, reentrant corner detailing, and the flagpole.

Character-Defining Features

- Overall height and massing of the two-story office wing and the remaining portions of the original shops wing along Hampshire Street, including its flat roof
- Fenestration pattern on office wing (Mariposa and Hampshire Streets only) consisting of large vehicular openings at the first floor and groups of three double-hung metal windows at the second-floor level
- Remaining molded concrete and cement plaster ornament on Mariposa and Hampshire Streets, including re-entrant corner detailing, pilaster separating the vehicular openings and door hoods, molded intermediate cornice, continuous lug sill beneath the windows, shallow cornice, and medallion featuring original Muni logo. Some of this detailing continues along the west and east (Hampshire Street) façades of the office wing, as well as on the shops wing on Hampshire Street
- Remaining pedestrian door surround on Hampshire Street façade of office wing with inscription above
- Remaining door trim on westernmost vehicular bay on Mariposa Street
- Surviving double-hung, six-over-six, metal windows on office wing
- Flagpole

Source: SITELAB urban studio

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 5.1(b): CHARACTER-DEFINING FEATURES OF THE POTRERO TROLLEY COACH DIVISION FACILITY

The HPC's comments on the proposed preservation alternatives were summarized in a review and comment memo dated October 15, 2020.[8] The HPC agreed with a preservation approach that focused on retaining and rehabilitating the existing office wing, which is the location of most of the building's character defining features; found the range of alternatives to be adequate; acknowledged the challenge of developing a full preservation alternative that met most of the project's basic objectives; expressed a preference for the partial preservation alternative because it preserved what the HPC deemed as the most important element of the historic building– the Mariposa-facing façade of the office wing; and stated that the retention of the east elevation of the shops wing in the full preservation alternative did not improve the project from both a preservation and urban design perspective.

The HPC attributed greater importance to the retention of the office wing on the southeast portion of the site because most of the character-defining features are located along the Mariposa Street façade wrapping around Hampshire Street. Lesser importance was attributed to the character-defining features associated with the shops wing along Hampshire Street. As a result, the HPC requested refinements to the proposed full preservation alternative to focus less on preservation of the Hampshire Street elevation north of the office wing and more on retaining the overall massing of the historic resource as it relates to the massing of the proposed new 75-foot-tall transit facility podium. To make the massing of the new construction more sensitive to the height and massing of the historic resource, the HPC also recommended shifting the massing of the proposed residential component (atop the transit facility podium) from the east portion of site to its west portion in the full preservation alternative. Other requested refinements included further study to improve the ability to meet the additional project objectives related to development of onsite housing.

Thus, the preservation alternatives screening process resulted in changes to the full preservation alternative presented to the HPC, and minor associated refinements to the partial preservation alternative in response to HPC input. The SFMTA and their transit facility design and urban design team (HDR and Sitelab) updated the full and partial preservation alternatives that form the basis for the descriptions for Alternatives B and C discussed and analyzed in detail below.[9] The full preservation alternative that was brought to HPC on October 7, 2020, is also discussed in Section D, Alternatives Considered but Rejected, below.

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8 San Francisco Historic Preservation Commission, Review and Comment on Preservation Alternatives for Draft EIR, Case No. 2019-021884ENV, 2500 Mariposa Street (Potrero Yard), October 15, 2020.
9 SFMTA, HDR, and Sitelab, Final Preservation Alternatives Graphics Package, March 10, 2021.

B. DESCRIPTION AND ANALYSIS OF ALTERNATIVES

Based on the alternatives screening process discussed above, the following alternatives were selected for detailed analysis:

- Alternative A: No Project Alternative
- Alternative B: Full Preservation Alternative
- Alternative C: Partial Preservation Alternative
- Alternative D: Transit Facility Plus Commercial Only Alternative

The selected alternatives to the proposed project or project variants are described in detail below and then analyzed in comparison to the impacts of the proposed project or project variants. As noted on p. 5.1, the only feasible variants to the selected alternatives would be the Emergency Exit Relocation Variant, the Active 17th Street Variant, and the Employee and Family Support Variant. For purposes of this alternatives chapter, references to project variants exclude the Joint Development Lobby Relocation Variant because it would not be a feasible variant with any of the project alternatives. The Joint Development Lobby Relocation Variant would not be a feasible variant under the preservation alternatives due to the focus on retaining the office wing (which is already set back 20 feet from the Mariposa Street property line) with no development above and the series of setbacks and notches necessary to visually separate new construction from the retained historical resource. Under each of the preservation alternatives residential development in the transit facility podium would be limited to Bryant Street and the portion of Mariposa Street between the retained office wing and Bryant Street; thus, no residential lobby would be developed between York and Hampshire streets that would need to be relocated. Under Alternative D there would be no residential component; thus, this project variant would not be applicable.

Furthermore, as with the proposed project or project variants, the selected alternatives would incorporate public works' standard construction measures (SCMs) to protect human health and safety as well as environmental resources as stated in **EIR Chapter 2, Project Description**, pp. 2.49-2.54. Public works' SCMs are related to the following environmental resources or related topics: seismic and geotechnical considerations, air quality, water quality, traffic, noise, hazardous materials, biological resources (bird protection, tree conservation, environmentally sensitive areas), visual and aesthetic considerations (project site), and cultural resources (archeological resources and historic architectural resources). All of public works' SCMs are listed below (see **Table 2.3: San Francisco Public Works Standard Construction Measures**, in **EIR Chapter 2, Project Description**, pp. 2.50-2.53, for a description of these measures). See applicable EIR sections and initial study topics (**EIR Appendix B**) for a discussion of how each is incorporated as part of the proposed project or project variants. (See **EIR Appendix C** for a copy of public works' SCMs and attachments):

- Public Works Standard Construction Measure #1, Seismic and Geotechnical Studies
- Public Works Standard Construction Measure #2, Air Quality
- Public Works Standard Construction Measure #3, Water Quality
- Public Works Standard Construction Measure #4, Traffic
- Public Works Standard Construction Measure #5, Noise
- Public Works Standard Construction Measure #6, Hazardous Materials
- Public Works Standard Construction Measure #7, Biological Resources
- Public Works Standard Construction Measure #8, Visual and Aesthetic Considerations
- Public Works Standard Construction Measure #9, Cultural Resources

SELECTED ALTERNATIVES

As noted above on pp. 5.9-5.12, the two preservation alternatives are the culmination of a screening process that considered various site plans, building retention programs, building heights, views of the character-defining features, and feedback from the HPC. See **Table 5.1: Comparison of Characteristics of the Proposed Project and EIR Alternatives**, pp. 5.18-5.22, for an overview of the main characteristics of the alternatives compared to those of the proposed project or project variants. See **Table 5.2: Comparison of Effects of Proposed Project and EIR Alternatives on Character-Defining Features of the Historical Resource**, pp. 5.23-5.24, for a summary of the retention of the character-defining features of the historical resource under the alternatives compared to the proposed project or project variants. The selected preservation alternatives, as mentioned above, could also lessen the significant and unavoidable air quality impacts as reduced versions of the proposed project or project variants; however, the reduced density alternative (Alternative D) was chosen to specifically address the significant and unavoidable air quality impacts as the development density for this alternative would be further reduced compared to the preservation alternatives.

The selected alternatives to the proposed project or project variants (excluding the Joint Development Lobby Relocation Variant) were determined to adequately represent the range of potentially feasible alternatives required under CEQA. One of the preservation alternatives (Alternative B) and the no project alternative (Alternative A) would avoid or substantially lessen the significant and unavoidable historic architectural resource impact, would avoid or substantially lessen the significant and unavoidable project and cumulative air quality impacts, and would also avoid or substantially lessen one or more other significant impacts that were identified for the proposed project or project variants. The other preservation alternative (Alternative C) would lessen the significant and unavoidable historic architectural resource impact but not to a less-than-significant level, would avoid or substantially lessen the significant and unavoidable project and cumulative air quality impacts, and would also avoid or substantially lessen one or more other significant impacts that were identified for the proposed project or project variants. The transit facility plus commercial only alternative (Alternative D) would avoid or substantially lessen the significant and unavoidable project and cumulative air quality impacts and would also avoid or substantially lessen one or more significant impacts, e.g., noise and vibration impacts, but would not avoid or substantially lessen the significant and unavoidable historic architectural resource impact. Alternative D also provides decision makers and the public with an understanding of the impacts attributable to development of the replacement transit facility with commercial uses only. Additionally, pursuant to CEQA requirements, all of the alternatives (except Alternative A) would meet most of the project's basic objectives and its additional objectives, with some meeting objectives more than others. For example, Alternative D would meet fewer of the additional project objectives than Alternatives B or C because there would be no residential component to the joint development. See **Table 5.3: Ability of Alternatives to Meet Project Objectives**, pp. 5.25-5.27, for a summary comparison of the ability of each alternative to achieve the basic and additional project objectives.

Descriptions and assumptions for each of the alternatives are presented below on pp. 5.36-5.70, starting with Alternative A. The descriptions of the full and partial preservation alternatives (Alternatives B and C, respectively) follow the same for Alternative A and are based on the preservation alternatives presented in the Final Preservation Alternatives Graphics Package prepared by the SFMTA, HDR, and Sitelab and the Preservation Alternative Memorandum prepared by VerPlanck Historic Preservation Consulting.[10],[11] Site plan and building massing graphics are presented for each alternative except the no project and transit facility plus commercial only alternatives (Alternatives A and D, respectively) which include only site plans.

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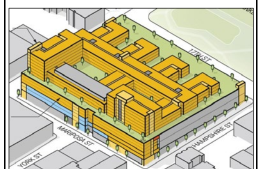
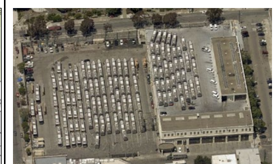
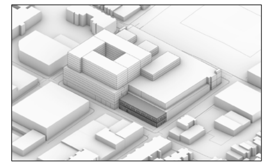
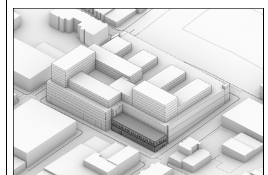
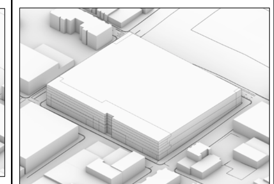
[10] SFMTA, HDR, and Sitelab, Final Preservation Alternatives Graphics Package, March 10, 2021.
[11] VerPlanck Historic Preservation Consulting, Potrero Yard Preservation Alternatives Memorandum, 2500 Mariposa Street, Case No. 2019-021884ENV, September 21, 2020.

Table 5.1: Comparison of Characteristics of the Proposed Project and EIR Alternatives

	Proposed Project NOTE A	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative** NOTE B	**Alternative C: Partial Preservation Alternative** NOTE B	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Characteristics of the Proposed Project and Project Alternatives					
Transit Facility Podium Height (feet)	75	10.5 – 44	75	75	75
Number of Transit Facility Stories	3	2	3	3	3
High-Rise Tower Height (feet)	Up to 150	–	Up to 150	Up to 150	–
Number of Joint Development Stories	Up to 13	–	Up to 13	Up to 13	–
Excavation Depth	35 feet; 248,900 cubic yards	–	35 feet; 248,900 cubic yards	35 feet; 248,900 cubic yards	35 feet; 248,900 cubic yards
Construction Duration	3 – 4 years	–	3 – 4 years	3 – 4 years	2.5 – 3 years
Building and Site Characteristics	**1,300,000 gsf**	**221,450 gsf**	**1,060,000 gsf**	**1,070,000 gsf**	**756,000 gsf**
Paved Bus Storage Yard	–	112,450 gsf	–	–	
Enclosed Bus Facility	723,000 gsf	109,000 gsf	578,000 gsf	597,000 gsf	723,000 gsf
Ramps & Circulation, Bus Storage and Service	*671,000 gsf*	–	*532,000 gsf*	*551,000 gsf*	*671,000 gsf*
Administration and Common Area	*52,000 gsf*	–	*46,000 gsf*	*46,000 gsf*	*52,000 gsf*
Residential	544,000 gsf	–	449,000 gsf	440,000 gsf	–
Commercial	33,000 gsf	–	33,000 gsf	33,000 gsf	33,000 gsf

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	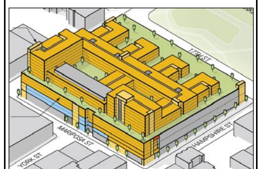	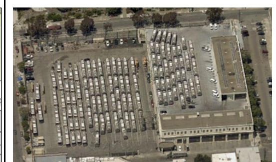	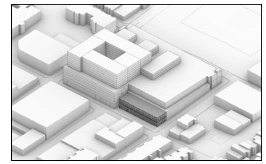	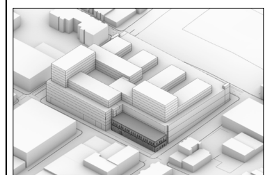	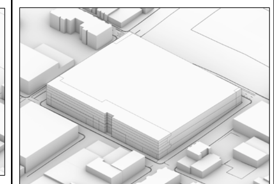
Residential Units	**575**	–	**477**	**459**	–
Studio	141	–	114	110	–
One-Bedroom	206	–	172	165	–
Two- to Three-Bedroom	228	–	191	184	–
Open Space	**91,000 sq. ft.**		**81,000 sq. ft.**	**84,000 sq. ft.**	**91,000 sq. ft.**
Transportation and Circulation Features of the Proposed Project and Project Alternatives					
Maintenances Repair Bays	**18**	**24**	**16**	**16**	**18**
Vehicle Parking Spaces NOTE C	**310**	**214**	**270**	**283**	**310**
Trolley Coaches (40 foot/60 foot)	213 (63/150)	158 (65/93)	194 (74/120)	207 (43/164)	213 (63/150)
Non-Revenue Vehicles (large/standard)	97 (8/89)	56	76 (3/73)	76 (3/73)	97 (8/89)
SFMTA Staff	0	0	0	0	0
Residential	0	–	0	0	–
Loading Supply	**160 curb feet (3/2)**	**0 curb feet (0/1)**	**100 curb feet (2/2)**	**100 curb feet (2/2)**	**40 curb feet (1/2)**
Commercial (On-Street/Off-Street)	40 curb feet (1/2)	0 curb feet (0/1)	40 curb feet (1/2)	40 curb feet (1/2)	40 curb feet (1/2)
Passenger (On-Street/Off-Street)	120 curb feet (2/0)	None	60 curb feet (1/0)	60 curb feet (1/0)	–
On-Street Parking Spaces Removed Along Adjacent Streets	**48**	–	**24**	**24**	**19**

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	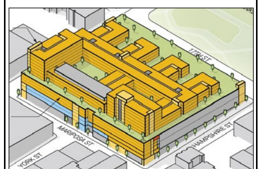	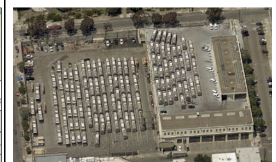	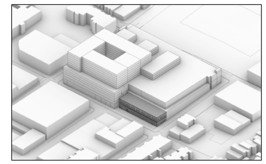	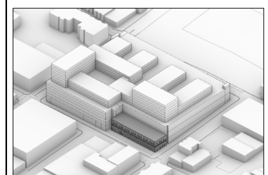	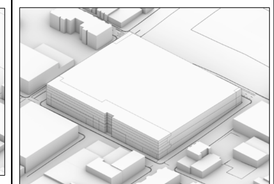
Bicycle Parking Spaces	**773**	**5**	**295**	**291**	**69**
Class 1	736 NOTE D	0	252	249	60
Class 2	37	5	43	42	9
Streetscape Changes					
Curb Cuts NOTE E					
17th Street between Bryant and Hampshire streets	1 (42 feet)	1 (52 feet)	1 (42 feet)	1 (42 feet)	1 (42 feet)
Mariposa Street between Bryant and Hampshire streets	4 (20 feet, 97 feet, 63 feet, 47 feet)	4 (30 feet, 50 feet, 13 feet, 146 feet)	3 (20 feet, 97 feet, 222 feet)	3 (20 feet, 97 feet, 222 feet)	4 (20 feet, 97 feet, 63 feet, 47 feet)
Sidewalk Extensions					
Bryant Street north of Mariposa Street	Yes	No	Yes	Yes	Yes
Mariposa Street east of Bryant Street	Yes	No	Yes	Yes	Yes
Hampshire Street north of Mariposa Street	Yes	No	No	No	Yes
Sidewalk Improvements					
Mariposa Street widening	12-foot width	7-foot width	12-foot width	12-foot width	12-foot width
Street tree retention and replacement	Yes	No	Yes	Yes	Yes

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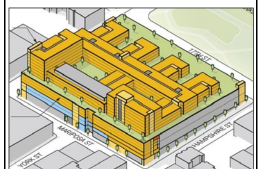
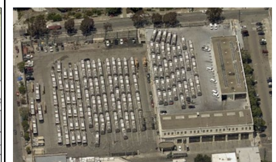
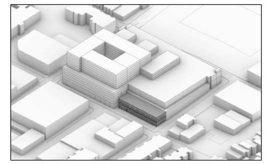
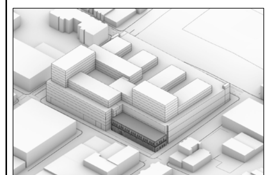
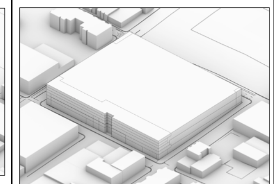
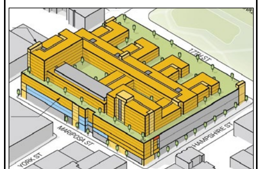
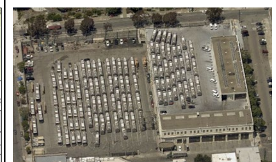
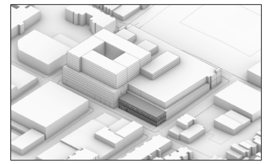
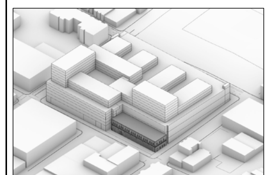
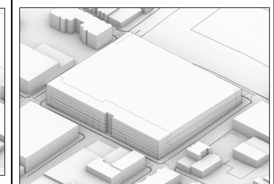
					
Intersection Improvements					
Raided crosswalk with rapid flash beacon at crossing of 17th Street at Hampshire Street	Yes	No	Yes	Yes	Yes
Curb ramps for pedestrian crossings adjacent to the project site and a curb ramp on the southeastern side of the Mariposa/York street intersection facing Mariposa Street	Yes	No	Yes	Yes	Yes
Continental-style crosswalks at all approaches at the intersections of Hampshire/17th streets, Hampshire/Mariposa streets, Mariposa/York streets	Yes	No	Yes	Yes	Yes
Bicycle Lanes					
17th Street between Bryant and Hampshire streets	Protected, widened, painted green	No	Protected, widened, painted green	Protected, widened, painted green	Protected, widened, painted green
Bus Stops					
Northwest and southeast corners of Mariposa and Bryant streets	New shelters, transit notification systems, and lighting	No	New shelters, transit notification systems, and lighting	New shelters, transit notification systems, and lighting	New shelters, transit notification systems, and lighting

	Proposed Project NOTE A 	**Alternative A: No Project Alternative** 	**Alternative B: Full Preservation Alternative** NOTE B 	**Alternative C: Partial Preservation Alternative** NOTE B 	**Alternative D: Transit Facility Plus Commercial Only Alternative** 
Transportation Demand Management Measures NOTE F	Yes	–	Yes	Yes	Yes
Sustainability Features					
LEED Certification Goal	LEED Gold	–	LEED Gold	LEED Gold	LEED Gold
Utility Infrastructure					
Connect to existing water, AWSS, sewer, and electrical infrastructure systems (Bryant, 17th, Hampshire and Mariposa streets)	Yes	–	Yes	Yes	Yes

Notes: gsf – gross square feet; LEED – Leadership in Energy and Environmental Design

[A] Original proposed project drawings are conceptual and indicate 576,000 gsf of space for bus ramps and circulation and bus storage and service on all three transit levels, and 4,000 gsf of ground-floor commercial space along Bryant Street. For purposes of a reasonable worst-case CEQA analysis and to maintain flexibility in the design process to accommodate sustainability and urban design goals, a 95,000-gsf buffer for bus ramps and bus circulation and bus storage and service areas was added to increase the overall transit facility gsf. Also, 33,000 gsf of commercial space was assumed (with no reduction to transit facility gsf). Like the proposed project, the historic preservation alternatives assume 33,000 gsf of commercial space; however, for purposes of determining constraints to efficient bus circulation and fleet service needs, comparisons were made to the conceptual proposed project drawings demonstrating 4,000 gsf of commercial space.

[B] See Final Preservation Alternatives Graphics Package (March 10, 2021) for specific program assumptions.

[C] Twelve car-share spaces would be provided under the proposed project or project variants; four would be provided under Alternatives B and C based on planning code requirements for residential uses. None would be required for non-residential uses because parking would not be provided. Alternative D would not be required to include any car-share spaces. (See planning code section 166 requirements.)

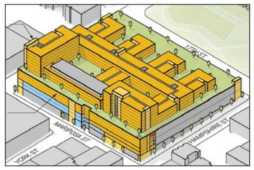
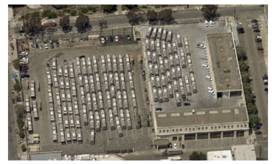
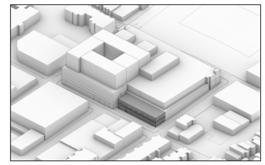
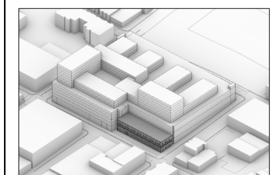
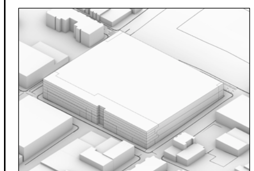
[D] Class 1 bicycle spaces meet or exceed planning code section 155 requirements.

[E] There are no existing curb cuts, and none are proposed, along Bryant Street between Mariposa and 17th streets and Hampshire Street between Mariposa and 17th streets.

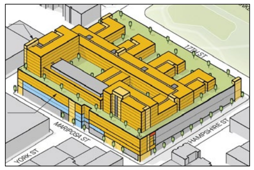
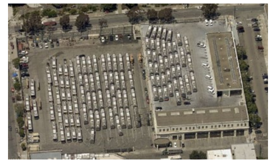
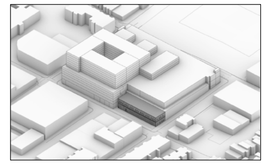
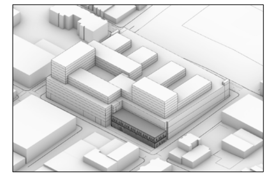
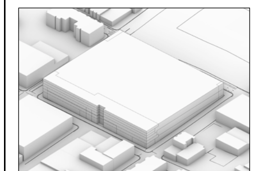
[F] The TDM Program (under development) is implemented citywide across all SFMTA facilities, including the Potrero Yard site, and available/applicable to all SFMTA staff.

Source: SFMTA, Sitelab, and HDR, July 2020 and March 2021

Table 5.2: Comparison of Effects of Proposed Project and EIR Alternatives on Character-Defining Features of Historical Resource

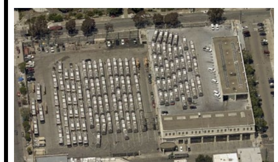
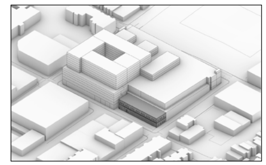
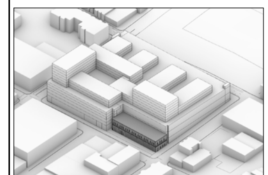
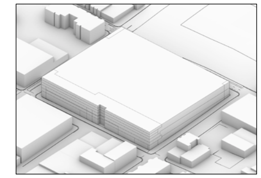
	Proposed Project 	**Alternative A: No Project Alternative** 	**Alternative B: Full Preservation Alternative** 	**Alternative C: Partial Preservation Alternative** 	**Alternative D: Transit Facility Plus Commercial Only Alternative** 
Character Defining Features					
Overall height and massing of the two-story office wing including its flat roof	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Overall height and massing of the remaining portions of the original shops wing along Hampshire Street, including its flat roof	Demolished	*Retained*	Partially Retained	Demolished	Demolished
Fenestration pattern on office wing (Mariposa and Hampshire streets only) consisting of large vehicular openings at the first floor and groups of three double-hung metal windows at the second-floor level	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Remaining molded concrete and cement plaster ornament on Mariposa and Hampshire streets, including:	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Re-entrant corner detailing	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Pilaster separating the vehicular openings and door hoods	Demolished	*Retained*	*Retained*	*Retained*	Demolished

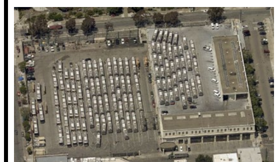
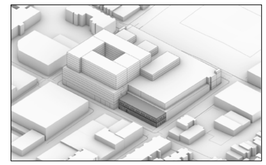
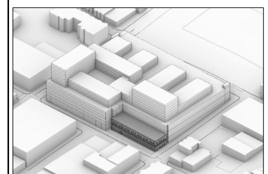
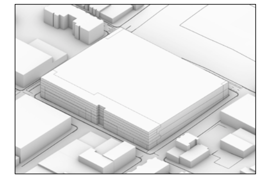
(Table 5.1 continued)

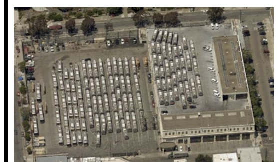
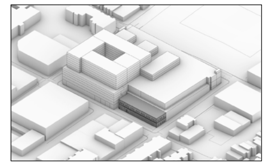
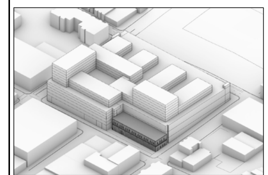
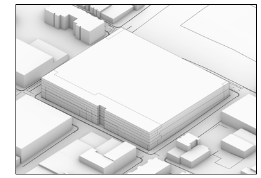
	Proposed Project 	**Alternative A: No Project Alternative** 	**Alternative B: Full Preservation Alternative** 	**Alternative C: Partial Preservation Alternative** 	**Alternative D: Transit Facility Plus Commercial Only Alternative** 
Molded intermediate cornice	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Continuous lug sill beneath the windows,	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Shallow cornice, and	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Medallion featuring original Muni logo	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Some of this detailing continues along the west and east (Hampshire Street) façades of the office wing, as well as on the shops wing on Hampshire Street	Demolished	*Retained*	Partially Retained	Partially Retained	Demolished
Remaining pedestrian door surround on Hampshire Street façade with inscription above	Demolished	Retained	*Retained*	*Retained*	Demolished
Remaining door trim on westernmost vehicular bay on Mariposa Street	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Surviving double-hung, six-over-six, metal windows on office wing	Demolished	*Retained*	*Retained*	*Retained*	Demolished
Flagpole	Demolished	*Retained*	*Retained*	*Retained*	Demolished

Source: San Francisco Planning Department, Historic Resource Evaluation, Part 1, September 25, 2020 (see **EIR Appendix D-2**).

Table 5.3: Ability of Alternatives to Meet Project Objectives

Project Objectives	**Alternative A: No Project Alternative** 	**Alternative B: Full Preservation Alternative** 	**Alternative C: Partial Preservation Alternative** 	**Alternative D: Transit Facility Plus Commercial Only Alternative** 
Would the alternative meet this objective?				
Basic Objectives				
1. Rebuild, expand, and modernize the SFMTA's Potrero Bus Yard by 2026 to efficiently maintain and store a growing Muni bus fleet according to the SFMTA Fleet Plan and Facilities Framework schedule.	No	Partially	Partially	Yes
2. Construct the first SFMTA transit facility with infrastructure for battery electric buses to facilitate Muni's transition to an all-electric fleet, in accordance with San Francisco and California policy.	No	Partially	Partially	Yes
3. Construct a new public asset that is resilient to earthquakes and projected climate change effects, and provides a safe, secure environment for the SFMTA's employees and assets.	No	Yes	Yes	Yes
4. Improve working conditions for the SFMTA's workforce of transit operators, mechanics, and front-line administrative staff through a new facility at Potrero Yard.	No	Yes	Yes	Yes

Project Objectives	Alternative A: No Project Alternative 	Alternative B: Full Preservation Alternative 	Alternative C: Partial Preservation Alternative 	Alternative D: Transit Facility Plus Commercial Only Alternative 
Would the alternative meet this objective?				
5. Achieve systemwide master plan priorities by consolidating two currently scattered transit support functions at Potrero Yard: o Improve and streamline transit operator hiring by consolidating the SFMTA's operator training function in a new, state-of-the-art facility. o Support efficient Muni operations by consolidating the Street Operations division in a modern, convenient facility.	No	Partially	Partially	Yes
6. Implement inclusive and transparent stakeholder engagement in designing this project and completing the CEQA process.	No	Yes	Yes	Yes
7. Create a development that is financially feasible, meaning that the public asset can be funded by public means and public transportation funds are used only for the bus yard component.	No	Yes	Yes	Yes
Additional Objectives				
8. Enhance safety and reduce conflicts between transit, commercial vehicles, bicyclists, drivers, and pedestrians in the project site vicinity.	No	Yes	Yes	Yes
9. Improve the architectural and urban design character of the project site by replacing the existing fences and blank walls with more active, transparent street walls, to the extent feasible.	No	Yes	Yes	Yes

Project Objectives	**Alternative A: No Project Alternative** 	**Alternative B: Full Preservation Alternative** 	**Alternative C: Partial Preservation Alternative** 	**Alternative D: Transit Facility Plus Commercial Only Alternative** 
Would the alternative meet this objective?				
10. Maximize the reuse of this 4.4-acre site in a central, mixed-use neighborhood by creating a mixed-use development and providing dense housing and striving to maximize the number of affordable units on the site.	No	Partially	Partially	No
11. Increase the City's supply of housing by contributing to the Mayor's Public Lands for Housing goals, the San Francisco General Plan Housing Element goals, and the Association of Bay Area Governments' Regional Housing Needs Allocation for San Francisco by optimizing the number of dwelling units, including affordable housing, particularly near transit.	No	Partially	Partially	No
12. Support transit-oriented development and promote the use of public transportation through an innovative and comprehensive transportation demand management program.	Yes	Yes	Yes	Yes
13. Ensure that joint development is able to fund its own construction and ongoing management without reliance on City subsidy other than what is originally assumed as part of the project budget while ensuring that SFMTA's transportation funds are only allocated for the transit use.	No	Yes	Yes	N/A
14. Demonstrate the City's leadership in sustainable development by constructing an environmentally low-impact facility intended to increase the site's resource efficiency.	No	Yes	Yes	Yes

Source: SFMTA, 2021

FRAMEWORK FOR ANALYSIS OF THE ALTERNATIVES

The alternatives impact analysis that follows each of the descriptions of the alternatives is generally qualitative and is based on the same environmental setting, significance thresholds, and approach to analysis as presented for the proposed project or project variants in **EIR Chapter 3** relative to the identified impacts of the proposed project or project variants for Historic Architectural Resources, Transportation and Circulation, Noise and Vibration, Air Quality, Wind, and Shadow and for topics covered in the initial study (**EIR Appendix B**).

As discussed on p. 3.B.27 in **EIR Section 3.B, Historic Architectural Resources**, CEQA Guidelines section 15064.5(b) establishes the criteria for assessing a significant environmental impact on historical resources. It states, "[a] project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." The section defines "substantial adverse change in the significance of an historical resource" as a "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (section 15064.5(b)(1)). The significance of an historic architectural resource is considered to be "materially impaired" when a project demolishes or materially alters the physical characteristics that justify inclusion of the resource in the California Register of Historic Resources, or that justify inclusion of the resource in a local register, or that justify its eligibility for inclusion in the California Register of Historic Resources as determined by the lead agency for the purposes of CEQA (section 15064.5(b)(2)).

Table 5.4: Comparison of Significant Impacts of the Proposed Project and EIR Alternatives, pp. 5.29-5.35, provides a comparison of the significant impacts of the proposed project or project variants to those of the alternatives, as well as the comparative effects among the alternatives. This table identifies whether the significant impacts anticipated under any of the four alternatives would be similar to, greater than, or less than the significant impacts that would occur with construction and operation of the proposed project or project variants (excluding the Joint Development Lobby Relocation Variant).

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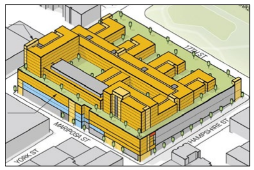
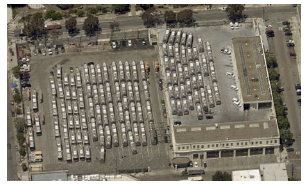
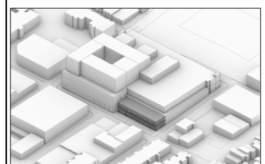
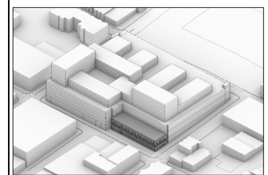
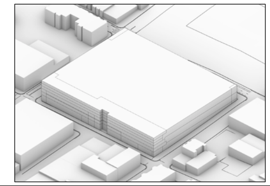
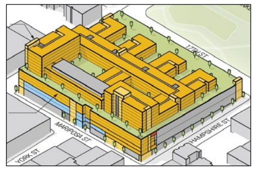
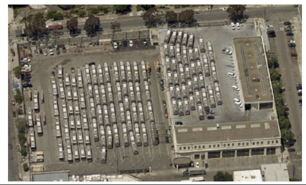
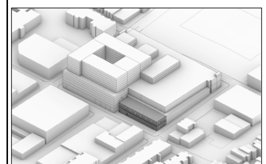
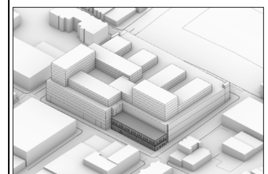
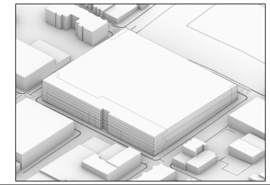
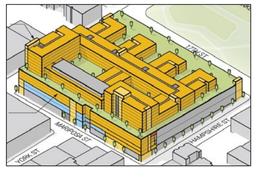
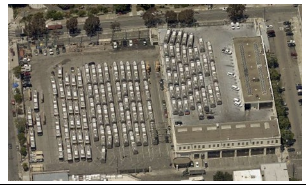
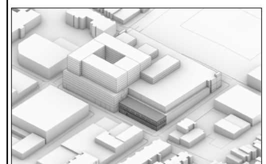
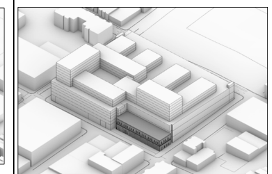
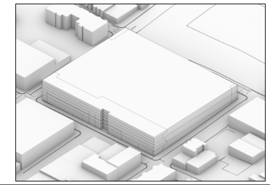
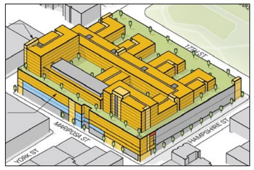
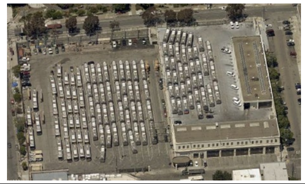
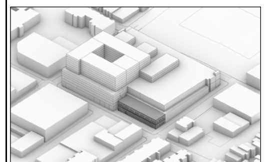
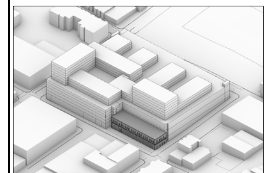
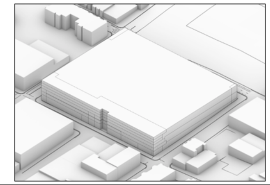
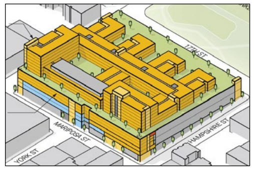
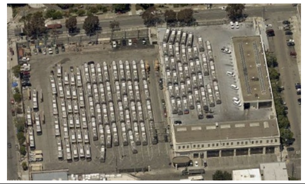
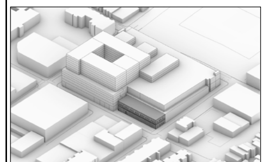
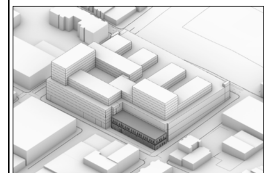
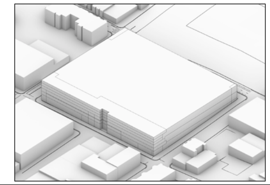
Table 5.4: Comparison of Significant Impacts of the Proposed Project and EIR Alternatives

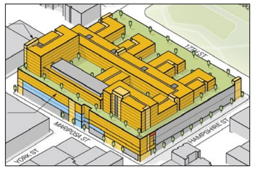
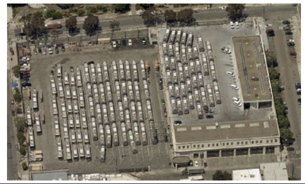
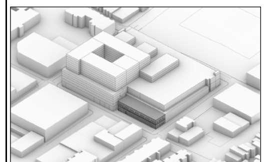
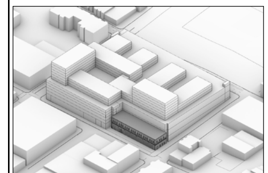
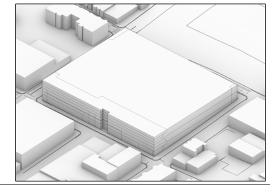
	Proposed Project	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative**	**Alternative C: Partial Preservation Alternative**	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
Cultural Resources Impacts (EIR Section 3.B)					
Onsite Historical Architectural Resource					
CR-1: The proposed project or project variants would cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5 of the CEQA Guidelines.	SUM	No Impact (NI)	Less than the proposed project or project variants (LTS)	Similar to but reduced from those of the proposed project or project variants (SUM)	Similar to the proposed project or project variants (SUM)
Tribal Cultural Resources (Initial Study Topic E.5)					
Change in Significance					
TCR-1: Construction of the proposed project or project variants could cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)

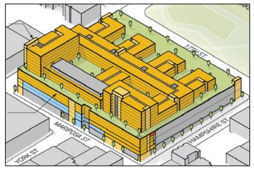
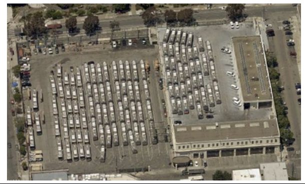
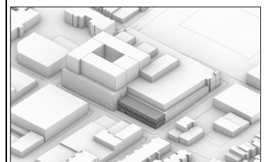
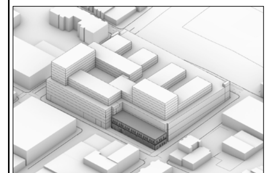
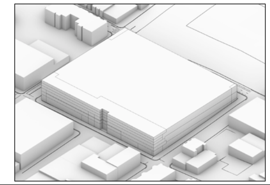
	Proposed Project	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative**	**Alternative C: Partial Preservation Alternative**	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
Cumulative Tribal Cultural Resources					
C-TCR-1: The proposed project or project variants, in combination with cumulative projects in the vicinity, would not result in significant cumulative tribal cultural resources impacts.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)
Noise and Vibration Impacts (EIR Section 3.D)					
Construction Noise					
NO-1: Construction of the proposed project or project variants would generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the San Francisco Noise Ordinance or applicable standards of other agencies.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)

	Proposed Project	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative**	**Alternative C: Partial Preservation Alternative**	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
Construction Vibration					
NO-2: Construction of the proposed project or project variants would generate excessive groundborne vibration or groundborne noise levels.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)
Operational Noise					
NO-3: Operation of the proposed project or project variants would generate a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan, or applicable standards of other agencies.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)
Cumulative Construction Noise					
C-NO-1: Construction noise as a result of the proposed project or project variants, combined with	LTSM	No Impact (NI)	Similar to the proposed project or	Similar to the proposed project or	Similar to the proposed project or project variants (LTSM)

	Proposed Project	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative**	**Alternative C: Partial Preservation Alternative**	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
construction noise from cumulative projects in the vicinity, would cause a substantial temporary increase in ambient noise levels.			project variants (LTSM)	project variants (LTSM)	
Air Quality Impacts (EIR Section 3.E)					
Fugitive Dust and Criteria Air Pollutants (Construction)					
AQ-1: During construction, the proposed project or project variants would not generate significant fugitive dust emissions, but would generate criteria air pollutant emissions at levels which would result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.	LTSM	No Impact (NI)	Similar to but less than the proposed project or project variants (LTSM)	Similar to but less than the proposed project or project variants (LTSM)	Less than the proposed project or project variants (LTSM)

	Proposed Project	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative**	**Alternative C: Partial Preservation Alternative**	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
Toxic Air Contaminants (Construction and Operation)					
AQ-3: Construction and operation of the proposed project or project variants would generate toxic air contaminants, including DPM, at levels which would expose sensitive receptors to substantial pollutant concentrations.	SUM	No Impact (NI)	Similar to but less than the proposed project or project variants (LTSM)	Similar to but less than the proposed project or project variants (LTSM)	Less than the proposed project or project variants (LTSM)
Cumulative Air Quality					
C-AQ-1: The proposed project or project variants, in combination with cumulative projects in the vicinity, would contribute considerably to cumulative health risk impacts on sensitive receptors.	SUM	No Impact (NI)	Similar to but less than the proposed project or project variants (LTSM)	Similar to but less than the proposed project or project variants (LTSM)	Less than the proposed project or project variants (LTSM)

	Proposed Project 	**Alternative A: No Project Alternative** 	**Alternative B: Full Preservation Alternative** 	**Alternative C: Partial Preservation Alternative** 	**Alternative D: Transit Facility Plus Commercial Only Alternative** 
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
Wind Impacts (EIR Section 3.F)					
Wind in Outdoor Public Areas					
WI-1: The proposed project or project variants would create wind hazards in publicly accessible areas of substantial pedestrian use in the vicinity of the project site.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)
Cumulative Wind					
C-WI-1: The proposed project or project variants, in combination with cumulative projects in the vicinity, would alter wind in a manner that would make a cumulatively considerable contribution to a significant cumulative wind impact.	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)

	Proposed Project	**Alternative A: No Project Alternative**	**Alternative B: Full Preservation Alternative**	**Alternative C: Partial Preservation Alternative**	**Alternative D: Transit Facility Plus Commercial Only Alternative**
					
Legend: NI = No impact; LTS = Less than significant or negligible impact, no mitigation required; LTSM = Significant but mitigable to less than significant impact; SU = Significant and unavoidable adverse impact, no feasible mitigation; SUM = Significant and unavoidable impact after mitigation; N/A = Not Applicable					
Geology and Soils Impacts (Initial Study Topic E.16)					
Paleontological Resources					
GE-6: The proposed project or project variants could directly or indirectly destroy a unique paleontological resource or site**.**	LTSM	No Impact (NI)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)	Similar to the proposed project or project variants (LTSM)

ALTERNATIVE A: NO PROJECT ALTERNATIVE

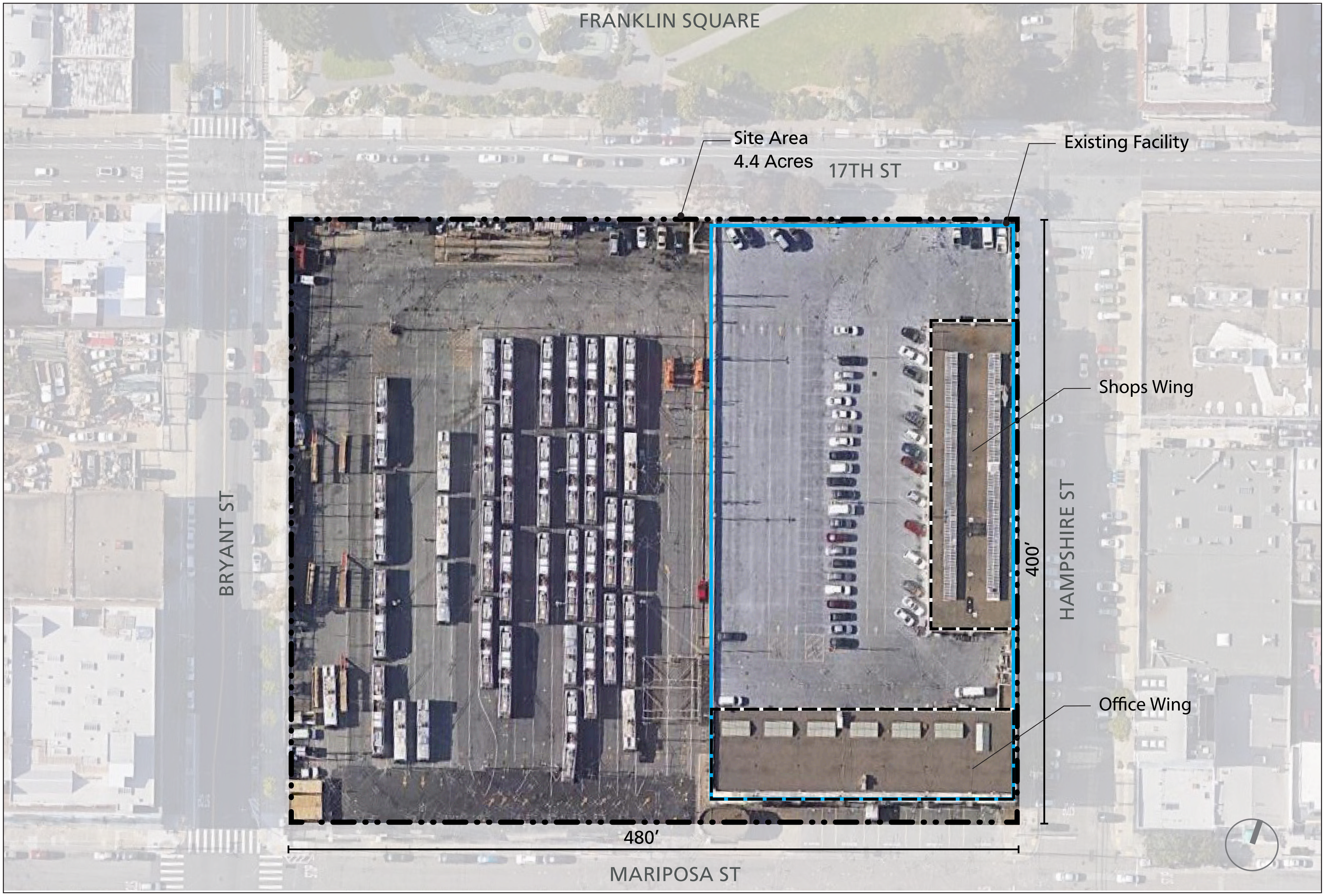
DESCRIPTION

As discussed above, CEQA requires the evaluation of a "no project" alternative among the range of alternatives analyzed. Under Alternative A, existing land use controls on the project site would continue to govern site development and the existing site would continue to function as a transit facility, which would not constitute a change from existing conditions. (See **Figure 5.2: Alternative A: No Project Alternative – Existing Site Plan**.)

Under Alternative A, the existing maintenance and operations building would be retained in its current configuration, including its flat roof (parking deck) and second-story additions constructed in 1924 along Mariposa and Hampshire streets for offices and maintenance shops, respectively. The overall height and massing (approximately 45-foot height at Mariposa and Hampshire streets) would be preserved. The paved bus storage yard on the western portion of the site with access from Mariposa Street would also be retained in its current condition.

Under Alternative A, the SFMTA would continue to store and service its off-duty buses on the storage yard and parking deck accessed from Mariposa and 17th streets, respectively; and would continue to operate the project site as one of the SFMTA's six transit fleet storage and maintenance facilities. Buses would continue to circulate around the site on the adjacent streets. All bus washing and other service functions, such as fare recovery and light maintenance, would occur on the storage yard accessed from Mariposa Street, with other light duty and heavy repair activities occurring within the maintenance bays. No new residential or commercial uses would be added. Under Alternative A, transit fleet expansion projections in the SFMTA's transit fleet plan would be accommodated at the SFMTA's future Muni Metro East temporary swing facility; and at existing SFMTA storage and maintenance facilities such as the Presidio, Kirkland, and Woods yards for the 40-foot-long buses, and the Flynn and Islais Creek divisions and 1399 Marin Street Facility for the 60-foot-long buses). It is not likely that planned transit fleet expansion in accordance with the SFMTA's transit fleet plan would be accommodated on an entirely new site because the City does not have control, through ownership or lease, of other sites large enough to accommodate the proposed transit fleet expansion (see Section D, Alternatives Considered but Rejected, below).

Therefore, the existing physical features on the project site, including the character-defining features of the historical resource, would not change and no modifications, repairs, or restoration would be made to the existing historical resource.



Source: SFMTA; SITELAB urban studio; HDR, March 2021

POTRERO YARD MODERNIZATION PROJECT

2019-021884ENV

FIGURE 5.2: ALTERNATIVE A: NO PROJECT ALTERNATIVE – EXISTING SITE PLAN

IMPACTS OF ALTERNATIVE A: NO PROJECT ALTERNATIVE

The analysis of the no project alternative assumes that the proposed project or project variants would not be approved and would result in a “no build” alternative wherein the existing environmental setting is maintained. Thus, this environmental analysis assumes that the existing structure and uses on the project site would not change and that the existing physical conditions described in **EIR Chapter 3, Environmental Setting and Impacts**, and in **Section E, Evaluation of Environmental Effects**, in the initial study (see **EIR Appendix B**) would remain the same.

If Alternative A were to proceed, no changes would be implemented, and none of the impacts associated with the proposed project or project variants, as described in **EIR Chapter 3** and the initial study, would occur. However, incremental changes would be expected to occur in the vicinity of the project site as nearby cumulative projects (see pp. 3.A.6-3.A.9) are approved, constructed, and occupied. With no change to existing site conditions under the no project alternative, land use activity on the project site would not contribute to significant cumulative impacts beyond existing levels.

Cultural Resources (Historic Architectural Resources)

Since the no project alternative would retain all the character-defining features of the subject property and not demolish or make any modifications or repairs to the historical resource, it would not cause material impairment. Compared to the proposed project or project variants, which would demolish the building resulting in material impairment to the historical resource and a significant and unavoidable impact even with mitigation, Alternative A would not result in any project-level impacts and would not contribute to any cumulative impacts related to historic architectural resources.

Air Quality

Since the no project alternative would retain the existing maintenance and operations building and the paved bus storage yard it would not include any construction activities. Compared to the proposed project or project variants, which would result in significant and unavoidable construction-related project and cumulative air quality impacts even with mitigation, Alternative A would not result in any project-level impacts and would not contribute to any cumulative impacts associated with exposure of sensitive receptors to substantial pollutant concentrations resulting in excess cancer health risk.

Other Topics Covered in the EIR and Initial Study

Under Alternative A, the project site would remain in its existing condition, with no new construction. Because no construction would occur under Alternative A and Potrero Yard would continue to operate in its current condition, it would not have any impacts on any of the other topics analyzed in the EIR or initial study (**EIR Appendix B**), including those identified as less than significant with mitigation or significant and unavoidable with mitigation as shown in **Table 5.4**, pp. 5.29-5.35.

Impacts under Alternative A related to land use and planning, population and housing, archaeological resources and human remains, tribal cultural resources, transportation and circulation, noise and vibration, air quality, greenhouse gas emissions, wind, shadow, recreation, utilities and service systems, public services, biological resources, geology and soils, hydrology and water quality, hazards and hazardous materials, energy, mineral resources, agricultural and forestry resources, and wildfire would be less than those anticipated with implementation of the proposed project or project variants because no construction, ground-disturbing activities, or changes to operations would occur. Because all of these impacts would be avoided, none of the mitigation or improvement measures identified for the proposed project or project variants would be required under Alternative A.

ALTERNATIVE B: FULL PRESERVATION ALTERNATIVE

DESCRIPTION

Under Alternative B, the existing, approximately 45-foot-tall, office wing along Mariposa Street would be retained and the remainder of the maintenance and operations building would be demolished, including the shops wing along Hampshire Street north of the office wing. The replacement transit facility would cover the remainder of the site, including the bus yard on the west portion of the site. See **Figure 5.3: Alternative B: Full Preservation Alternative – Site Plan** and **Figure 5.4: Alternative B: Full Preservation Alternative – Massing Views**).

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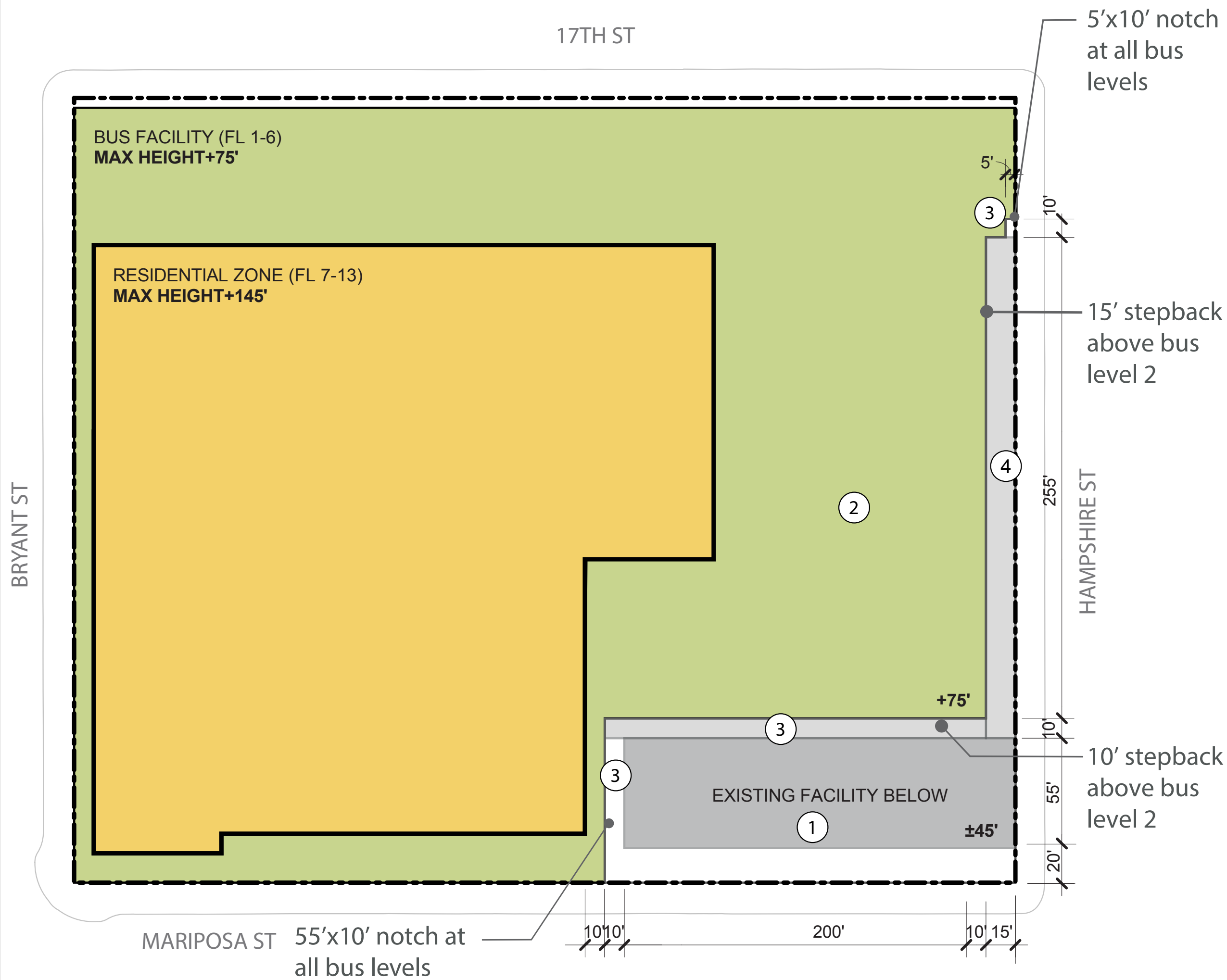

1. Preserve Mariposa office wing with no development above it
2. No joint development above historic portion of building
3. Provide 10' notches and stepback buffers where new development meets preserved portions
4. Rebuild Hampshire Street elevation as new construction and provide 15' setback above bus facility level 2 to reference height and massing of shops wing along Hampshire Street

- Existing Facility
- Proposed New Bus Facility
- Zone of Residential Joint Development Above Bus Facility
- Proposed Open Space Above Bus Facility

Source: SFMTA; SITELAB urban studio; HDR, March 2021

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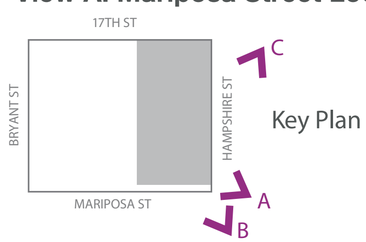
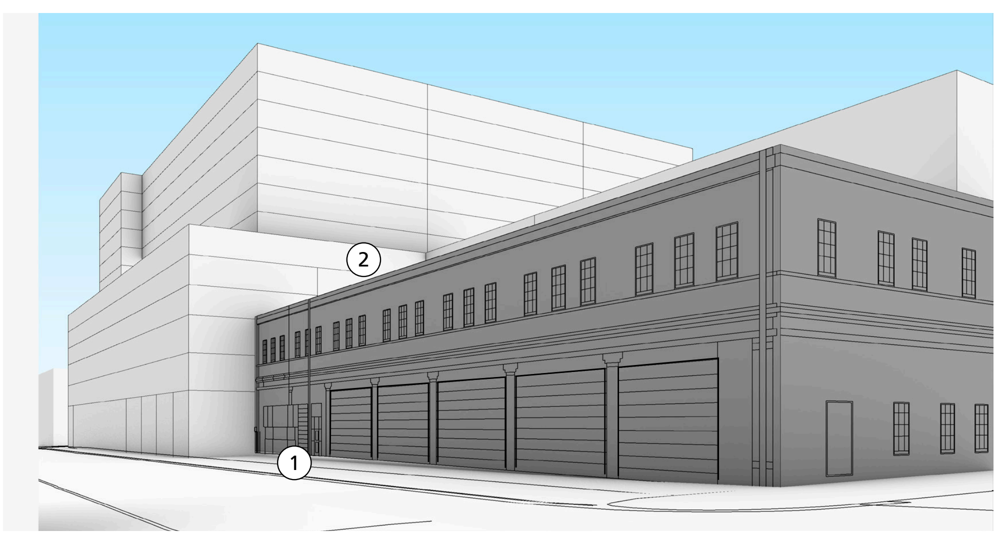
FIGURE 5.3: ALTERNATIVE B: FULL PRESERVATION ALTERNATIVE – SITE PLAN

View A: Mariposa Street Looking Northwest, Existing

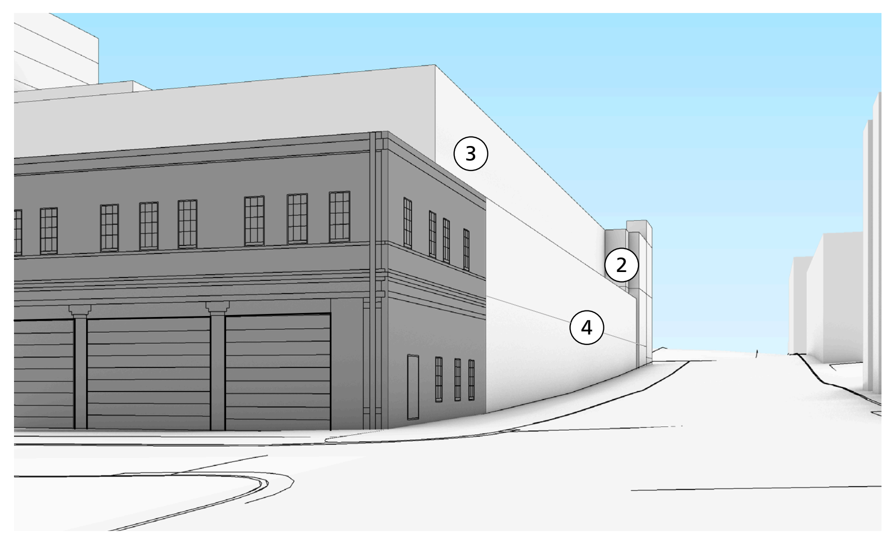
View B: Hampshire Street Looking North, Existing

View C: Hampshire Street Looking South, Existing



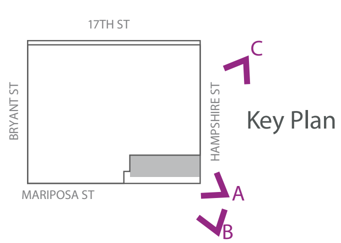


View A: Mariposa Street Looking Northwest, Proposed



View B: Hampshire Street Looking North, Proposed

View C: Hampshire Street Looking South, Proposed



KEYNOTES

1. Additional openings required for bus exit at maintenance bays
2. Provide 10′ notches and stepback buffers where new development meets retained office wing
3. 15′ stepback above bus level 2
4. Rebuild Hampshire Street elevation as new construction

Retained Historical Resource

New Construction

Source: SFMTA; SITELAB urban studio; HDR, March 2021

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FIGURE 5.4: ALTERNATIVE B: FULL PRESERVATION ALTERNATIVE – MASSING VIEWS

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As shown in **Figures 5.3 and 5.4**, similar to the proposed project or project variants, the building's three transit levels would rise to a height of 75 feet, with multi-family residential floors above rising to 150 feet (inclusive of the 75-foot-tall transit facility podium). The office wing would be retained and preserved in its entirety with no new construction built on top of it. The shops wing along Hampshire Street would be demolished; however, new construction would feature setbacks that reference the wing's original form and massing. As under the proposed project or project variants, residential uses under this alternative within the new transit facility would be developed along Mariposa and Bryant streets, and on floors above the new transit facility podium. However, the footprint for residential development would be limited under Alternative B due to the retention of the office wing, the transit facility podium setbacks from the retained office wing, and the residential floor setbacks from the transit facility podium. Ground-floor commercial uses would be developed along Bryant Street as under the proposed project or project variants. Most of the character-defining features of the historical resource would be retained and reused (see **Figure 5.3**, p. 5.40). A portion of the existing structure would be retained; however, its spatial relationships with the site and environment would be somewhat altered.

Land Use Program

Alternative B would have a total of approximately 1,060,000 gross square feet of new and rehabilitated space, as follows:

- 532,000 gross square feet of space for bus storage and maintenance, ramps and circulation, and electric bus battery infrastructure
- 46,000 gross square feet of space for SFMTA administration and common areas
- 449,000 gross square feet of residential space with 477 residential units (114 studio, 172 one bedroom, and 191 two-plus bedroom)
- 33,000 gross square feet of ground-floor commercial space
- 81,000 square feet of open space

Site Redevelopment

Under Alternative B, the office wing would be retained in its entirety and restored. The remainder of the maintenance and operations building, including the shops wing, the Hampshire Street wall, and the second-floor parking deck, would be demolished, along with the entry control booths for the paved bus storage yard (at 17th and Hampshire streets and south of the westernmost bay of the office wing). Some façade modifications to the office wing would likely be needed to accommodate the functional needs of the new transit facility. The westernmost bays would need to be modified to accommodate optimal bus turn movements within the new facility before they could be reused as bus exit bays. However, no vertical additions would be built above the retained office wing.

The building's three transit levels (including a mezzanine level) would rise to a height of 75 feet. The new transit facility would be set back from the retained and rehabilitated office wing.

The proposed transit levels along Mariposa Street between Bryant and York streets would be built to the Mariposa Street property line and have a 10-foot-by-55-foot notch to reveal the office wing's west façade. The first transit level, the mezzanine level, and the second transit level would connect to the rear of the retained office wing, while the third transit level would be set back 10 feet from the rear of the office wing.

The proposed transit levels would be built to the property line along Hampshire Street between 17th Street and the retained office wing . However, to demarcate the form and massing of the demolished shops wing, each transit level would feature a 5-foot-by-10-foot notch at its north end at edge of the retained office wing. In addition, the third transit level would be set back 15 feet from Hampshire Street. These features would convey the former massing of the demolished shops wing along Hampshire Street.

The multi-family residential floors atop the transit facility would be oriented differently under Alternative B than under the proposed project or project variants so as to reduce the height and massing of the new building in locations where new construction meets the retained historic resource and to reflect the historic height and massing of the original building. The majority of the residential floors would be developed on the southwest portion of the site along Bryant and Mariposa Streets. Along Mariposa Street immediately west and above the retained office wing, the multi-family residential floors would be set back 10 feet from the transit facility podium such that the overall setback of the larger volume from the west edge of the retained office wing would be 20 feet. The multi-family residential floors would also be set back from the transit facility podium such that the overall massing of the new structure would convey the form and massing of the historical resource. The amount of developable floor area would be substantially reduced in relation to the site's property boundaries(i.e., no development above the retained office wing and residential development limited to the west side of the site as noted in **Figure 5.3**., p. 5.40.)

Site Improvements, Access and Circulation

Streetscape Changes

As with the proposed project or project variants, Alternative B would implement all the proposed streetscape changes with slight variations to the development of sidewalk extensions (i.e., 60-foot-long sidewalk extension and accessible loading zone on Hampshire Street north of Mariposa Street), the location of curb cuts on Mariposa Street, and the tree planting program along Mariposa Street. See **Table 5.1**, pp. 5.18-5.22, for a summary of the streetscape improvements under Alternative B compared to those under the proposed project or project variants.

Vehicle Circulation

Under Alternative B, the vehicle (including bus) circulation system would be similar to that under the proposed project or project variants in that most buses would enter along Mariposa Street near Hampshire Street using the existing and rehabilitated entry bays and exit near York Street and between York and Bryant streets. The major difference that Alternative B would create compared to existing conditions is that the office wing would require two new exit bays at its west end near York Street, and an extension to the curb cut along Mariposa Street to allow this new movement as well as removal of the curb cut for the current entry driveway to the bus storage yard, west of the entry control booth.

Pedestrian Circulation

Under Alternative B, pedestrian circulation for SFMTA staff and the future residents and visitors would be similar to that under the proposed project or project variants. However, with the retention of the office wing at the southeast corner of the site, a portion of the residential component of the joint development uses would not be developed, including a joint development lobby on Mariposa Street between York and Hampshire streets. Thus, pedestrian access for future residents and visitors would be different depending on the site programming for the future residential uses.

Freight and Passenger Loading Program

Under Alternative B, the freight and passenger loading program would be similar to the proposed project or project variants, i.e., off-street loading in the proposed basement level, commercial freight and accessible passenger loading zones along Bryant Street, north of Mariposa Street (see **Table 5.1**, p. 5.18). However, the accessible passenger loading zone along Hampshire Street, north of Mariposa Street, would not be implemented. Under Alternative B, primary access to ground-floor residential lobby spaces would be limited to the southwest corner of the site near Bryant and Mariposa streets, with secondary access at the northwest corner of the site.

Construction

Alternative B would require the same amount of excavation as the proposed project or project variants for the foundation and structural work and the below-grade parking garage. However, due to the retention and rehabilitation of the historic resource, Alternative B would generate less demolition debris. As with the proposed project or project variants, Alternative B would be constructed over three to four years. All public works' SCMs that would be incorporated as part of the proposed project or project variants would also be incorporated as part of Alternative B (see p. 5.15 and **Table 2.3** in **EIR Chapter 2, Project Description**, pp. 2.50–2.53). Due to the proposed modifications to the historic resource and its retention and reuse as part of a new transit facility (including those required for seismic considerations) and the direct adjacency of construction activities, the stricter requirements of public works' **SCM #9, Cultural Resources**, related to vibration would be incorporated as part of Alternative B unlike the proposed project or project variants and Alternative D. This would require the incorporation of vibration control procedures into all construction contracts. Among the requirements would be the development of a Vibration Control Plan that delineates a vibration-monitoring program to protect such properties from excess vibration during demolition and construction activities associated with the project.

ABILITY TO MEET PROJECT OBJECTIVES

Alternative B would have approximately 240,000 fewer gross square feet of space compared to the proposed project or project variants, which would be 1,300,000 gross square feet. The replacement transit facility would be reduced in size by 145,000 gross square feet—from approximately 723,000 to 578,000 gross square feet including an 8,000-gross-square-foot reduction to administration and common area space for the consolidation of SFMTA operations. Although the interior of the retained office wing would be renovated to serve the SFMTA's programmatic needs, reductions to the SFMTA program could result in the following:

- loss of approximately 145,000 gross square feet of space on floors 1 through 6 (which match up with the three transit levels), e.g., space for operator training, operator and administration areas, transit street operations, and electric bus battery infrastructure;
- displacement of maintenance bays including the tire shop, tire storage, tire bay and two body repair bays;
- loss of bus parking spaces on the second and third transit levels, limiting SFMTA's ability to meet the fleet plan mix of 40- and 60-foot-long buses; and
- loss of non-revenue vehicle parking spaces, limiting SFMTA's ability to consolidate transit street operations and other functions at Potrero Yard

Thus, under Alternative B, up to 16 maintenance bays could be developed and up to 194 buses and 76 non-revenue vehicles could be stored (fewer than the 18 maintenance bays and 310 parking spaces for 213 buses and 97 non-revenue vehicles under the proposed project or project variants and the transit fleet requirements [24 maintenance bays and 313 parking spaces for 216 buses and 97 non-revenue vehicles]). The residential component of the joint development uses would also be reduced compared to the proposed project or project variants (a reduction of 98 residential units) due to the retention of the office wing on the southeast portion of the site and the shifting of the multi-family residential development from the east portion of the site to the west. See **Table 5.3**, pp. 5.25-5.27 for a summary of how Alternative B meets the project's basic and additional objectives.

IMPACTS OF ALTERNATIVE B: FULL PRESERVATION ALTERNATIVE

Cultural Resources (Historic Architectural Resources)

EIR Section 3.B, Historic Architectural Resources, concludes that demolition of the 2500 Mariposa Street building (the Potrero car barn, constructed in 1915, and the office and shops wings, built in 1924 as second story additions) would cause a substantial adverse change in the significance of a historical resource.

Under Alternative B, the existing maintenance and operations building would be partially demolished and altered, but the most important feature of the building, the approximately 45-foot-tall, office wing that faces Mariposa Street, would be retained and rehabilitated. Furthermore, no additions would be constructed above this wing.

New construction rising up to 150 feet (multi-family residential floors on the 75-foot-tall transit facility podium) would be differentiated from the retained office wing through a program of setbacks along its north and west edges as well as a shift of multi-family residential floors to the west portion of the site. Alternative B would involve two further changes to the defining characteristics of the historical resource. The shops wing addition from 1924, as modified when Potrero Yard converted to a trolley bus facility, would be demolished, and the office wing's façade would be modified (including architectural detailing) to rehabilitate the westernmost bays along Mariposa Street. These bays would be modified to accommodate bus exit and other modern transit fleet needs related to turning dimensions and internal drive lanes.

However, the majority of the character-defining features would not be changed. Alternative B would change the physical appearance of the historical resource's site and environment, but the character of the historical resource would remain evident.

Overall, the massing of the office wing would be retained under Alternative B. The majority of the character-defining features of the historic resource, most notably the architectural detailing on the Mariposa and Hampshire Street elevations of the office wing, would also be retained (see **Table 5.2**, p. 5.23). The exterior elements identified as character-defining features would be restored with the exception of the shops wing, north of the office wing, which would be demolished. The character-defining features on this portion of the shops wing along Hampshire Street are limited as this elevation is mostly a blank façade with minimal detailing. Although the shops wing along Hampshire Street would not be retained, new construction would feature setbacks and reveals that allude to its original form and massing and provide a harmonious connection to the portion of the office wing that would be retained. Views of the most prominent character-defining features of the property, from the south on Mariposa Street (looking north) and from the east on Hampshire Street (looking west), would be retained with minimal change (see **Figure 5.3**, p. 5.40).

Alternative B would not apply conjectural features or architectural elements from other buildings to the historical resource in a way that would create a false sense of historical development, and new construction would be clearly differentiated from the retained office wing by location (setbacks from its north and west edges), building materials, and design. As noted, the two original openings at the west end of the Mariposa Street façade that were previously converted to doorways (i.e., the westernmost infilled with concrete and a roll-up door and the other infilled and converted into a pedestrian entrance for office access) would be restored for their original use as transit vehicle bays but adapted for modern transit fleet needs. These alterations would not create a false sense of historical development because they would restore character-defining features, based on available historic evidence.

Although there would be a change to the historical resource's environment, the historical resource would still retain its presence along Mariposa and Hampshire streets and its integrity as a two-story, reinforced concrete, post-earthquake streetcar barn designed in the Renaissance Revival style. The majority of the character-defining features of the historical resource would be retained with transit vehicle entry and exit bays along the full length of the Mariposa Street façade. All other character-defining features and spatial relationships would be retained to the maximum extent feasible. Therefore, Alternative B would retain the historical resource's character-defining exterior features including the form and massing of the office wing at Mariposa and Hampshire streets and to a lesser extent the form and massing of the shops wing along Hampshire Street. As such, the Potrero Trolley Coach Division Facility would retain its ability to convey the resource's historic and architectural significance. Alternative B would not cause material impairment to the historical resource and, unlike the proposed project or project variants, would not result in a significant and unavoidable impact related to demolition of a historical resource. Therefore, **Mitigation Measures M-CR-1a** through **M-CR-1d** would not be applicable under this alternative.

Air Quality

As identified in **EIR Section 3.E, Air Quality**, under **Impact AQ-3**, pp. 3.E.52-3.E.59, and **Impact C-AQ-1**, pp. 3.E.65-3.E.67, the construction-related activities of the proposed project or project variants would result in significant and unavoidable project and cumulative air quality impacts related to exposure of sensitive receptors to substantial pollutant concentrations resulting in excess cancer health risk exposure, even with mitigation.

Alternative B would require similar site preparation activities, including demolition, and similar amounts of excavation as the proposed project or project variants. As a result, the construction-related air quality impacts of Alternative B would be similar to those of the proposed project or project variants, or reduced, as shown in **Table 5.4**, p. 5.29. However, the Alternative B construction program would be reduced by approximately 20 percent compared to the proposed project or project variants (from 1,300,000 gross square feet to 1,060,000 gross square feet). As with the proposed project or project variants, Alternative B contributions to emissions of toxic air contaminants, such as diesel particulate matter, for construction and operational phases would be attributable to the number and types of on- and off-road construction equipment, the intensity of daily use of each piece of construction equipment, the number of construction truck trips (e.g., haul, concrete, materials), the addition of three onsite emergency diesel generators, and, increased vehicle trips attributable to construction workers and the proposed land uses. Alternative B would therefore require slightly less overall construction. For example, with less demolition debris and a slightly smaller overall structure, Alternative B would require fewer pieces of off-road construction equipment and fewer on-road construction truck trips. As a result, construction-related air quality emissions would be lower than those of the proposed project or project variants.

As with the proposed project or project variants, under Alternative B, implementation of **Mitigation Measure M-AQ-1: Off-Road Construction Equipment Emissions Minimization**, pp. 3.E.47-3.E.48, would also reduce construction-related emissions. However, unlike the proposed project or project variants, implementation of **Mitigation Measure M-AQ-1** would reduce Alternative B's construction-related contributions to emissions of toxic air contaminants, such as diesel particulate matter, from off-road equipment to a less-than-significant level. Because Alternative B would require less on- and off-road construction equipment than the project, **Mitigation Measure M-AQ-1** would effectively reduce project contributions to a level below the significance criterion for excess cancer health risk exposure (i.e., 7 parts per million).

Project-related and cumulative contributions of long-term operational emissions from the emergency diesel generators would be similar to that of the proposed project or project variants. **Mitigation Measure M-AQ-3: Emergency Diesel Generator Health Risk Reduction Plan**, p. 3.E.57, would require the use of exhaust and/or operational control measures for all emergency diesel generators to reduce the operational excess cancer health risk to a less than significant level.

Thus, because the construction-related activities that contribute to emissions of toxic air contaminants and lead to increased exposure of sensitive receptors to substantial pollutant concentrations and excess cancer health risk exposure would be substantially less under Alternative B and the use of emergency diesel generators under this alternative would be subject to **Mitigation Measure M-AQ-3**, project and cumulative air quality impacts related to exposure of sensitive receptors to substantial pollutant concentrations and excess cancer health risk exposure under Alternative B would be less than significant with mitigation, unlike with the proposed project or project variants.

Other Topics Covered in the EIR and Initial Study

Alternative B would occupy the same building site as the proposed project or project variants and have a similar, though less intensive, land use development program overall (1,300,000 gross square feet of development under the proposed project or project variants and 1,060,000 gross square feet under this alternative). Alternative B would require similar site preparation activities, less demolition, and similar amount of excavation as the proposed project or project variants. As a result, the significant construction and operational impacts of Alternative B under the other EIR and initial study environmental topics would be similar to those of the proposed project or project variants but reduced, as shown in **Table 5.4**, p. 5.29. Impacts related to land use and planning, population and housing, greenhouse gas emissions, recreation, utilities and service systems, public services, and energy (discussed in the initial study [**EIR Appendix B**]) would be less substantial than those of the proposed project or project variants, given the reduced development intensity. These impacts would be less than significant, as with the proposed project or project variants.

The impacts of Alternative B related to site-specific conditions, such as those related to archeological resources and human remains, tribal cultural resources, transportation and circulation, noise and vibration, air quality, wind, shadow, biological resources, geology and soils (paleontological resources), hydrology and water quality, and hazards and hazardous materials, would be similar to those of the proposed project or project variants but reduced because Alternative B would reduce the size of the transit facility, including the space for administration and operations functions and the number of residential units, but would keep the commercial use and a similar excavation program for a proposed basement level. Specifically, the less-than-significant operational transportation and circulation impacts identified for the proposed project or project variants would be reduced slightly due to the reduction in the residential land use under Alternative B. Contributions to operational noise and air quality impacts under Alternative B would also be reduced incrementally from those under the proposed project or project variants, as a result of fewer daily and weekday p.m. peak hour vehicle trips. Alternative B would result in slightly less overall construction (e.g., with less demolition debris and a slightly smaller overall structure, there would be a slight reduction in the number of pieces of construction equipment and the number of construction truck trips) and less development intensity. As discussed above on p. 5.49, under Alternative B the construction program would be reduced by approximately 20 percent (from 1,300,000 gross square feet to 1,060,000 gross square feet). Thus, unlike the proposed project or project variants, under Alternative B implementation of **Mitigation Measure M-AQ-1**, pp. 3.E.47-3.E.48, would reduce the significant project and cumulative air quality impacts related to criteria air pollutant emissions (NOx) to less-than-significant levels. Thus, these air quality impacts would be less than significant or less than significant with mitigation, as with the proposed project or project variants.

As with the proposed project or project variants, potentially adverse construction-related effects under Alternative B in the environmental resources areas of seismic and geotechnical considerations, air quality, water quality, traffic, noise, hazardous materials, biological resources (bird protection, tree conservation, environmentally sensitive areas), visual and aesthetic considerations (project site), and cultural resources (archeological resources and human remains) would be avoided or minimized through the incorporation of public works' SCMs as part of the project. For example, the incorporation of public works' **SCM #9, Cultural Resources**, and

SCM #7, Biological Resources, as part of Alternative B would avoid or minimize adverse effects on archeological resources and human remains and resident or migratory birds, respectively. Furthermore, the less-than-significant construction and operational transportation and circulation impacts would also occur under Alternative B; thus, **Improvement Measures I-TR-A: Construction Management Plan – Additional Measures** and **I-TR-B: Driveway and Loading Operations Plan** would still apply to Alternative B.

To address potential construction-related impacts on tribal cultural resources, **Mitigation Measure M-TCR-1** would still apply to Alternative B; this impact would be less than significant with mitigation. To address construction and operational noise and construction vibration, **Mitigation Measures M-NO-1**, **M-NO-2**, and **M-NO-3** would still apply to Alternative B; these impacts would be less than significant with mitigation. To address air quality impacts during construction and operation, **Mitigation Measures M-AQ-1** and **M-AQ-3** would still apply to Alternative B; these impacts would be less than significant with mitigation including the air quality impacts associated with criteria air pollutant emissions (NOx) from project construction and operation under project and cumulative conditions. To address paleontological resources impacts during construction, **Mitigation Measures M-GE-6a** and **M-GE-6b** would remain applicable to this alternative.

Alternative B would replace a paved bus storage yard and a predominately single-story building with a structure that has similar massing to the proposed project and project variants along its north and west edges. Where the prevailing winds would interact with the new structure under Alternative B, pedestrian wind hazards would be expected to be similar to those of the proposed project or project variants. Thus, a net new wind hazard location—at the sidewalk on northwest corner of the Bryant Street and Mariposa Street intersection—would also occur under Alternative B. To address wind impacts, **Mitigation Measure M-WI-1** would still apply to Alternative B; this impact would also be less than significant with mitigation. In addition, Alternative B would cast a similar shadow on Franklin Square to that cast by the proposed project or project variants, but would be slightly altered due to the change in the massing above the 75-foot-tall transit facility podium—from the east portion of the site to the southwest portion. Shadow impacts would be less than significant, as with the proposed project or project variants.

As with the proposed project or project variants, Alternative B would have no impacts on mineral resources, agriculture and forestry resources, and wildfire risk.

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ALTERNATIVE C: PARTIAL PRESERVATION ALTERNATIVE

DESCRIPTION

Under Alternative C, the office wing along Mariposa and Hampshire streets on the southeast portion of the site would be retained and reused. The remainder of the building would be demolished, including the shops wing along Hampshire Street north of the office wing. New construction (i.e., the three-level transit facility, with residential and ground-floor commercial uses plus residential uses atop the transit facility podium) would cover the remainder of the site as it does in Alternative B. See **Figure 5.5: Alternative C: Partial Preservation Alternative – Site Plan**, and **Figure 5.6: Alternative C: Partial Preservation Alternative – Massing Views**.

Similar to the proposed project or project variants, the building's three transit levels would rise to a height of 75 feet, with multi-family residential floors above rising to 150 feet (inclusive of the 75-foot-tall transit facility podium). The office wing would be retained and preserved in its entirety, with no new construction built on top of it. The remainder of the building would be demolished but the new building would feature some setbacks and notches to differentiate the new construction from the retained office wing. As under the proposed project or project variants, residential uses within the new transit facility under this alternative would be developed along Mariposa and Bryant streets and on floors above the transit facility podium. However, the footprint for residential development would be limited under Alternative C due to the retention of the office wing and the residential floor setbacks from the transit facility podium and retained office wing. Ground-floor commercial uses would be developed along Bryant Street as under the proposed project or project variants. Most of the character-defining features of the historical resource would be retained and reused, although to a lesser degree than in Alternative B. A portion of the existing structure would be retained; however, spatial relationships with the site and environment would be altered to a greater extent in Alternative C as compared to Alternative B.

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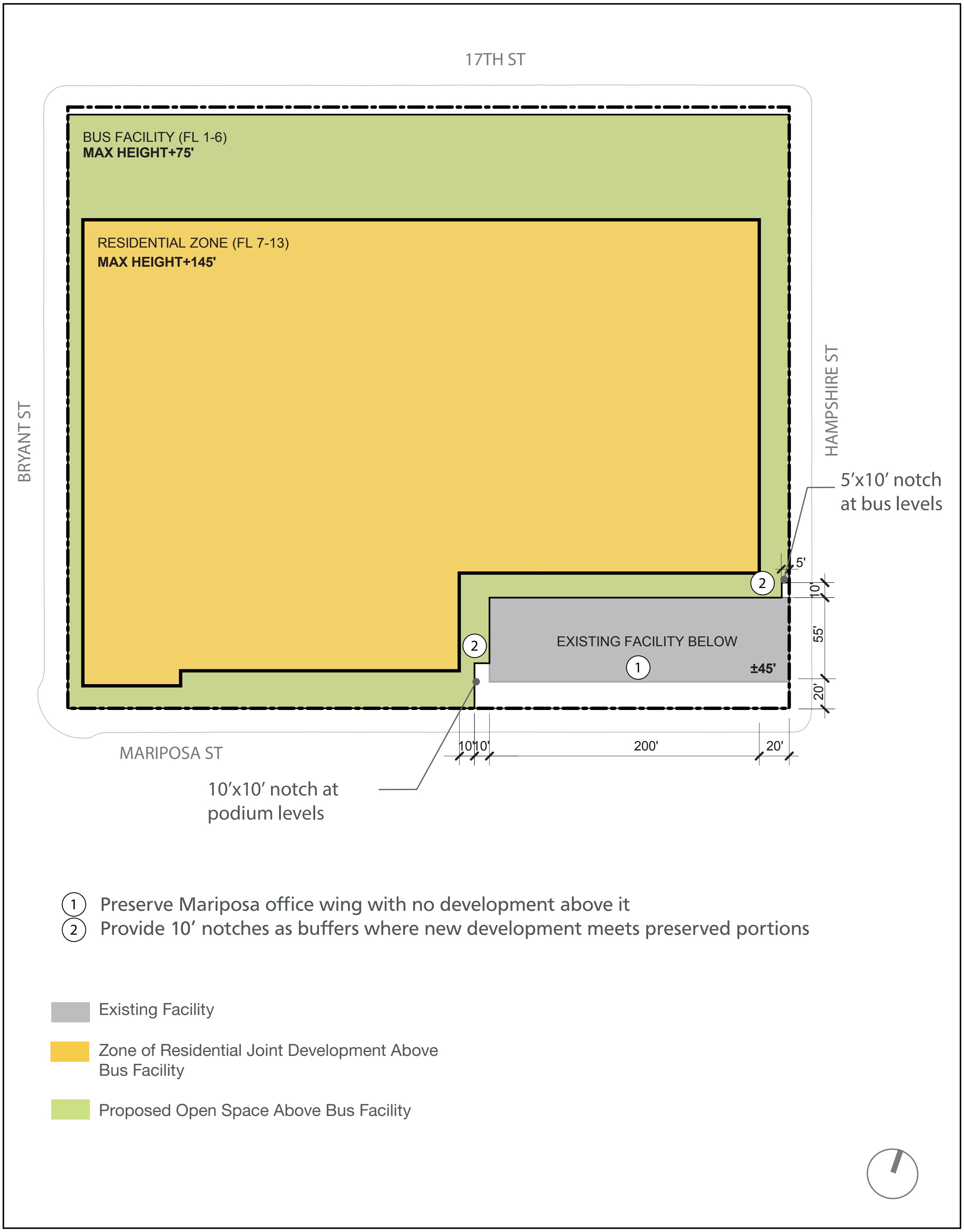

Source: SFMTA; SITELAB urban studio; HDR, March 2021

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FIGURE 5.5: ALTERNATIVE C: PARTIAL PRESERVATION ALTERNATIVE – SITE PLAN

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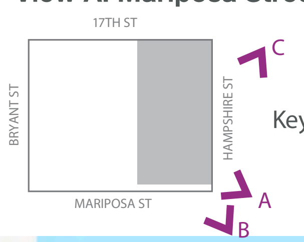
View A: Mariposa Street Looking Northwest, Existing

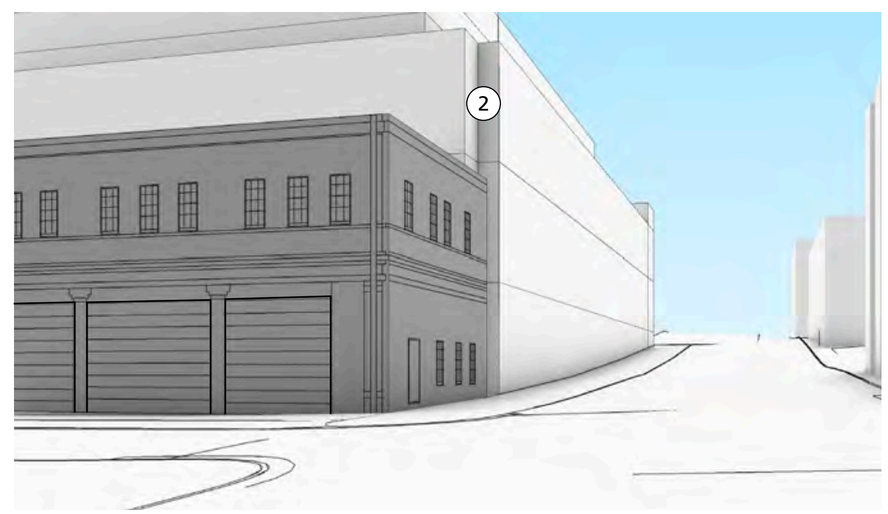
View B: Hampshire Street Looking North, Existing

View C: Hampshire Street Looking South, Existing



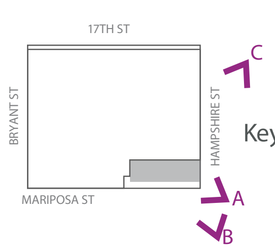
Key Plan

View A: Mariposa Street Looking Northwest, Proposed



View B: Hampshire Street Looking North, Proposed

View C: Hampshire Street Looking South, Proposed



Key Plan

KEYNOTES

1. Additional openings required for bus exit at maintenance bays
2. Provide 10' notches and stepback buffers where new development meets retained office wing

Retained Historical Resource

New Construction

Source: SFMTA; SITELAB urban studio; HDR, March 2021

POTRERO YARD MODERNIZATION PROJECT

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FIGURE 5.6: ALTERNATIVE C: PARTIAL PRESERVATION ALTERNATIVE – MASSING VIEWS

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Land Use Program

Alternative C would have a total of approximately 1,070,000 gross square feet of new and rehabilitated space, as follows:

- 551,000 gross square feet of space for bus storage and maintenance, ramps and circulation, and electric bus battery infrastructure
- 46,000 gross square feet of space for SFMTA administration and common areas
- 440,000 gross square feet of residential space with 459 residential units (110 studio, 165 one bedroom, and 184 two-plus bedroom)
- 33,000 gross square feet of ground-floor commercial space
- 84,000 square feet of open space

Site Redevelopment

Under Alternative C, the office wing would be retained in its entirety and restored, similar to Alternative B. The remainder of the building including the shops wing would also be demolished, similar to Alternative B. Façade modifications to the office wing would likely be needed to accommodate the functional needs of the new transit facility. The westernmost bays would need to be modified to accommodate optimal bus turn movements within the new facility before they could be reused as bus exit bays, similar to Alternative B. However, no vertical additions would be built above the retained office wing.

Alternative C would have the same footprint as Alternative B and the building's three transit levels (including a mezzanine level) would rise to a height of 75 feet, with the multi-family residential floors above rising to 150 feet. Under Alternative C, the Hampshire Street façade including the shops wing along Hampshire Street would not be retained, similar to Alternative B. Under Alternative C, all three transit levels of the proposed 75-foot-tall transit facility podium would be built to the Hampshire Street sidewalk with no setbacks and a reveal at the south end to differentiate it from the retained office wing; unlike Alternative B which would include a 15-foot setback from Hampshire Street at the third transit level and reveals of 5 feet deep by 10 feet wide at the north and south ends of the demolished shops wing. Under Alternative C the new transit facility would not be set back from the retained office wing. Two reveals, one measuring 10 feet wide by 10 feet deep on the west side of the office wing (facing Mariposa Street) and another 5 feet deep by 10 feet wide on the north side of the wing (facing Hampshire Street), would differentiate the retained office wing from the adjoining new construction. The proposed transit levels along Mariposa Street between Bryant and York streets would be built to the Mariposa Street property line, similar to Alternative B. The proposed 10-foot-by 10-foot notch would reveal a portion of the office wing's west façade (a much shallower reveal than under Alternative B by 45 feet). The first transit level, the mezzanine level, and the second transit level would connect to the rear of the retained office wing, and the third transit level would rise above with no setback unlike Alternative B which would provide a 10-foot setback at the third transit level. Under Alternative C, the proposed transit levels along Hampshire Street between 17th Street and the retained office wing would be built to the property line. The new transit facility would feature a 5-foot-by-10-foot notch at the south end point of the demolished east façade of the shops wing to demarcate new construction.

Under Alternative C, the multi-family residential floors atop the 75-foot-tall transit facility would be oriented differently than under the proposed project or project variants, but would not be set back as substantially from the retained office wing as under Alternative B. Under Alternative C, the multi-family residential floors atop the transit facility and along Mariposa Street, immediately west and above the retained office wing (approximately 45 feet tall), would be set back 10 feet from the 75-foot-tall transit facility podium. When combined with the 10-foot by 10-foot notch proposed to reveal the office wings' west façade the overall setback from the retained office wing of the residential volume above the new transit facility would be 20 feet. Under Alternative C, the multi-family residential floors atop the transit facility and to the north of the retained office wing would be set back much closer than under Alternative B. Along Mariposa Street, the multi-family residential floors would be set back 15 feet from the edge of the transit facility podium and retained office wing, and 90 feet from the Mariposa Street property line. The multi-family residential floors to the west of Hampshire Street would be set back 20 feet from the transit facility podium and Hampshire Street property line.

Site Improvements, Access, and Circulation

Streetscape Changes

As with the proposed project or project variants, Alternative C would implement all the proposed streetscape changes with slight variations to the development of sidewalk extensions (i.e., 60-foot-long sidewalk extension and accessible loading zone on Hampshire Street north of Mariposa Street), location of curb cuts on Mariposa Street, and the tree planting program along Mariposa Street. See **Table 5.1**, pp. 5.18-5.22, for a summary of the streetscape improvements of Alternative C compared to those under the proposed project or project variants.

Vehicle Circulation

Under Alternative C, the vehicle (including bus) circulation system would be similar to the proposed project or project variants in that most buses would enter along Mariposa Street near Hampshire Street using the existing and rehabilitated entry bays and exit near York Street and between York and Bryant streets. The major circulation difference between this alternative and the proposed project or project variants is that the office wing would require two new exit bays at its west end near York Street and the current entry driveway to the paved storage yard (see **Figure 5.5**, p. 5.53).

Pedestrian Circulation

Under Alternative C, pedestrian circulation for SFMTA staff and the future residents and visitors would be similar to the proposed project or project variants. However, with a smaller footprint due to the retention of the office wing of the maintenance and operations building, a portion of the residential use would not be developed, including a joint development lobby on Mariposa Street between York and Hampshire streets. Thus, pedestrian access for SFMTA staff and future residents and visitors would be slightly different. Under Alternative C, primary access to ground-floor residential lobby spaces would be limited to the southwest corner of the site near Bryant and Mariposa streets, with secondary access at the northwest corner of the site near 17th and Bryant streets.

Freight and Passenger Loading Program

Under Alternative C, the freight and passenger loading program would be similar to that for the proposed project or project variants, e.g., off-street loading in the proposed basement level, and commercial freight and accessible passenger loading zones along Bryant Street, north of Mariposa Street (see **EIR Chapter 2**, pp. 2.45-2.46). However, the accessible passenger loading zone along Hampshire Street, north of Mariposa Street, would not be implemented.

Construction

Alternative C would require the same amount of excavation as the proposed project or project variants for the foundation and structural work and the below-grade basement. However, due to the retention and rehabilitation of the historic resource, Alternative C would generate less demolition debris. As with the proposed project or project variants, Alternative C would be constructed over three to four years. All public works' SCMs that would be incorporated as part of the proposed project or project variants would also be incorporated as part of Alternative C (see p. 5.59 and **Table 2.3** in **EIR Chapter 2, Project Description**, pp. 2.50–2.53). Due to the proposed modifications to the historic resource and its retention and reuse as part of a new transit facility (including those required for seismic considerations) and the direct adjacency of construction activities, the stricter requirements of public works' **SCM #9, Cultural Resources**, related to vibration would be incorporated as part of Alternative C unlike the proposed project or project variants and Alternative D. This would require the incorporation of vibration control procedures into all construction contracts. Among the requirements would be the development of a Vibration Control Plan that delineates a vibration-monitoring program to protect such properties from excess vibration during demolition and construction activities associated with the project.

ABILITY TO MEET PROJECT OBJECTIVES

Alternative C would have approximately 230,000 fewer gross square feet of space compared to the proposed project or project variants at 1,300,000 gross square feet. The replacement transit facility would be reduced in size by 126,000 gross square feet—from approximately 723,000 to 597,000 gross square feet, including an 8,000-gross-square-foot reduction to administration and common area space for the consolidation of SFMTA operations. Although the interior of the retained office wing of the maintenance and operations building would be renovated to serve the SFMTA's programmatic needs, reductions to the SFMTA program could result in similar land use program reductions as with the Full Preservation Alternative (e.g., loss of programmable space on floors 1 through 6 due to retention and restoration of the historic office wing) as follows:

- loss of approximately 126,000 gross square feet of space on floors 1 through 6 (which match up with the three transit levels), e.g., operator training, operator and administration areas, transit street operations, and electric bus battery infrastructure;
- displacement of maintenance bays including the tire shop, tire storage and tire bay and two body repair bays;
- loss of bus parking spaces on the second and third transit levels, limiting SFMTA's ability to meet the fleet plan mix of 40- and 60-foot-long buses; and
- loss of non-revenue vehicle parking spaces, limiting SFMTA's ability to consolidate transit street operations and other functions at Potrero Yard

Thus, under Alternative C, up to 16 maintenance bays could be developed and up to 207 buses and 76 non-revenue vehicles could be stored (fewer than the 18 maintenance bays and 310 parking spaces for 213 buses and 97 non-revenue vehicles under the proposed project or project variants and the transit fleet requirements [24 maintenance bays and 313 parking spaces for 216 buses and 97 non-revenue vehicles]). The residential component of the joint development uses would also be reduced (a reduction of 116 residential units) due to the retention of the office wing on the southeast portion of the site. Commercial uses would be developed along Bryant Street as with the proposed project or project variants. See **Table 5.3**, pp. 5.25-5.27, for a summary of how Alternative C meets the project's basic and additional objectives.

IMPACTS OF ALTERNATIVE C: PARTIAL PRESERVATION ALTERNATIVE

Cultural Resources (Historic Architectural Resources)

The purpose of a partial preservation alternative is to consider a plan that would lessen the significant impacts of the proposed project or project variants on the existing historic resource. Under Alternative C, the office wing of the existing building would be retained and the remainder of the building including the shops wing along Hampshire Street would be demolished. As under Alternative B, although altered, most of the resource's original historical character would be retained. Furthermore, no additions would be constructed above the retained office wing.

New construction would be differentiated from the retained office wing through a program of setbacks along its north and west edges, but not as substantially as under Alternative B. Alternative C would involve the same changes to the defining characteristics of the historical resource as Alternative B (demolition of the shops wing and modifications to the Mariposa Street façade for the westernmost bays). Although the majority of the character-defining features would not be changed, Alternative C would change the physical appearance of the historical resource's site and environment more substantially than under Alternative B. This is because the massing of the new construction on the east side of the site and to the north of the retained office wing would not respond to the historic massing and height of the shops wing along Hampshire Street.

Overall, the Mariposa and Hampshire Street façades of the office wing of the historical resource (i.e., the architectural detailing and massing of the office wing) would be retained under Alternative C, similar to Alternative B (see **Table 5.2**, pp. 5.23-5.24). Under Alternative C, the exterior elements identified as character-defining features would be restored except for the shops wing north of the office wing, similar to Alternative B. Unlike Alternative B, the new transit facility under Alternative C would not include a Hampshire Street setback at any of the new transit levels as a means to reflect the form and massing of the shops wing. Views of the most prominent character-defining features of the property, from the south on Mariposa Street (looking north) and from the east on Hampshire Street (looking west), would be retained, but with a more discernible change in massing between the scale of the new transit facility and the retained office wing (see **Figure 5.6**, p. 5.5).

Alternative C would not apply conjectural features or architectural elements from other buildings to the historical resource in a way that would create a false sense of historical development. Under Alternative C, the two original openings at the west end of the Mariposa Street façade that were previously converted to doorways would be restored for their original use as transit vehicle bays but adapted for modern transit fleet needs, similar to Alternative B. Additionally, new construction would be differentiated from the retained office wing by setbacks from its north and west edges, building materials, and design. As noted above for Alternative B, these alterations for Alternative C would not create a false sense of historical development because they would restore character-defining features, based on available historic evidence.

Although there would be a change to the historical resource's environment under Alternative C, the reinforced concrete, post-earthquake streetcar barn designed in the Renaissance Revival style would still retain its presence along Mariposa and Hampshire streets, but not to the same degree as under Alternative B. Alternative C would retain the office wing and all its associated character-defining features. However, unlike Alternative B, which would provide additional setbacks along Hampshire Street to allude to the original massing and scale of the historic resource, Alternative C would not incorporate these setbacks and the height and scale of new construction (ranging from 75 to 150 feet in height) would not be compatible with the overall height and massing of the historic resource. Although Alternative C would retain the office wing, the height and massing of the new construction would create a striking contrast with the overall height and massing of the historic resource. New construction under Alternative C would create a change in the overall visual impression of the site and its environment, and would alter the historic resource's existing massing and scale. Thus, new construction would adversely affect the character-defining features associated with scale and massing that convey the property's historic and architectural significance as an early 20th-century car barn. Therefore, Alternative C would cause material impairment to the historic resource, resulting in an impact that would be significant and unavoidable with mitigation, but to a lesser extent than under the proposed project or project variants as character-defining features associated with the office wing would remain. **Mitigation Measures M-CR-1a** through **M-CR-1d** would be applicable under this alternative.

Air Quality

As identified in **EIR Section 3.E, Air Quality**, under **Impact AQ-3**, pp. 3.E.52-3.E.59, and **Impact C-AQ-1**, pp. 3.E.65-3.E.67, the construction-related activities of the proposed project or project variants would result in significant and unavoidable project and cumulative air quality impacts related to exposure of sensitive receptors to substantial pollution concentrations resulting in excess cancer health risk, even with mitigation.

As described under Alternative B, pp. 5.48-5.49, Alternative C would also require similar site preparation activities, including demolition, and similar amounts of excavation as the proposed project or project variants. As a result, the construction-related air quality impacts of Alternative C would also be similar to those of the proposed project or project variants, or reduced, as shown in **Table 5.4**, p. 5.29. The Alternative C construction program would also be reduced by approximately 20 percent compared to the proposed project or project variants (from 1,300,000 gross square feet to 1,070,000 gross square feet). Under Alternative C, implementation of M**itigation Measure M-AQ-1**, pp. 3.E.47-3.E.48, would also reduce construction-related emissions that contribute to the significant project and cumulative air quality impact related to exposure of sensitive receptors to substantial pollutant concentrations and excess cancer health risk exposure. However, unlike the proposed project or project variants, implementation of **Mitigation Measure M-AQ-1** would reduce Alternative C's construction-related contributions to emissions of toxic air contaminants to a less-than-significant level. Because Alternative C would require less on- and off-road construction equipment than the project, **Mitigation Measure M-AQ-1** would effectively reduce project contributions to a level below the significance criterion for excess cancer health risk exposure (i.e., 7 parts per million).

Project-related and cumulative contributions of long-term operational emissions from the emergency diesel generators would be similar to that of the proposed project or project variants. **Mitigation Measure M-AQ-3**, p. 3.E.57, would require the use of exhaust and/or operational control measures for all emergency diesel generators to reduce the operational excess cancer health risk to a less than significant level.

Thus, because the construction-related activities that contribute to emissions of toxic air contaminants and lead to increased exposure of sensitive receptors to substantial pollutant concentrations and excess cancer health risk exposure would be less under Alternative C and the use of emergency diesel generators would be subject to **Mitigation Measure M-AQ-3**, project and cumulative air quality impacts related to excess cancer health risk exposure under Alternative C would be less than significant with mitigation, unlike with the proposed project or project variants.

Other Topics Covered in the EIR and Initial Study

Alternative C would occupy the same building site as the proposed project or project variants and have a similar, though less intensive, land use development program overall (1,300,000 gross square feet of development under the proposed project or project variants and 1,070,000 gross square feet under this alternative). Alternative C would require similar site preparation activities, less demolition, and similar amount of excavation as the proposed project or project variants. As a result, the construction and operational impacts of Alternative C under the other EIR and initial study environmental topics would be similar to those of the proposed project or project variants but reduced, as shown in **Table 5.4**, p. 5.29. Specifically, impacts related to land use and planning, population and housing, greenhouse gas emissions, recreation, utilities and service systems, public services, and energy (discussed in the initial study [**EIR Appendix B**]) would be less substantial than those of the proposed project or project variants, given the reduced development intensity. These impacts would be less than significant, as with the proposed project or project variants.

The impacts of Alternative C related to site-specific conditions, such as those related to archeological resources and human remains, tribal cultural resources, transportation and circulation, noise and vibration, air quality, wind, shadow, biological resources, geology and soils (paleontological resources), hydrology and water quality, and hazards and hazardous materials, would be similar to those of the proposed project or project variants but reduced because Alternative C would reduce the size of the transit facility, including space for the administration and operations and the number of residential units, but would keep the commercial use and a similar excavation program for a proposed basement level. Specifically, the less-than-significant operational transportation and circulation impacts identified for the proposed project or project variants would be reduced slightly due to the reduction in the residential land use under Alternative C. Contributions to operational noise and air quality impacts under Alternative C would also be reduced incrementally from those under the proposed project or project variants – fewer daily and weekday p.m. peak hour vehicle trips. Alternative C would result in slightly less overall construction (e.g., with less demolition debris and a slightly smaller overall structure there would be a slight reduction in the number of pieces of construction equipment and the number of construction truck trips) and less development intensity. As discussed above on p. 5.61, under Alternative C the construction program would be reduced by approximately 20 percent (from 1,300,000 gross square feet to 1,070,000 gross square feet). Thus, unlike the proposed project or project variants, under Alternative C implementation of **Mitigation Measures M-AQ-1**, pp. 3.E.47-3.E.48, would reduce the significant project and cumulative air quality impacts related to criteria air pollutant emissions (NOx) to less-than-significant levels. Thus, these air quality impacts would be less than significant or less than significant with mitigation, as with the proposed project or project variants.

As with the proposed project or project variants, potentially adverse construction-related effects under Alternative C in the environmental resource areas of seismic and geotechnical considerations, air quality, water quality, traffic, noise, hazardous materials, biological resources (bird protection, tree conservation, environmentally sensitive areas), visual and aesthetic considerations (project site), and cultural resources (archeological resources and human remains), under Alternative C would be avoided or minimized through the incorporation of public works' SCMs as part of the project alternative. For example, the incorporation of public works' **SCM # 9, Cultural Resources**, and **SCM #7, Biological Resources**, would avoid or minimize adverse effects on archeological resources and human remains and resident or migratory birds, respectively. Furthermore, the less-than-significant construction and operational transportation and circulation impacts would also occur under Alternative C; thus, **Improvement Measures I-TR-A** and **I-TR-B** would still apply to Alternative C.

To address potential construction-related impacts on tribal cultural resources, **Mitigation Measure M-TCR-1** would still apply to Alternative C; this impact would be less than significant with mitigation. To address construction and operational noise and construction vibration, **Mitigation Measures M-NO-1**, **M-NO-2**, and **M-NO-3** would still apply to Alternative C; these impacts would be less than significant with mitigation. To address air quality impacts during construction and operation, **Mitigation Measures M-AQ-1** and **M-AQ-3** would still apply to Alternative C; these impacts would be less than significant with mitigation including the air quality impacts associated with criteria air pollutant emissions (NOx) from project construction and operation under project and cumulative conditions. To address paleontological resources impacts during construction, **Mitigation Measures M-GE-6a** and **M-GE-6b** would remain applicable to this alternative.

Under Alternative C, the prevailing winds would interact with a similarly shaped structure and pedestrian wind hazards would be expected to be similar to Alternative B and the proposed project or project variants. To address potential wind impacts, **Mitigation Measure M-WI-1** would still apply to Alternative C, and this impact would also be less than significant with mitigation. In addition, Alternative C would cast a similar shadow on Franklin Square to that cast by the proposed project or project variants, but it would be slightly altered due to the changes in the massing on the east portion of the site above the 75-foot-tall transit facility podium. Impacts would be less than significant, as with the proposed project or project variants.

As with the proposed project or project variants, Alternative C would have no impacts on mineral resources, agriculture and forestry resources, and wildfire risk.

ALTERNATIVE D: TRANSIT FACILITY PLUS COMMERCIAL ONLY ALTERNATIVE

DESCRIPTION

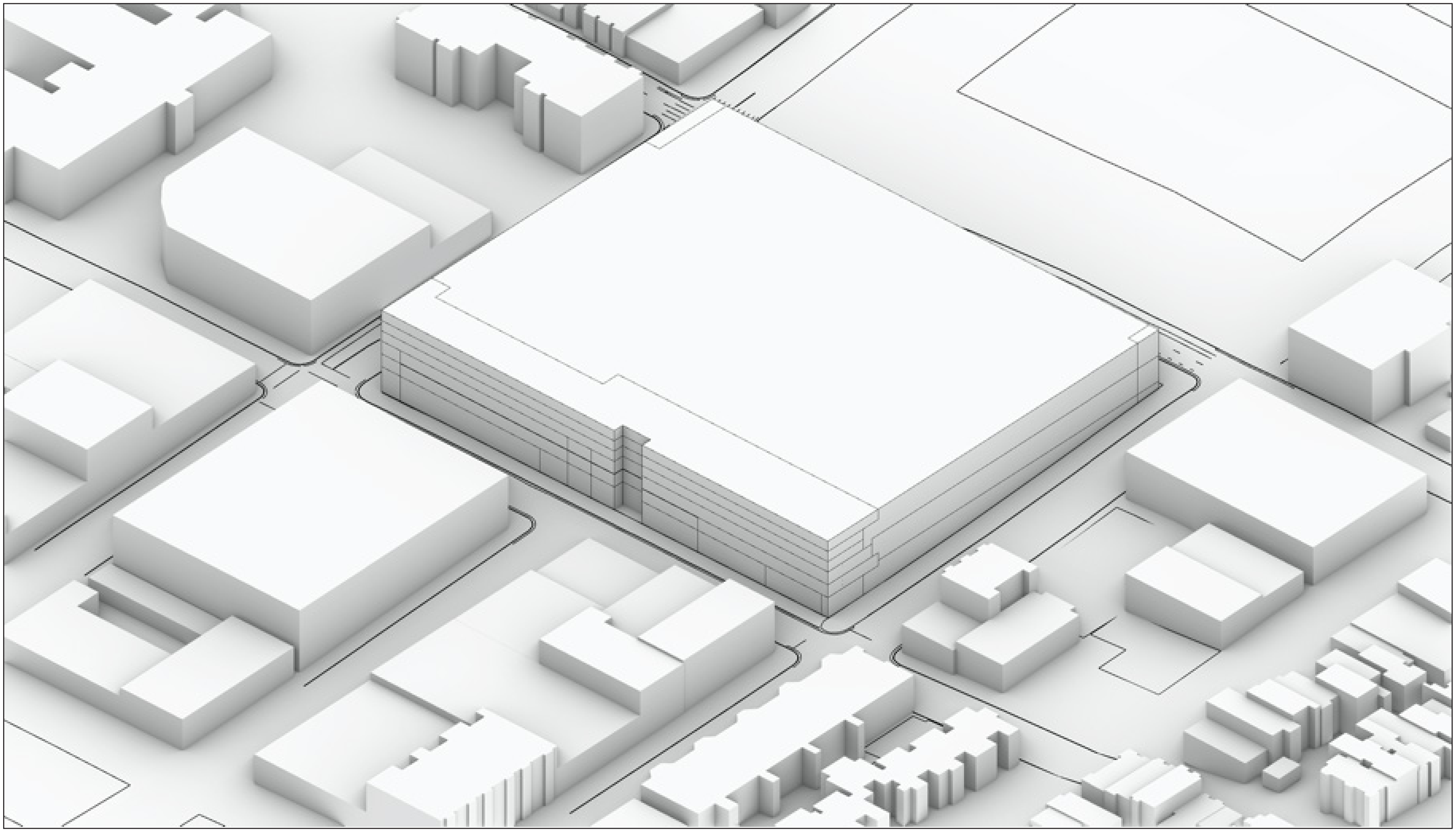
Under Alternative D, the 4.4-acre site would be redeveloped to provide a modern transit facility with commercial uses in a 75-foot-tall structure with three transit levels (see **Table 5.1**, pp. 5.18–5.22). However, Alternative D, unlike the proposed project and project variants, would not include residential uses within transit facility (along Mariposa and Bryant streets) or proposed residential development atop the transit facility podium (see **Figure 5.7: Alternative D: Transit Facility Plus Commercial Only Alternative – Site Plan**). All joint development space within the transit facility (as described in **EIR Chapter 2, Project Description** and shown on **Figure 2.12** to **Figure 2.16**, pp. 2.36–2.40) would be repurposed for SFMTA maintenance and circulation space, electric bus battery infrastructure, and staff amenities with the exception of ground-floor commercial space. The ground-floor commercial uses under the proposed project or project variants would be the same under Alternative D, with 33,000 gross square feet of commercial uses proposed along Bryant Street.

Streetscape improvements would be limited to a loading facility on Bryant Street for the commercial use, and the off-street loading at the basement level would be dedicated to the SFMTA. There would be no passenger loading space on Hampshire or Bryant streets north of Mariposa Street; thus, fewer parking spaces adjacent to the project site would be lost compared to proposed project or project variants.

Alternative D would require the same amount of excavation as the proposed project or project variants for the foundation and structural work and the below-grade basement. However, due to the smaller construction program for the transit facility and commercial space only, Alternative D could be constructed in 2.5 to 3 years, less than the three to four years expected for the proposed project or project variants. All public works' SCMs that would be incorporated as part of the proposed project or project variants would also be incorporated as part of Alternative D (see p. 5.64 and **Table 2.3** in **EIR Chapter 2, Project Description**, pp. 2.50–2.53).

ABILITY TO MEET PROJECT OBJECTIVES

Under Alternative D, most of the project's basic objectives would be met; however, fewer of the additional project objectives would be met because there would be no residential component to the joint development. See **Table 5.3**, pp. 5.25-5.27, for a summary of how Alternative D meets the project's basic and additional objectives.



Source: SFMTA; SITELAB urban studio; HDR, March 2021

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FIGURE 5.7: ALTERNATIVE D: TRANSIT FACILITY PLUS COMMERCIAL ONLY ALTERNATIVE – SITE PLAN

IMPACTS OF ALTERNATIVE D: TRANSIT FACILITY PLUS COMMERCIAL ONLY ALTERNATIVE

Cultural Resources (Historic Architectural Resources)

Under Alternative D, the existing maintenance and operations building at 2500 Mariposa Street would be demolished as it would under the proposed project or project variants. As shown above in **Table 5.2**, pp. 5.23-5.24, Alternative D would not retain any of the character-defining features of the building that convey its eligibility for listing in the California Register. Therefore, Alternative D would cause material impairment to the historic resource, resulting in an impact that would be significant and unavoidable with mitigation, as under the proposed project or project variants. **Mitigation Measures M-CR-1a** through **M-CR-1d** would be applicable under this alternative.

Air Quality

As identified in **EIR Section 3.E, Air Quality**, under **Impact AQ-3**, pp. 3.E.52-3.E.59, and **Impact C-AQ-1**, pp. 3.E.65-3.E.67, the construction-related activities of the proposed project or project variants would result in significant and unavoidable project and cumulative air quality impacts related to exposure of sensitive receptors to substantial pollutant concentrations resulting in excess cancer health risk exposure, even with mitigation.

Alternative D would require similar site preparation activities, including demolition, and similar amounts of excavation as the proposed project or project variants. As a result, the construction-related air quality impacts of Alternative D would be similar to those of the proposed project or project variants, or reduced, as shown in **Table 5.4**, p. 5.29. The Alternative D construction program would be reduced by approximately 42 percent compared to the proposed project or project variants (from 1,300,000 gross square feet to 756,000 gross square feet). As with the proposed project or project variants, Alternative D contributions to emissions of toxic air contaminants, such as diesel particulate matter, for construction and operational phases would be attributable to the number and types of on- and off-road construction equipment, the intensity of daily use of each piece of construction equipment, the number of construction truck trips (e.g., haul, concrete, materials), the addition of two onsite emergency diesel generators (compared to three under the proposed project or project variants, or Alternatives B and C), and increased vehicle trips attributable to construction workers and the proposed land uses. Alternative D would result in substantially less overall construction. For example, because Alternative D would include a smaller overall structure, it would require fewer pieces of off-road construction equipment and on-road construction truck trips. As a result, construction-related air quality emissions would be reduced compared to those of the proposed project or project variants.

As with the proposed project or project variants, under Alternative D, implementation of M**itigation Measure M-AQ-1**, pp. 3.E.47-3.E.48, would also reduce construction-related emissions that contribute to the significant project and cumulative air quality impact related to health risk exposure. However, unlike the proposed project or project variants, implementation of **Mitigation Measure M-AQ-1** would reduce Alternative D's construction-related contributions to emissions of toxic air contaminants to a less-than-significant level because it would require substantially less on- and off-road construction equipment and shorter construction duration.

Under Alternative D there would be one less onsite emergency diesel generator than under the proposed project or project variants or preservation alternatives. Project-related and cumulative contributions of long-term operational emissions from the emergency diesel generators would be reduced compared to that of the proposed project or project variants. In addition, **Mitigation Measure M-AQ-3**, p. 3.E.57, would be applicable to this alternative due to the site being within the air pollutant exposure zone. **Mitigation Measure M-AQ-3** requires the use of exhaust and/or operational control measures for all emergency diesel generators to reduce the operational excess cancer health risk to a less-than-significant level.

Under Alternative D, **Mitigation Measures M-AQ-1** and **M-AQ-3** would effectively reduce project contributions to a level well below the significance criterion for excess cancer health risk exposure (i.e., 7 parts per million) and project and cumulative air quality impacts related to health risk exposure would be less than significant with mitigation, unlike with the proposed project or project variants.

Other Topics Covered in the EIR and Initial Study

Alternative D would occupy the same building site as the proposed project or project variants and have a similar, though less intensive, construction program (an approximately 42 percent reduction in the size of the proposed structure). The reduction to the land use development program would be attributable to the removal of the residential component of the project (i.e., the residential uses within the new transit facility podium and the multi-family residential floors above). Alternative D would require similar site preparation activities, including demolition, and similar amounts of excavation as the proposed project or project variants. As a result, the construction and operational impacts of Alternative D under the other EIR and initial study environmental topics would be similar to those of the proposed project or project variants or reduced, as shown in **Table 5.4**, p. 5.29. Specifically, impacts related to land use and planning, population and housing, greenhouse gas emissions, recreation, utilities and service systems, public services, and energy (discussed in the initial study [**EIR Appendix B**]) would be less substantial than those of the proposed project or project variants, given the reduced construction program and development intensity. These impacts under this alternative would be less than significant, as with the proposed project or project variants.

The impacts of Alternative D related to site-specific conditions, such as those related to archeological resources and human remains, tribal cultural resources, transportation and circulation, noise and vibration, air quality, wind, shadow, biological resources, geology and soils (paleontological resources), hydrology and water quality, and hazards and hazardous materials, would be similar to those of the proposed project or project variants but reduced because development pursuant to Alternative D would include the three-level, 75-foot-tall transit facility, eliminate the proposed residential use, and keep the commercial use only along with a similar excavation program for the proposed basement level. Specifically, the less-than-significant operational transportation and circulation impacts identified for the proposed project or project variants and preservation alternatives would be further reduced under Alternative D because of the removal of the residential land use. Contributions to operational noise and air quality impacts under Alternative D would also be reduced incrementally from those under the proposed project or project variants and preservation alternatives for the same reasons – fewer daily and p.m. peak vehicle trips and fewer pieces of on-site stationary equipment. For example, under Alternative D there would be one less onsite emergency diesel generator than under the proposed project or project variants and preservation alternatives. Because Alternative D would require similar site preparation activities, including demolition, as the proposed project or project variants, and would also have a similar excavation program for a proposed basement level, impacts related to tribal cultural resources, noise, air quality (criteria pollutants), geology and soils (paleontological resources), hydrology and water quality, and hazards and hazardous materials would be similar to those under the proposed project or project variants. Unlike the proposed project or other variants, Alternative D would result in substantially less overall construction (e.g., with a smaller overall structure there would be a substantial reduction in the number of pieces of off-road construction equipment as well as a decrease in the number of construction truck trips) and less development intensity. These impacts would be less than significant or less than significant with mitigation, as with the proposed project or project variants.

As with the proposed project or project variants, potentially adverse construction-related effects related to seismic and geotechnical considerations, air quality, water quality, traffic, noise, hazardous materials, biological resources (bird protection, tree conservation, environmentally sensitive areas), visual and aesthetic considerations (project site), and cultural resources (archeological resources and human remains) under Alternative D would be avoided or minimized through the incorporation of public works' SCMs as part of the project. The incorporation of public work's **SCM #9, Cultural Resources**, and **SCM #7, Biological Resources**, would avoid or minimize adverse effects related to archeological resources and human remains, and resident or migratory birds, respectively. Furthermore, the less-than-significant construction and operational transportation and circulation impacts would also occur under Alternative D; thus, **Improvement Measures I-TR-A** and **I-TR-B** would still apply to Alternative D.

To address potential construction-related impacts on tribal cultural resources, **Mitigation Measures M-TCR-1** would still apply to Alternative D; this impact would be less than significant with mitigation. To address potential impacts associated with construction and operational noise and construction vibration, **Mitigation Measures M-NO-1**, **M-NO-2**, and **M-NO-3** would still apply to Alternative D; these impacts would be less than significant with mitigation. To address potential air quality impacts during construction and operation, **Mitigation Measures M-AQ-1** and **M-AQ-3** would still apply to Alternative D. Unlike the proposed project or project variants, with implementation of these mitigation measures under Alternative D, when considered in the context of its substantially reduced construction program (i.e., fewer pieces of off-road construction equipment and fewer construction truck trips for vendors and materials) and a reduction in the number of proposed emergency diesel generators, construction- and operational-related emissions associated with criteria air pollutant emissions (NOx) would be reduced and the impacts would be less than significant. To address potential paleontological resources impacts during construction, **Mitigation Measures M-GE-6a** and **M-GE-6b** would also remain applicable to this alternative.

Under Alternative D, the prevailing winds would interact with a similarly shaped transit facility structure and pedestrian wind hazards would be expected to be similar to Alternative B or C and the proposed project or project variants. Thus, a net new wind hazard location—at the sidewalk on northwest corner of the Bryant Street and Mariposa Street intersection—would also occur under Alternative D. To address wind impacts, **Mitigation Measure M-WI-1** would still apply to Alternative D; this impact would also be less than significant with mitigation. In addition, Alternative D would cast a smaller shadow on Franklin Square than that anticipated with the proposed project or project variants due to the removal of the multi-family residential floors above the 75-foot-tall transit facility podium. Impacts would be less than significant, as with the proposed project or project variants.

As with the proposed project or project variants, Alternative D would have no impacts on mineral resources, agriculture and forestry resources, and wildfire risk.

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C. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Pursuant to CEQA Guidelines section 15126.6(e)(2), if the no project alternative is the environmentally superior alternative, then an EIR is required to identify another environmentally superior alternative from among the alternatives evaluated if the proposed project has significant impacts that cannot be mitigated to a less-than-significant level. The environmentally superior alternative is the alternative that best avoids or lessens any significant effects of the proposed project, even if the alternative would impede to some degree the attainment of the project objectives. Alternative A: No Project Alternative is considered the overall environmentally superior alternative because it would not result in the significant impacts associated with implementation of the proposed project. Alternative A, however, would not meet any of the basic or additional project objectives the SFMTA described on pp. 5.4-5.5, above. For the reasons discussed below, Alternative B: Full Preservation Alternative would be the environmentally superior alternative among the other alternatives evaluated.

COMPARISON OF SIGNIFICANT IMPACTS OF THE PROPOSED PROJECT AND EIR ALTERNATIVES

To identify the environmentally superior alternative in accordance with the CEQA Guidelines, **Table 5.4**, pp. 5.29-5.35, presents a comparison of the significant impacts of the proposed project or project variants to those of the alternatives, as well as the comparative effects amongst the alternatives. The proposed project or project variants would result in significant impacts related to historic architectural resources, tribal cultural resources, noise and vibration, air quality, wind, and paleontological resources.

As shown in **Table 5.4**, pp. 5.29-5.35, Alternative A: No Project Alternative would represent a continuation of existing conditions on the project site and would not result in any significant impacts associated with implementation of the proposed project or project variants. As a result, Alternative A is considered the overall environmentally superior alternative; however, it would not meet any of the basic project objectives. Alternative D would substantially lessen the significant and unavoidable air quality impacts associated with exposure of sensitive receptors to excess cancer health risk but would not avoid or substantially lessen the historical architectural resources impact.

Alternative B: Full Preservation Alternative would therefore be the environmentally superior alternative because, of all the alternatives evaluated, it would have the fewest significant environmental impacts. Alternative B would retain and rehabilitate the existing office wing and develop the new structure with appropriate setbacks from the retained office wing. Additionally, the massing of new construction above the new transit facility would be shifted to the west portion of the site. As a result, it would avoid the significant adverse impact on the historical resource. Significant but mitigable construction- and operation-related tribal cultural resources, noise and vibration, wind, and paleontological resources impacts would be similar to the proposed project or project variants and other alternatives. Unlike the proposed project or project variants implementation of **Mitigation Measure M-AQ-1** and **Mitigation Measure M-AQ-3** under each of the alternatives would reduce the proposed project's or project variants' significant and unavoidable air quality impacts, primarily as a result of the less intensive construction program for the incrementally smaller structures. In addition, Alternative B would not result in any new significant impacts or substantially more severe impacts as compared to the proposed project or project variants.

D. ALTERNATIVES CONSIDERED BUT REJECTED

Several preservation alternatives were considered as part of the alternatives scoping process for this EIR. CEQA Guidelines section 15126.6(c) states that an EIR should "identify any alternatives that were considered by the lead agency but rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination." The scoping process for identifying viable EIR alternatives included consideration of the following criteria: ability to meet the basic project objectives; potential to substantially lessen or avoid significant environmental effects associated with the proposed project or project variants; and potential feasibility. As stated in CEQA Guidelines section 15126.6(f)(1), factors that may be considered when a lead agency is assessing the feasibility include:

> site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent).

Several historic preservation alternatives were considered but rejected from further analysis because of they were deemed to be infeasible and/or because they would either address issues similar to the selected full and partial preservation alternatives but would not effectively reduce or lessen any significant impacts and would meet fewer of the project's basic objectives and additional objectives. As noted above on p. 5.3, an EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. Furthermore, an EIR need not consider every conceivable alternative but must consider a reasonable range of alternatives to foster informed decision-making and public participation. The discussion below describes the alternatives considered and the reasons why they were eliminated from consideration in the EIR.

PRESERVATION ALTERNATIVES CONSIDERED BUT REJECTED

FULL PRESERVATION ALTERNATIVE SCENARIOS

The rehabilitation of the existing maintenance and operations building was explored but determined to not meet the project's basic objectives for several reasons related to the existing maintenance and operations building's inability to accommodate modern bus yard operations, due to its age and design, as follows:

- The existing building was constructed to maintain and store early 20th century streetcars, which are smaller, lighter, and simpler to maintain than today's electric trolley buses. Due to original building design, the existing floor-to-ceiling heights do not provide enough space to allow for safe maintenance of roof-mounted components necessary for maintenance of modern vehicles. As a result, maintenance staff have assembled outdoor work areas with moveable catwalks that have no weather protection.
- The deficient floor-to-ceiling heights create conflict between the overhead wire system for the electric trolley buses and the maintenance activities that occur within the building which cannot be addressed in the existing configuration of the building.
- Additional limitations to efficient electric trolley bus maintenance flows are related to the service pits in the existing building, which are inadequate for chassis maintenance due to
    - Inadequate depth which does not allow for variable access based on employee height or component location,
    - lack of drainage, and
    - difficulty in maintaining compliant workforce safety (i.e., protection from falls).
- The maintenance bay configuration and geometry is now four to five buses deep, which hinders maintenance flows as buses cleared for service must wait behind disabled vehicles to clear the maintenance bay before they can proceed through.
- The existing building is setback approximately 20-feet from the Mariposa Street frontage, which detracts from the site's ability to accommodate the optimal bus to repair bay ratio to enable efficient bus maintenance in the facility.

As part of the development of a full preservation alternative, retention of the office wing and deeper setbacks from the existing resource's shops wing along Hampshire Street were considered—a 58-foot-deep setback that would retain the entire shops wing—and 25- and 30-foot-deep setbacks that would remove the shops wing but retain the Hampshire Street façade. Each of these options would progressively limit the functional effectiveness of the circulation ramps on the second and third transit levels and further reduce programmable space for SFMTA expansion and modernization, such as space for maintenance bays and shops; bus storage; infrastructure to support the all-battery electric bus fleet including non-revenue vehicles; and SFMTA training, operations, and staff space.

Strategies to address limited circulation space included the following:

- alterations to the location or length of circulation ramps as proposed; however, the ramps as proposed cannot be reduced substantially because they are near the minimum length and are at the maximum slopes allowed to accommodate the 40- and 60-foot-long buses that the facility will serve; and
- further reductions to bus and non-revenue vehicle storage to accommodate different bus circulation patterns.

These strategies would effectively limit the SFMTA from meeting most of the project's basic objectives identified in its fleet planning and facility capital programs primarily because Potrero Yard would not be able to accommodate the full complement of buses, bus types, and non-revenue vehicles projected to be housed at this facility. Further, many of the operational efficiencies that SFMTA envisioned for the proposed project or project variants would be constrained (e.g., training, operations, and staff space). These versions of a full preservation alternative were determined to not meet the basic objectives of the project and were rejected from further consideration.

The Full Preservation Alternative scenario presented to the HPC on October 7, 2020 (see pp. 5.39-5.51) would retain the office wing and the Hampshire Street façade and include a 15-foot setback for the second and third transit levels with additional setbacks for the new multifamily residential floors above the third transit level. The HPC acknowledged the challenge of developing a full preservation alternative that met most of the project's basic objectives. The HPC attributed greater importance to the retention of the office wing than the east elevation of the shops wing because most of the character-defining features are located along the Mariposa Street façade of the office wing as opposed to the east elevation of the shops wing which is largely a blank facade. The HPC rejected this full preservation scenario because they found retention of the east elevation of the shops wing did not improve the project from either a preservation or urban design perspective. Therefore, this Full Preservation Alternative was rejected from further consideration.

PARTIAL PRESERVATION ALTERNATIVE SCENARIOS

Partial Preservation Alternative (Mariposa Wing Façade 1)

Under this alternative, the maintenance and operations building would be demolished except for the primary street façade of the office wing along Mariposa Street that wraps around Hampshire Street. This façade would be preserved and incorporated into the new building. The new building's upper floors would be set back 10 feet from the retained portion of the building. This alternative would have allowed the proposed project or project variants to be built largely as proposed, but by retaining only the façade, the alternative would not sufficiently preserve the historic resource's character-defining features, including the height and massing of the office wing and the height and massing of the shops wing, and thus was incapable of avoiding or substantially reducing the environmental impact of the proposed project or project variants on historic architectural resources in any meaningful way. Therefore, this partial preservation alternative was rejected from further consideration.

Partial Preservation Alternative (Mariposa Wing Façade 2)

This alternative would be similar to the rejected Partial Preservation Alternative (Mariposa Wing Façade 1), discussed above, except that the preserved Mariposa Street façade would be further differentiated from the replacement transit facility. This alternative would include a 10-foot-by-10-foot separation between new construction and the west edge of the Mariposa Street façade, as well as a 10-foot-by-5-foot separation between new construction and the north edge of the office wing's Mariposa Street façade that wraps around the southeastern corner and continues north along Hampshire Street. In addition to the setback along the west and north for the replacement transit facility's three new transit levels, the new building's upper floors would also be set back 10 feet from the retained portion of the building. This alternative would also have allowed the proposed project or project variants to be built largely as proposed but similar to the rejected Partial Preservation Alternative (Mariposa Wing Façade 1) described above, it would not reduce impacts to historic architectural resources in a meaningful way. Therefore, this partial preservation alternative was also rejected from further consideration.

These rejected partial preservation alternative scenarios differed in approach to Alternative C: Partial Preservation Alternative analyzed above. The major difference is the approach to historic preservation for these scenarios, which would be limited to façade retention with some limited differentiation between new construction and the retained façade. These partial preservation alternative scenarios would effectively demolish the building resulting in material impairment to the historical resource while still not retaining a portion of the building in a meaningful way. The planning department determined Alternative C: Partial Preservation Alternative provided a more meaningful approach to a partial preservation alternative because it maintained the overall volume and massing of the original historic resource rather than just retaining the facades of the building. Therefore, Alternative C: Partial Preservation Alternative was evaluated and these other partial preservation alternative scenarios were rejected from further consideration.

OTHER ALTERNATIVES CONSIDERED AND REJECTED

REDUCED DENSITY ALTERNATIVE TRANSIT FACILITY WITH JOINT DEVELOPMENT USES IN PODIUM ONLY

Under this alternative, no multi-family residential floors would be developed above the replacement transit facility, and there would be no construction above 75 feet. Rather, only a limited number of residential units could be developed along Mariposa and Bryant streets, similar to the proposed project or project variants. This alternative would be similar to the proposed project or project variants in all other respects, including development of 33,000 gross square feet of ground-floor commercial uses. However, with no joint development above the replacement transit facility, the number of residential units would be significantly reduced in comparison to the proposed project or project variants or the preservation alternatives. This alternative would reduce the significant air quality impact related to health risk to less than significant with mitigation, similar to Alternative D. However, it would not reduce the significant historic architectural resources impact because the historic resource would be demolished. This alternative would meet most of the project's basic objectives, but it would not effectively meet some of the additional objectives related to the provision of housing. In particular, this alternative would drastically limit the number of residential units that could be built, and limit opportunities for the SFMTA to enter into a public/private joint development partnership. The full and partial preservation alternatives would provide more housing units and would also reduce the significant air quality impact for health risk to less than significant with mitigation. In addition, this alternative is within the range of alternatives provided by the preservation alternatives and the transit facility with commercial uses only alternative. For these reasons, this alternative was rejected from further consideration.

OFFSITE ALTERNATIVE

CEQA Guidelines section 15126.6(f)(2) states that alternative locations should be considered if they would avoid or substantially lessen any of the significant effects. An offsite alternative would consist of a project with design and programming similar to the proposed project or project variants. As described in **EIR Chapter 2, Project Description**, pp. 2.14-2.19, the SFMTA has been engaged in a multi-year transit fleet plan expansion and facility planning process that includes the redevelopment of a number of sites within the city that are City-controlled. These include the Muni Metro East swing facility in the Central Waterfront area (currently underway) and the Presidio and Kirkland yards. Other City-controlled storage and maintenance yards include the Woods Yard, the Islais Creek and Flynn Division facilities, and the 1399 Marin Street Facility. Each of the existing facilities are occupied and operating at or near their planned capacities. The SFMTA does not control vacant property of sufficient size to develop a new transit facility; therefore, the alternative location approach was not pursued.

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