Draft Environmental Impact Report

Mission Bay School Project

Prepared by:
ICF

Prepared for:
San Francisco Unified School District

September 2021

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ACRONYMS AND ABBREVIATIONS

µg/m3	micrograms per cubic meter
ABAG	Association of Bay Area Governments
ACM	asbestos-containing material
ADA	Americans with Disabilities Act
ADT	average daily traffic
APEZ	Air Pollutant Exposure Zone
AREAPOLY	area source
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
BAAQMD	Bay Area Air Quality Management District
BMPs	best management practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CAP	criteria air pollutant
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CEQA Guidelines	California Environmental Quality Act Air Quality Guidelines
City	City of San Francisco
CO	carbon monoxide
COC	contaminant of concern
District or SFUSD	San Francisco Unified School District
DPM	diesel particulate matter
EIR	Environmental Impact Report
EMFAC2021	EMission FACtor model
EPA	U.S. Environmental Protection Agency
Friant Ranch Decision	California Supreme Court's decision in Sierra Club v. County of Fresno [6 Cal. 5th 502]
GHG	greenhouse gas
GVWR	gross vehicle weight rating
HRA	health risk assessment
I	Interstate
Initial Study	initial study
LINEAREA	line/area source
MERV	Minimum Efficiency Reporting Value
NAAQS	National Ambient Air Quality Standards
NHTSA	National Highway Traffic Safety Administration
NO	nitric oxide
NO_2	nitrogen dioxide

NOA	notice of availability
NOP	notice of preparation
NOX	nitrogen oxides
OEHHA	Office of Environmental Health Hazard Assessment
PAH	polynuclear aromatic hydrocarbon
PM10	Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
PM2.5	fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less
PRC	Public Resources Code
project sponsor or District	San Francisco Unified School District
proposed project	Mission Bay School Project
ROG	reactive organic gases
SAFE	Safer Affordable Fuel-Efficient
SCAQMD	South Coast Air Quality Management District
SFBAAB	San Francisco Bay Area Air Basin
SFO	San Francisco International Airport
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO2	sulfur dioxide
SWPPP	stormwater pollution prevention plan
TAC	toxic air contaminant
TDM	Transportation Demand Management
TIA	Transportation Impact Analysis
UCSF	University of California, San Francisco
UPS	uninterruptible power supplies
VMT	vehicle miles traveled

CHAPTER 1.0 INTRODUCTION

This chapter summarizes the Mission Bay School Project (proposed project), outlines the purpose of this draft Environmental Impact Report (EIR), summarizes the environmental review process, and describes the organization of the EIR.

1.1 PROJECT SUMMARY

The project sponsor, San Francisco Unified School District (project sponsor or District), proposes demolition of a surface parking lot and construction of a new school in the Mission Bay neighborhood of the City of San Francisco. The project site is located on the block bounded by Mission Bay Boulevard South to the north, Sixth Street (privately owned by the University of California) to the east, Nelson Rising Lane (privately owned by the University of California) to the south, and Owens Street to the west in the Mission Bay neighborhood in the northeast quadrant of San Francisco. The project would include construction of a multistory (maximum of 63 feet tall), up to 105,700-square-foot school. The proposed facility would include a preschool, transitional kindergarten, kindergarten-through-fifth-grade elementary school, linked learning hub, professional learning space, outdoor learning area, outdoor play area, and paved surface parking lot. The proposed building would consist of a west wing and a south wing. The west wing would be four stories tall, with a maximum building height of 63 feet (76 feet when accounting for the mechanical features). The south wing would be two stories tall, with a maximum building height of 30 feet. The building would include up to approximately 60,200 square feet for classrooms, up to approximately 18,100 square feet for linked learning-hub classrooms, and up to approximately 4,200 square feet for professional learning spaces. The building would also include up to approximately 9,300 square feet for a multi-purpose room, up to approximately 6,600 square feet for a kitchen, and up to approximately 3,400 square feet for administrative uses. The first level of the building would include most of the support space (3,900 square feet) (i.e., multi-purpose room, kitchen, administrative uses, etc.) as well as some classroom space. The approximately 54,600-square-foot outdoor play area would be east of the proposed building.

Two existing driveways would be removed and replaced with sidewalks. Vehicle ingress and egress at the site would be provided by two new driveways along Owens Street. The drop-off/pickup lot for passenger vehicles for the preschool and transitional kindergarten school students would be west of the proposed building. Nine vehicle parking spaces would be provided within the drop-off/pickup lot, including two accessible parking spaces for Americans with Disabilities Act (ADA)-compliant vehicles. ADA drop-off areas would be within the drop-off/pickup lot and along Sixth Street. The drop-off/pickup area for passenger vehicles for the elementary school students and linked learning hub students would be at the white curb along Sixth Street. Demolition and surcharging[1] at the project site would begin in approximately March 2022. Site remediation and construction of the proposed building would begin in mid-2023 and continue for approximately 21 to 24 months. Construction would conclude by summer 2025, and the project would be fully operational in 2025. Refer to Chapter 3, *Project Description*, for further details.

1.2 PURPOSE OF THIS DRAFT FOCUSED EIR

This draft EIR analyzes the physical environmental effects resulting from the implementation of the proposed project. As the lead agency for the proposed project, the District has prepared this draft EIR in

[1] Surcharging would involve the use of imported soil piled on the surface of the project site to cause lateral pressure. The additional pressure would shorten the consolidation time for the soil at the project site.

compliance with the provisions of the California Environmental Quality Act (California Public Resources Code sections 21000 et seq., CEQA) and the CEQA Guidelines (California Code of Regulations Title 14, sections 15000 et seq.) as well as San Francisco Administrative Code chapter 31. The lead agency is the public agency that has principal responsibility for carrying out or approving a project.

As described by CEQA and the CEQA Guidelines, public agencies are charged with a duty to evaluate a project's significant impacts, and then avoid or substantially lessen a project's significant environmental effects, where feasible, with implementation of mitigation measures. In undertaking this duty, a public agency has an obligation to balance a project's unavoidable adverse effects on the environment with its benefits, including economic, social, technological, legal, and other non-environmental characteristics.

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.

CEQA requires an EIR to be prepared before a discretionary decision is made to approve a project that may cause a significant effect on the environment that cannot be reduced to less-than-significant level with the implementation of feasible mitigation measures. The EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental impacts of a project, identify mitigation measures to lessen or eliminate adverse impacts, and examine a reasonable range of feasible alternatives to the project that will foster informed decision-making and public participation. The District must consider the information in this EIR and make certain findings with respect to each significant effect that is identified. The information contained in this EIR, along with other information available through the public review process, will be reviewed and considered by the decision makers prior to a decision to approve, disapprove, or modify the proposed project or adopt an alternative or variant to the proposed project.

This EIR evaluates the whole of the proposed action, including project-level impacts (offsite, onsite, construction-related, operational, direct, and indirect) and cumulative impacts. This is an informational document that does not determine whether a project will be approved, but instead aids in the planning and decision-making process by disclosing the potential environmental impacts associated with construction and operation of the proposed project.

The District has prepared this EIR with a degree of analysis that provides decision-makers with sufficient information to enable them to make a decision that accounts for the environmental consequences of the proposed project. Furthermore, this EIR is prepared in accordance with CEQA Guidelines section 15063(c). In accordance with section 15128, an initial study (Initial Study) for the proposed project was prepared (see **Appendix 1.2**) to identify which of the proposed project's effects would result in less-than-significant impacts and do not require further analysis, and which topics warrant more detailed environmental analysis in the EIR. The Initial Study is being published concurrently with the EIR, and comments will be accepted on the Initial Study during the public review period for the EIR.[2] Thus, this EIR focuses on the environmental analysis on those topics identified in the Initial Study with the potential to have significant impacts: air quality.

[2] Under CEQA Guidelines section 15128, the EIR must contain a brief statement indicating the reasons why certain effects were determined not to be significant and thus were not discussed in the EIR.

1.3 ENVIRONMENTAL REVIEW 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.

1.3.1 Notice of Preparation

The San Francisco Unified School District issued a notice of preparation (NOP) of an EIR for the proposed Mission Bay School Project on May 17, 2021, in compliance with Title 14, Sections 15082(a), 15103, and 15375 of the California Code of Regulations (CCR). The NOP review period commenced on May 17, 2021, and concluded on June 18, 2021, and a virtual public scoping meeting was held on May 25, 2021, to take public comments related to the environmental issues of the proposed project. No commenters spoke at the meeting. During the public comment period, one written comment was received. The NOP comment, which expressed strong support for the project, is provided in **Appendix 1.1**. The District prepared an initial study to focus the scope of the EIR by assessing which of the proposed project's environmental topics would not result in significant impacts to the environment and considered the public comments received at the scoping meeting. The initial study is included as an appendix to this draft EIR (see **Appendix 1.2**).

1.3.2 Initial Study

The District prepared an Initial Study to focus the scope of the EIR by assessing which of the proposed project's environmental topics would not result in significant impacts to the environment. The Initial Study is included as an appendix to this draft EIR (see **Appendix 1.2**). The Initial Study determined that the proposed project would not result in significant environmental effects (in some cases, with mitigation identified in the Initial Study) for the following topics:

- Aesthetics
- Agricultural and Forest Resources
- Biological Resources (significant impacts identified, but mitigated through measures identified in the Initial Study)
- Cultural Resources (significant impacts identified, but mitigated through measures identified in the Initial Study)
- Energy
- Geology and Soils
- Greenhouse Gas Emissions (significant impacts identified, but mitigated through measures identified in the Initial Study)
- Hazards and Hazardous Materials (significant impacts identified, but mitigated through measures identified in the Initial Study)
- Hydrology and Water Quality
- Land Use
- Mineral Resources
- Noise (significant impacts identified, but mitigated through measures identified in the Initial Study)
- Population and Housing

- Public Services
- Recreation
- Transportation and Circulation
- Tribal Cultural Resources (significant impacts identified but mitigated through measures identified in the Initial Study)
- Utilities and Service Systems
- Wildfire

1.3.3 Draft Focused Environmental Impact Report

This draft EIR has been prepared on behalf of the District, who is the lead agency, in accordance with CEQA. Together with the Initial Study, the draft EIR provides an analysis of the physical environmental impacts of construction and operation of the proposed project, and the project's contribution to the environmental impacts from foreseeable cumulative development in the project site vicinity and the City of San Francisco (City) as a whole. It considers all environmental topic areas in Appendix G of the CEQA Guidelines and takes into consideration NOP comments.

Hard copies of the draft EIR and all documents referenced in this draft EIR are available at the District's office, 135 Van Ness Avenue, Room 216, San Francisco, CA, 94102. Due to the COVID-19 Pandemic, the District is not open to members of the public. If you would like to review a physical copy of the draft EIR, please call Sarah Price at the District at (415) 710-2495, to make arrangements to review the document. Environmental documents and notices related to the proposed project are also available at: https://www.sfusd.edu/schools/schools-community/school-mission-bay.

1.3.3.1 How to Comment on the Draft Focused Environmental Impact Report

The public is invited to provide comments and concerns regarding the accuracy of the draft EIR and the CEQA process. The public comment period for this Draft EIR commenced on September 3, 2021, and will conclude on October 19, 2021. Written comments may be submitted to the District, attention of Sarah Price, at the San Francisco Unified School District, 135 Van Ness Avenue, Room 216, San Francisco, CA 94102, or emailed to MissionBay@sfusd.edu, during the specified public review and comment period.

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

1.3.4 Final Focused Environmental Impact Report

Following the close of the public review and comment period, the District will prepare and publish a document titled "Responses to Comments on the Draft EIR," which will contain all written comments on this draft EIR, as well as written responses to those comments, along with copies of the letters or emails received and any necessary revisions to the draft EIR. The draft EIR and the responses-to-comments document will constitute the final EIR, and the final EIR will be made available to the public and any boards(s), commission(s), or department(s) that will carry out or approve the proposed project. The Board of Education, in an advertised public meeting, will consider the documents and, if found adequate, certify the final EIR, provided it (1) was completed in compliance with CEQA, (2) was presented to the District,

which reviewed and considered the information contained in the final EIR prior to approved the proposed project, and (3) reflects the lead agency's independent judgement and analysis.

CEQA prohibits agencies from approving or carrying out a project unless the public agency makes one or more written findings for each of the significant effects with an explanation of each finding (CEQA Guidelines § 21081). If an agency approves a project that would result in the occurrence of significant adverse impacts that cannot feasibly be mitigated to less-than-significant levels (that is, significant and unavoidable impacts), the agency must state the reasons for its actions in writing; demonstrate that mitigation is infeasible, based on the EIR or other information in the record; and adopt a Statement of Overriding Considerations, which identifies the specific reasons to support its actions based on the final EIR.

At the time of project approval, CEQA and the CEQA Guidelines require lead agencies to adopt a mitigation monitoring or reporting program that it has made a condition of project approval in order to mitigate or avoid significant impacts on the environment (CEQA Guidelines § 21081.6; CEQA Guidelines section 15097). This EIR identifies and presents the project-specific mitigation that if the proposed project is approved, would be included in the Mitigation Monitoring and Reporting Program for the Mission Bay School Project as a condition of project approval.

1.4 INTENDED USES OF THIS EIR

This EIR is intended as an informational document that in and of itself does not determine whether the proposed project will be approved. The EIR aids the planning and decision-making process by disclosing the potential for significant and adverse impacts. In conformance with CEQA, California Public Resources Code (PRC) sections 21000 et seq., this EIR provides objective information for addressing the environmental consequences of the proposed project and identifies the means for reducing or avoiding its significant impacts where feasible.

The CEQA Guidelines help define the role and expectations of this EIR, as follows:

- **Informational Document**. An EIR is an informational document that informs public agency decision makers and the public of the significant environmental effect(s) of a project, identifies feasible ways to avoid or minimize significant effects, and describes a reasonable range of feasible alternatives to the project. The public agency shall consider the information in the EIR, along with other information contained in the administrative record (section 15121[a]).
- **Degree of Specificity**. An EIR on a construction project will necessarily be more detailed regarding the specific effects of the project than an EIR regarding adoption of a local general plan or comprehensive zoning ordinance because the effects of the construction can be predicted with greater accuracy. An EIR for a project such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan should focus on the secondary effects that can be expected to follow from the adoption or amendment but need not be as detailed as an EIR regarding the specific construction projects that might follow (section 15146[b]). This EIR is a project-level EIR, pursuant to CEQA Guidelines section 15161. A project-level EIR focuses on changes in the environment that would result from construction and operation of a specific development project.
- **Standards for Adequacy of an EIR**. An EIR should be prepared with an adequate degree of analysis to provide decision makers with information that enables them to make a decision that 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 not looked for perfection but for adequacy, completeness, and a good-faith effort at full disclosure (section 15151).

The CEQA Guidelines section 15382, define a significant effect on the environment as "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." Therefore, in identifying the significant impacts of the proposed project, this EIR concentrates on its substantial physical effects and on mitigation measures to avoid or reduce those effects.

1.5 REPORT ORGANIZATION

This draft EIR is organized into the following sections.

- ***Chapter 1—Introduction*:** This chapter includes a discussion of the environmental review process, the purpose of this draft EIR, a summary of comments received on the scope of the EIR, and the organization of the draft EIR.
- ***Chapter 2—Executive Summary*:** This chapter summarizes the draft EIR by providing a concise overview of the proposed project, including associated approvals, environmental impacts that would result from the project, mitigation measures identified to reduce or eliminate these impacts, and project alternatives.
- ***Chapter 3—Project Description*:** This chapter discusses the background and objectives of the proposed project, provides background data on the project location, describes the operational and physical characteristics of the project, and identifies project approvals.
- ***Chapter 4—Introduction to Environmental Analysis*:** This chapter describes the existing setting, regulatory setting, environmental project-level impacts, cumulative impacts, and mitigation measures. Each environmental topic is discussed in a separate section within this chapter as follows:
  - 4.2 Air Quality
- ***Chapter 5—Alternatives*:** This chapter presents alternatives to the proposed project, including Alternative A—No Project Alternative and Alternative B—Reduced Building Footprint Alternative.
- ***Chapter 6—Other CEQA Considerations*:** This chapter provides additional required analyses of the proposed project's effects, growth-inducing impacts, significant and unavoidable impacts, areas of known controversy, and issues to be resolved.
- ***Chapter 7—List of Report Preparers*:** This chapter lists the authors who contributed to the EIR, including District staff members and EIR consultants.
- ***Appendices:*** The following appendices are included as part of this document:
  - Appendix 1.1: Notice of Preparation and Comments Received
  - Appendix 1.2: Initial Study
  - Appendix 4.2: Air Quality Materials

CHAPTER 2.0 EXECUTIVE SUMMARY

This draft EIR has been prepared in accordance with the provision of the CEQA to evaluate the potential impacts of the proposed project in the City of San Francisco (City), San Francisco County, California. As required by Section 15123 of the CEQA Guidelines, this summary chapter is intended to highlight major areas of importance in the environmental analysis. Following the summary description of the proposed project, two summary tables present the environmental impacts of the proposed project and mitigation measures identified to reduce significant impacts. Following the summary tables is a description of the alternatives to the proposed project that are addressed in this EIR, including a description of the environmentally superior alternative. The final subsection in this chapter is a summary of environmental issues to be resolved and areas of known controversy.

2.1 SUMMARY DESCRIPTION

As the project sponsor, the District proposes demolition of a surface parking lot and construction of a new school in the Mission Bay neighborhood of the City of San Francisco. The project site is located on the block bounded by Mission Bay Boulevard South to the north, Sixth Street (privately owned by the University of California) to the east, Nelson Rising Lane (privately owned by the University of California) to the south, and Owens Street to the west in the Mission Bay neighborhood in the northeast quadrant of San Francisco. The project would include construction of a multistory (maximum of 63 feet tall), up to 105,700-square-foot school. The proposed facility would include a preschool, transitional kindergarten, kindergarten-through-fifth grade elementary school, linked learning hub, professional learning space, outdoor learning area, outdoor play area, and paved surface parking lot. The proposed building would consist of a west wing and a south wing. The west wing would be four stories tall, with a maximum building height of 63 feet (76 feet when accounting for the mechanical features). The south wing would be two stories tall, with a maximum building height of 30 feet. The building would include up to approximately 60,200 square feet for classrooms, up to approximately 18,100 square feet for linked learning hub classrooms, and up to approximately 4,200 square feet for professional learning spaces. The building would also include up to approximately 9,300 square feet for a multi-purpose room, up to approximately 6,600 square feet for a kitchen, and up to approximately 3,400 square feet for administrative uses. The first level of the building would include most of the support space (3,900 square feet) (i.e., multi-purpose room, kitchen, administrative uses, etc.) as well as some classroom space. The approximately 54,600-square-foot outdoor play area would be east of the proposed building.

Two existing driveways would be removed and replaced with sidewalks. Vehicle ingress and egress at the site would be provided by two new driveways along Owens Street. The drop-off/pickup lot for passenger vehicles for the preschool and transitional kindergarten school students would be west of the proposed building. Ten vehicle parking spaces would be provided within the drop-off/pickup lot, including two accessible parking spaces for ADA-compliant vehicles. ADA drop-off areas would be within the drop-off/pickup lot and along Sixth Street. The drop-off/pickup area for passenger vehicles for the elementary school students and linked learning hub students would be at the white curb along Sixth Street. Demolition and surcharging[1] at the project site would begin in approximately March 2022. Site remediation and construction of the proposed building would begin in mid-2023 and continue for approximately 21 to 24 months. Construction would conclude by summer 2025, and the project would be fully operational in 2025. Refer to Chapter 3, *Project Description*, for further details.

[1] Surcharging would involve the use of imported soil piled on the surface of the project site to cause lateral pressure. The additional pressure would shorten the consolidation time for the soil at the project site.

2.2 PROJECT IMPACTS AND MITIGATION MEASURES

On May 17, 2021, the District published an NOP of an EIR and public scoping meeting and a notice of availability (NOA) of the NOP. The NOP was distributed for a 30-day review period to responsible agencies, in accordance with CEQA Guidelines section 15082, as well as owners and occupants within a 500-foot radius of the project site and individuals of that the District believed had interest in the proposed project. Pursuant to California PRC section 21083.9 and CEQA Guidelines section 15206, a virtual public scoping meeting was held on May 25, 2021 to take public comments related to the environmental issues of the proposed project. No commenters spoke at the meeting. During the public comment period, one written comment was received. The NOP comment, which expressed strong support for the project, is provided in **Appendix 1.1**. The District prepared an initial study to focus the scope of the EIR by assessing which of the proposed project's environmental topics would not result in significant impacts to the environment and considered the public comments received at the scoping meeting. The initial study is included as an appendix to this draft EIR (see **Appendix 1.2**).

The initial study found that the proposed project could have potentially significant impacts on air quality. It also found that the proposed project's impacts on all other environmental topics (i.e., aesthetics, agricultural and forest resources, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use, mineral resources, noise, population and housing, public services, recreation, transportation and circulation, tribal cultural resources, utilities and service systems, and wildfire) would either be less-than-significant or less-than-significant with mitigation, or the proposed project would have no impact, thereby requiring no further study in the EIR.

For the topics evaluated in the EIR, the levels of significance for impacts before and after implementation of applicable mitigation measures are identified as:

- **No Impact**. No adverse changes to (or impacts on) the environment are expected.
- **Less than Significant**. An impact that would not involve an adverse physical change to the environment, 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**. An impact that would be reduced to a less-than-significant level through implementation of an identified mitigation measure.
- **Significant and Unavoidable with Mitigation**. An adverse physical environmental impact that would exceed the defined significance criteria, but could not be reduced through compliance with existing local, state, and federal laws and regulations and/or implementation of feasible mitigation measures. However, the impact cannot be reduced to a less-than-significant level.
- **Significant and Unavoidable**. An adverse physical environmental 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. There are no feasible mitigation measures that can reduce the impact to a less-than-significant level.

2.2.1 Significant and Unavoidable Impacts

All impacts of the proposed project, its alternatives, and the associated feasible mitigation measures identified in this EIR are summarized in Tables 2-1 and 2-2, at the end of this chapter. The impacts are listed in alphabetical order by environmental impact topic as they appear in the Chapter 4, *Introduction to*

Environmental Analysis, of this draft EIR, and Chapter 4, *Setting, Environmental Checklist, and Impacts*, of the initial study.

The EIR identified one significant and unavoidable impact associated with exposure of sensitive receptors to substantial pollutant concentrations (see Chapter 4.2). This impact associated with the proposed project would remain significant and unavoidable, even with implementation of mitigation measures.

2.2.2 Alternatives

CEQA Guidelines section 15126.6 requires an EIR to evaluate the No Project Alternative and a reasonable range of alternatives to the project that would feasibly attain most of the project's basic objectives, but that would also avoid or substantially reduce any identified significant environmental impacts of the project. The proposed project would result in impacts on biological resources, cultural resources and tribal cultural resources, greenhouse gas (GHG) emissions, hazards and hazardous materials, and noise that would be less than significant with mitigation. There are no project alternatives that would feasibly attain most of the proposed project's basic objectives, but would avoid or substantially lessen any identified significant adverse environmental impacts of the proposed project. Accordingly, the range of project alternatives presents options that would avoid or reduce a less-than-significant impact with mitigation.

As described in Chapter 5, *Alternatives*, two alternatives are evaluated in this EIR:

- Alternative A—No Project Alternative
- Alternative B—Reduced Building Footprint Alternative

As also described in Chapter 5, the EIR also evaluated, but ultimately rejected three alternatives that the District considered, but rejected as infeasible during the scoping and environmental review process.

2.2.2.1 Alternative A: No Project Alternative

Under Alternative A—No Project Alternative, the existing land uses and site conditions at the project site would not change. The existing surface parking lot would remain which has approximately 251 parking spaces. Existing vehicle ingress and egress at the site would remain via the two driveways along Nelson Rising Lane and along Sixth Street. In addition, existing pedestrian access to the project site provided by the sidewalks that surround the site would remain. Alternative A would not preclude potential future development of the project site with a range of land uses that are permitted at the project site.

2.2.2.2 Alternative B: Reduced Building Footprint Alternative

Alternative B—Reduced Building Footprint Alternative would construct a building that is approximately the same height as the proposed project with the same uses, but with a reduced building footprint and approximately 25 percent less square footage. Alternative B includes up to 79,300 square feet compared to up to 105,700 under the proposed project. The construction activities for Alternative B would be similar to the proposed project. The construction schedule for Alternative B may be shorter than the proposed project. In addition, Alternative B would require substantially less ground disturbance near the building footprint and slightly less ground disturbance overall compared to the proposed project. Overall, Alternative B would result in a substantially reduced construction program.

2.2.3 Environmentally Superior Alternative

CEQA Guidelines Section 15126.6(e)(2) requires identification of an environmentally superior alternative (i.e., the alternative that has the fewest significant environmental impacts) from among the other alternatives evaluated if the proposed project has significant impacts that cannot be mitigated to a less-than-significant level. If the No Project Alternative (i.e., Alternative A) is found to be the environmentally superior alternative, the EIR must identify an environmentally superior alternative among the other alternatives.

As with the project, Alternative B would result in significant and unavoidable impact with mitigation related to air quality because the $PM_{2.5}$ concentrations at the project site under Alternative B from roadway, rail, and stationary sources in the area would exceed the BAAQMD threshold applicable to new sensitive receptors (Impact AQ-3). Alternative B would offer a lower level of impact by reducing the site-specific impacts that would be less than significant with mitigation. Specifically, Alternative B would require less ground disturbance, which would reduce impacts to biological resources, cultural resources and tribal resources, greenhouse gas emissions, hazards and hazardous materials, and noise compared to the project. Alternative B is the environmentally superior alternative. However, Alternative B would not meet all of the project objectives.

2.2.4 Areas of Known Controversy and Issues to be Resolved

There are no areas of known controversy and issues to be resolved.

Table 2-1. Summary of Impacts of Proposed Project Identified in the EIR-

Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Air Quality			
Impact AQ-1: The proposed project would not conflict with or obstruct implementation of the applicable air quality plan.	LTS	None required.	NA
Impact AQ-2: The proposed project could result in a cumulatively considerable net increase in any criteria pollutant for which the project region is classified as a nonattainment area under an applicable federal or state ambient air quality standard during construction.	S	**MM AQ-1: Use Clean Diesel-Powered Equipment during Construction to Control Construction-Related Emissions** The District will ensure that all off-road diesel-powered equipment used by the project contractor during construction is equipped with EPA-approved Tier 4 Final engines. The District will submit evidence of the use of EPA-approved Tier 4 Final engines, or cleaner, prior to the commencement of project construction activities. **MM AQ-2: Implement Dust Control Measures and BAAQMD Construction-Related Mitigation Measures** The District will require all construction contractors to implement dust control measures as well as additional construction-related mitigation measures recommended by BAAQMD and included in the Draft Removal Action Work Plan (RAW).[2,3] The emissions reduction measures will include, at a minimum, all of the items listed below. The District will make documentation available to the public to show that these basic construction measures have been reflected in all construction contracts prior to the commencement of project construction activities. ● The project contractor will be required to water all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, unpaved access roads) every 2 hours and maintained with a minimum soil moisture level of 12 percent. Moisture content can be verified by lab samples or a moisture probe.	LTS

[2] Bay Area Air Quality Management District. 2017. *California Environmental Quality Act Air Quality Guidelines.* Table 8-2 and Table 8-*3,* pages 8-4 and 8-5. Available; https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: April 2021.

[3] Ninyo & Moore. *Draft Removal Action Work Plan: Mission Bay South Block 14, Mission Bay Drive at Owens Street, San Francisco, California.* October 23, 2020.

Legend: NI = no impact; LTS = less-than-significant impact, no mitigation required; S = significant; SU = significant and unavoidable impact, no feasible mitigation; SUM = significant and unavoidable impact after mitigation; NA = not applicable

Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• All excavation, grading, and/or demolition activities will be suspended when average wind speeds exceed 20 miles per hour. • All trucks and equipment, including their tires, will be washed off prior to leaving the site. • All haul trucks will be covered when transporting soil, sand, or other loose material offsite. • All visible mud or dirt track-out material on adjacent public roads will be removed using wet-power vacuum-type street sweepers at least once a day. The use of dry-power sweeping is prohibited. • All vehicle speeds will be limited to 15 miles per hour on unpaved roads. • All roadways, driveways, and sidewalks that are to be paved will be paved as soon as possible. Building pads will be laid as soon as possible after grading, unless seeding or a soil binder is used. • All construction equipment will be maintained and properly tuned in accordance with manufacturers' specifications. All equipment will be checked by a certified visible-emissions evaluator.	
Impact AQ-3: The project could expose sensitive receptors to substantial pollutant concentrations.	S	Implementation of MM AQ-1 and MM AQ-2, above. **MM AQ-3: Advanced MERV Filtration** Prior to the start of building construction, the District will submit a ventilation plan to the San Francisco Department of Public Health, consistent with Article 38 of the San Francisco Health Code, showing that all filtration systems onsite will use MERV 14 or better filters (as defined by American Society of Heating, Refrigerating, and Air-Conditioning Engineers [ASHRAE] Standard 52.2). MERV 14 or better filters would reduce particulate matter in the range of 0.3 to 1.0 µm 25 percent more compared with MERV 13 filters, resulting in a total reduction of 75 percent compared to unfiltered air. MERV 14 or better filters would reduce particulate matter in the range of 1.0 to 3.0	SUM

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		µm 5 percent more compared with MERV 13 filters, for a total reduction of 90 percent[4]. The District shall be responsible in replacing each MERV 14 filter every three (3) months, or as often as recommended by the manufacturer. Additionally, all windows on the western and southern side of the proposed building will be inoperable to reduce unfiltered air from entering the building. **MM AQ-4: Outdoor Play Area Siting and Vegetative Barriers** In order to help reduce outdoor PM2.5 concentrations at the outdoor play area, the District will site the outdoor play area on the eastern portion of the project site, as far as feasibly possible from I-280 and the Caltrain railway tracks. Additionally, to the extent feasible, the project sponsor will site the outdoor play area as far as feasibly possible from all roadways and plant native shrubs and trees, to create a vegetative barrier, on the western and southern portion of the project site and the western portion of outdoor play area to help reduce potential outdoor PM2.5 concentrations.	
Impact AQ-4: The proposed project would not result in the other emissions (such as those leading to odors) that would adversely affect a substantial number of people.	LTS	None required.	NA
Impact C-AQ-1: The proposed project in combination with past, present, and reasonably foreseeable future projects could result in a significant cumulative impact on air quality.	S	Implementation of MM AQ-1 and MM AQ-2, above.	LTS

[4] American Society of Heating, Refrigerating, and Air-Conditioning Engineers. 2017. ANSI/ASHRAE Standard 52.2-2017: Table 12-1 Minimum Efficiency Reporting Value (MERV) Parameters. Available: https://www.ashrae.org/ File%20Library/Technical%20Resources/COVID-19/52_2_2017_COVID-19_20200401.pdf. Accessed: May 2021.

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Table 2-2. Summary of Impacts of Proposed Project Identified in the Initial Study- (see Appendix 1.2)

Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Aesthetics			
The proposed project would not have a substantial adverse effect on a scenic vista.	LTS	None required.	NA
The proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	LTS	None required.	NA
The proposed project would not conflict with applicable zoning and other regulations governing scenic quality.	LTS	None required.	NA
The proposed project would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.	LTS	None required.	NA
Agricultural and Forest Resources			
The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.	NI	None required.	NA
The proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract.	NI	None required.	NA
The proposed project would not conflict with existing zoning for, or cause rezoning of forestland, or timberland zoned Timberland Production.	NI	None required.	NA
The proposed project would not result in a loss of forestland or conversion of forestland to non-forest use.	NI	None required.	NA
The proposed project would not involve other changes in the existing environment that, because of their nature, would result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use.	NI	None required.	NA

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Biological Resources			
The proposed project could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	S	**MM BIO-1: Nesting Bird Surveys** The following measure will be implemented prior to and during ground disturbance, as well as preliminary grading activities, at the project site: ● To the extent feasible, the project contractor will conduct initial construction activities outstanding the nesting season (January 15 through August 15), including, but not limited to, tree trimming or tree removal, ground disturbance, demolition, site grading, and other activities that may compromise breeding birds or the success of their nests occurring within or outside the project site. ● If construction must occur during the migratory bird nesting season, a qualified wildlife biologist will conduct preconstruction nesting surveys within 14 days prior to the start of construction or demolition in areas that have not been previously disturbed by project activities or after any construction breaks of 14 days or more. Typical experience requirements for a "qualified biologist" include a minimum of 4 years of academic training and professional experience in biological sciences and related resource management activities and a minimum of 2 years of experience in biological monitoring or surveying for nesting birds. Surveys of suitable habitat will be performed in publicly accessible areas within 100 feet of the project site to locate any active nests of common bird species and within 250 feet of the project site to locate any active nests of raptors (i.e., birds of prey). ● If active nests are located during the preconstruction nesting bird surveys, a qualified biologist will evaluate the construction schedule and location to determine if construction activities could affect an	LTS

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		active nest; if so, the following measures will apply, as determined by the qualified biologist: • If construction would not affect an active nest, construction may proceed without restriction; however, a qualified biologist will regularly monitor the nest at a frequency determined appropriate for the surrounding construction activity to confirm that there would be no adverse effect. The frequency of spot check monitoring would be determined on a case-by-case basis, considering the scope of the particular construction activity, duration, proximity to the nest, and any physical barriers that may screen the nest. The qualified biologist may revise the determination at any time during the nesting season, in coordination with the California Department of Fish and Wildlife. • If it is determined that construction could affect an active nest, the qualified biologist will establish a no disturbance buffer around the nest. All project work will halt within the buffer until the qualified biologist determines that the nest is no longer active. Buffer distances will be equal to the survey distances (i.e., 100 feet for passerines and 250 feet for raptors); however, the buffer may be adjusted if an obstruction, such as a building, is within the line of sight between the nest and construction. • Modifying nest buffer distances, allowing certain construction activities within the buffer, and/or modifying construction methods in proximity to active nests will be done at the discretion of the qualified biologist. • Any work that must occur within established no disturbance buffers will be monitored by a qualified biologist. If adverse effects in response to project work within the buffer are observed that could compromise the nest, work within the no disturbance buffer will halt until the nest occupants have fledged.	

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• Any birds that begin nesting within the project area and survey buffers amid construction activities are assumed to be habituated to construction related or similar noise and disturbance levels. Therefore, exclusion zones around nests may be reduced or eliminated in these cases, as determined by the qualified biologist. Work may proceed around active nests as long as the nests and their occupants would not be directly affected. ● If inactive nests are observed within or adjacent to the project site, removal or relocation of the inactive nests will be at the discretion of the qualified biologist. Work may proceed around inactive nests.	
The proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	NI	None required.	NA
The proposed project would not have a substantial adverse effect on state or federally protected wetlands, including, but not limited to, marsh, vernal pool, coastal areas, etc., through direct removal, filling, hydrological interruption, or other means.	NI	None required.	NA
The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	S	Implementation of MM BIO-1, above.	LTS
The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	NI	None required.	NA

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
The proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	NI	None required.	NA
Cultural Resources			
The proposed project would not cause a substantial adverse change in the significance of a historical resource, pursuant to Section 15064.5.	NI	None required.	NA
The proposed project could cause a substantial adverse change in the significance of an archaeological resource, as defined in Section 15064.5.	S	**MM CUL-1: Stop Work If Archaeological Deposits Are Encountered During Ground-disturbing Activities** During construction (i.e., ground-disturbing activity), should there be an unanticipated archaeological discovery, work will stop within 100 feet of the discovery. A qualified archaeologist will be contacted to assess significance of the find and recommend appropriate measures. Should the discovery include human remains (see MM CUL-2), all parties will comply with federal and state regulations and guidelines regarding the treatment of human remains, including relevant sections of the Native American Graves Protection and Repatriation Act (NAGPRA) (3(c)(d)), California Health and Safety Code Section 8010 et seq., and PRC Section 5097.98, and consult with NAHC, tribal groups, and the SHPO.	LTS
The proposed project could disturb any human remains, including those interred outside of formal cemeteries.	S	**MM CUL-2: Comply with State Laws Relating to Human Remains** Any human remains and related items discovered during the implementation of this project will be treated in accordance with the requirements of Section 7050.5(b) of the California Health and Safety Code. If, pursuant to Section 7050.5(c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery will be treated in accordance with the provisions of PRC Section 5097.98(a)–(d). The project contractor will ensure	LTS

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		that the remains are not damaged or disturbed further until all stipulations in Section 7050.5 and Section 5097.98 have been met. The project contractor will implement the recommendation in accordance with Section 15064.5(e) of the CEQA Guidelines. If human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: 1. The county coroner has been informed by the project contractor and has determined whether investigation of the cause of death is required; and 2. If the remains are of Native American origin: a. The descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98; or b. NAHC was unable to identify a descendent or the descendent failed to make a recommendation within 24 hours after being notified by the commission. c. NAHC recommends a Most Likely Descendent (MLD) to make a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98. According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that excavation be stopped in the vicinity of the discovered human remains until the coroner can determine whether the remains are those of a Native American.	

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Energy			
The proposed project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.	LTS	None required.	NA
The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	LTS	None required.	NA
Geology and Soils			
The proposed project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault.	LTS	None required.	NA
The proposed project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	LTS	None required.	NA
The proposed project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving seismically related ground failure, including liquefaction.	LTS	None required.	NA
The proposed project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides.	NI	None required.	NA
The proposed project would not result in substantial soil erosion or the loss of topsoil.	LTS	None required.	NA
The proposed project would not be located on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.	LTS	None required.	NA

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
The proposed project would not be located on expansive soil creating substantial direct or indirect risks to life or property.	NI	None required.	NA
The proposed project would not have soils that would be incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.	NI	None required.	NA
The proposed project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	LTS	None required.	NA
Greenhouse Gas Emissions			
The proposed project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	S	**MM GHG-1: Require Implementation of BAAQMD-recommended Construction BMPs** The project sponsor will require its project contractors, as a condition of contracts (e.g., standard specifications), to reduce construction-related GHG emissions by implementing BAAQMD's recommended best management practices, including, but not limited to, the following measures, based on BAAQMD's CEQA Air Quality Guidelines (the project sponsor will maintain evidence of compliance from project contractors): • Ensure that alternative-fuel (e.g., biodiesel, electric) construction vehicles/equipment make up at least 15 percent of the fleet. • Ensure that local (i.e., sourced from within 100 miles of the planning area) building materials make up at least 10 percent of overall building materials. • Recycle and reuse at least 50 percent of construction waste or demolition materials.	LTS
The proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	S	Implementation of MM GHG-1, above.	LTS

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Hazards and Hazardous Materials			
The proposed project would not create a significant hazard for the public or the environment through the routine transport, use, or disposal of hazardous materials.	LTS	None required.	NA
The proposed project could create a significant hazard for the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	S	**MM HAZ-1: Implementation of a Health and Safety Plan and Soils Management Plan during Construction** To avoid any exposure of construction personnel, the public, or the environment to contaminated soils, prior to construction activities associated with the proposed project involving ground disturbances and prior to issuance of a grading permit, the project contractor will retain the services of a qualified environmental engineering firm to prepare and implement a health and safety plan, which outlines the safety measures and procedures implemented at sites, and soils management plan, which outlines guidelines for grading and construction projects at sites with contamination issues and ongoing remediation. As specified in the Removal Action Workplan prepared for the proposed project, because of on-site contamination involving soil and soil vapor, a remedial action, consisting of covers and caps for affected soils and a vapor intrusion mitigation system, has been recommended and selected for the proposed project; the remedial action would be implemented prior to project construction. • The health and safety plan would specify pre-field activities, such as utility clearance, along with field activities, such as hazard identification, hazard controls, safe practices, emergency and accident response, employee training and communication, and recordkeeping requirements. • A soils management plan would provide administrative, procedural, and analytical guidance to expedite and clarify decisions and actions as contaminated soils are encountered. The soils management plan will be designed to protect human health and the environment. The plan	LTS

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		will include protocols, measures, and techniques for the proper handling, management, and disposal of affected soils found onsite and in areas of offsite work during soil disturbance activities. The soils management plan will also be designed to protect workers and offsite receptors during site activities and ensure the proper characterization, management, and/or disposal of contaminated environmental media that is found to be above applicable environmental screening levels. The soils management plan will be prepared by a commercial environmental engineering firm with demonstrated expertise and experience in the preparation of such plans and be stamped by an appropriately licensed professional. Moreover, the soils management plan will establish protocols and measures for addressing the discovery of presently unknown environmental conditions or subsurface structures, such as underground storage tanks or sumps. If the environmental engineering firm subsequently identifies the need for further sampling, the project contractor will implement this and any other requirements identified in the soils management plan.	
The proposed project would not emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.	NI	None required.	NA
The proposed project would not be located on a site that is included on a list of hazardous materials pursuant to Government Code Section 65962.5 and, as a result, recrate a significant hazard for the public or the environment.	NI	None required.	NA
The proposed project would not be within an airport land use plan, or where such plan has not been adopted, within 2 miles of a public airport or public	NI	None required.	NA

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
use airport, result in a safety hazard for people residing or working in the project area.			
The proposed project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.	LTS	None required.	NA
The proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	NI	None required.	NA
Hydrology and Water Quality			
The proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.	LTS	None required.	NA
The proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project would impede sustainable groundwater management of the basin.	LTS	None required.	NA
The proposed project would not substantially alter the existing drainage pattern of the site or area, including through alteration of the course of stream or rive or the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation on- or offsite.	LTS	None required.	NA
The proposed project would not substantially alter the existing drainage pattern of the site or area, including through alteration of the course of stream or rive or the addition of impervious surfaces, in a manner that would substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite.	LTS	None required.	NA
The proposed project would not substantially alter the existing drainage pattern of the site or area, including	LTS	None required.	NA

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
through alteration of the course of stream or rive or the addition of impervious surfaces, in a manner that would create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources or polluted runoff.			
The proposed project would not substantially alter the existing drainage pattern of the site or area, including through alteration of the course of stream or rive or the addition of impervious surfaces, in a manner that would impede or redirect floodflows.	LTS	None required.	NA
The proposed project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.	LTS	None required.	NA
The proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	LTS	None required.	NA
Land Use and Planning			
The proposed project would not physically divide an established community.	NI	None required.	NA
The proposed project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	LTS	None required.	NA
Mineral Resources			
The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	NI	None required.	NA
The proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	NI	None required.	NA

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Noise			
The proposed project could 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 plans or noise ordinance or applicable standards of other agencies.	S	**MM NOI-1: Measures to Reduce Noise Outside Standard Construction Hours in San Francisco** The project contractor will incorporate the following measures when nighttime construction is proposed: Require all equipment used outside standard daytime hours (e.g., 7:00 a.m. to 8:00 p.m. daily) be located at least 200 feet from the nearest sensitive use (e.g., the nearby UCSF Orthopedic Trauma Center and residential building northeast of the intersection of Sixth Street and Mission Bay Boulevard North). Require all construction equipment be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) that are in good condition (at least as effective as those originally provided by the manufacturer) and appropriate for the equipment. Maintain all construction equipment to minimize noise emissions. Locate construction equipment as far as feasible from adjacent or nearby noise-sensitive receptors. Prohibit the use of impact tools (e.g., jack hammers) during nighttime/non-standard hours. Prohibit idling of inactive construction equipment for prolonged periods during nighttime/non-standard hours (i.e., more than 2 minutes), as feasible. Provide advance notification in the form of the mailings/deliveries of notices to surrounding land uses regarding the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period. Provide the name and telephone number of an onsite construction liaison. If nighttime construction noise is found to be intrusive to the community (i.e., if complaints are received), the construction liaison will take reasonable efforts	LTS

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		to investigate the source of the noise and require that reasonable measures be implemented to correct the problem. **MM NOI-2: Measures to Reduce Noise from Heating, Cooling, and Ventilation Equipment** To reduce potential noise effects resulting from project heating, cooling, and ventilation equipment, a noise analysis shall be prepared to estimate the actual noise levels of the project-specific equipment once the models and design features to attenuate noise have been selected. The analysis shall be prepared by persons qualified in acoustical analysis and/or engineering prior to the issuance building permits and shall demonstrate with reasonable certainty that the mechanical equipment selected for the project, as well as the attenuation features incorporated into project design, will not result in interior noise levels at nearby receptors in excess of 45 dBA Leq during the nighttime and 55 dBA Leq during the daytime. Options for reducing noise from heating and cooling equipment include enclosing the equipment in mechanical equipment rooms, shielding equipment with mechanical screens at least as tall as the equipment, citing the equipment farther from adjacent receptors, and selecting quieter models. All recommendations from the acoustical analysis necessary to ensure that noise sources meet the above standards shall be incorporated into the building design. **MM NOI-3: Measures to Reduce Interior Noise at the Project Site** To ensure acceptable interior noise levels at the proposed school, which would be near loud noise sources, including I-280 and Caltrain tracks, an analysis shall be conducted to demonstrate that interior noise levels at the school, with incorporation of the proposed building materials, would be below 45 dBA at the portion of the project site closest to I	

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		280. This analysis shall be conducted prior to the issuance of building permits. This analysis cannot currently be conducted because the proposed building has not yet been constructed. To reduce interior noise, the project contractor shall ensure that doors and windows will be fitted properly; openings shall be caulked to ensure adequate insulation from exterior noise. In addition, STC-rated doors and windows shall be selected, according to measured noise levels at the project site, to ensure that interior noise (with windows and doors closed) resulting from exterior noise sources (e.g., highway traffic and rail operations) will be below 45 dBA. Because the project proposes the installation of air-conditioning equipment with Minimum Efficiency Reporting Value (MERV) 14 filters or better, the proposed STC-rated windows and doors will be able to remain closed and ensure that an adequate noise reduction will be achieved. All recommendations from the acoustical analysis necessary to ensure that noise sources meet the above standards shall be incorporated into the building design.	
The proposed project would not generate excessive ground-borne vibration or ground-borne noise levels.	LTS	None required.	NA
The proposed project would not be located in the vicinity of a private airstrip or airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.	NI	None required.	NA
Population and Housing			
The proposed project would not induce substantial unplanned population growth in an area, either directly or indirectly.	LTS	None required.	NA

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
The proposed project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.	NI	None required.	NA
Public Services			
The proposed project would not result in substantial adverse impacts associated with the provision of new or physically altered government facilities or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: a. Fire Protection	LTS	None required.	NA
b. Police Protection	LTS	None required.	NA
c. Schools	LTS	None required.	NA
d. Parks	LTS	None required.	NA
e. Other Public Facilities	LTS	None required.	NA
Recreation			
The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated.	LTS	None required.	NA
The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.	LTS	None required.	NA
Transportation			
The proposed project would not conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	LTS	None required.	NA

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Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
The proposed project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).	LTS	None required.	NA
The proposed project would not substantially increase hazards due to a geometric design feature or incompatible land uses.	LTS	None required.	NA
The proposed project would not result in inadequate emergency access.	LTS	None required.	NA
The proposed project would not conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways.	LTS	None required.	NA
Tribal Cultural Resources			
The proposed project could cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe and that is: a. Listed in, or eligible for listing in, the CRHR or a local register of historical resources, as defined in PRC Section 5020.1 (k)	S	**MM TCR-1: Stop Work if Precontact or Historic-period Cultural Materials are Encountered During Ground-disturbing Activities** If precontact or historic-period cultural materials are unearthed during ground-disturbing activities, all work within 50 feet of the find will halt until a qualified archaeologist and Native American representative can assess the significance of the find. If the find is determined to be a potentially significant TCR, the project contractor will cause the archaeologist, in consultation with the Native American representative, to develop a treatment plan, which could include site avoidance, capping, or data recovery. The project contractor or the appropriate agency will be responsible for ensuring that recommendations regarding treatment and reporting are implemented.	LTS
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to	S	Implementation of MM TCR-1, above.	LTS

Legend: NI = no impact; LTS = less-than-significant impact, no mitigation required; S = significant; SU = significant and unavoidable impact, no feasible mitigation; SUM = significant and unavoidable impact after mitigation; NA = not applicable

Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
criteria set forth in subdivision (c) of PRC section 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe.			
Utilities and Service Systems			
The proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects.	LTS	None required.	NA
The proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during dry and multiple dry years.	LTS	None required.	NA
The proposed project would result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	LTS	None required.	NA
The proposed project would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure or otherwise impair attainment of solid waste reduction goals.	LTS	None required.	NA
The proposed project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	LTS	None required.	NA
Wildfire			
The proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan.	NI	None required.	NA
The proposed project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope,	NI	None required.	NA

Legend: NI = no impact; LTS = less-than-significant impact, no mitigation required; S = significant; SU = significant and unavoidable impact, no feasible mitigation; SUM = significant and unavoidable impact after mitigation; NA = not applicable

Environmental Impacts	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
prevailing winds, or other factors that would exacerbate wildfire risks.			
The proposed project would not require the installation or maintenance of associated infrastructure, such as roads, fuel breaks, emergency water sources, power lines, or other utilities, that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment.	NI	None required.	NA
The proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.	NI	None required.	NA

Legend: NI = no impact; LTS = less-than-significant impact, no mitigation required; S = significant; SU = significant and unavoidable impact, no feasible mitigation; SUM = significant and unavoidable impact after mitigation; NA = not applicable

CHAPTER 3.0 PROJECT DESCRIPTION

3.1 PROJECT OVERVIEW

The project proposes demolition of a surface parking lot. In its place, the District would construct a multistory (maximum of 63 feet tall), approximately 105,700-square-foot school. The proposed facility would include a preschool, transitional kindergarten, kindergarten through fifth grade elementary school, linked learning hub,[1] professional learning space,[2] outdoor learning area, outdoor play area, and paved surface parking lot with nine parking spaces.

3.1.1 Project Objectives

The District has identified the following objectives for the project:

- Construct a new school to serve the new housing development that has occurred in Mission Bay;
- Alleviate classroom overcrowding and accommodate an increasing school student population across the District;
- Build and maintain a state-of-the-art elementary school campus that reflects the efficient use of limited land and public resources;
- Provide safe, efficient, and adequate school site access, circulation, and parking areas for students and District staff;
- Offer and expand recreational and extracurricular opportunities to supplement education opportunities within the District; and
- Provide a location for professional development opportunities for District faculty and staff.

3.2 PROJECT LOCATION

The project site contains portions of two parcels (block/lot): block 8709, lot 011, and block 8711, lot 007.[3] The project site is on the block bounded by Mission Bay Boulevard South to the north, Sixth Street (privately owned by the University of California) to the east, Nelson Rising Lane (privately owned by the University of California) to the south, and Owens Street to the west in the Mission Bay neighborhood in the northeastern quadrant of San Francisco (**Figure 3-1**). The project site is surrounded primarily by institutional land uses and parking lots associated with the University of California, San Francisco at Mission Bay campus as well as recreational uses (**Figure 3-2**).

3.3 EXISTING SITE CONDITIONS

The square-shaped project site is approximately 365 feet wide and 334 feet long, covering an area of approximately 2.45 acres (107,230 square feet). The project site ranges from 7 to 12 feet above mean sea level and is relatively flat.[4]

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1 A *linked learning hub* would allow high school students to participate in job training, internships, and business partnerships. The linked learning-hub students would include a morning cohort and an afternoon cohort.

2 P*rofessional learning space* would allow educators to participate in training.

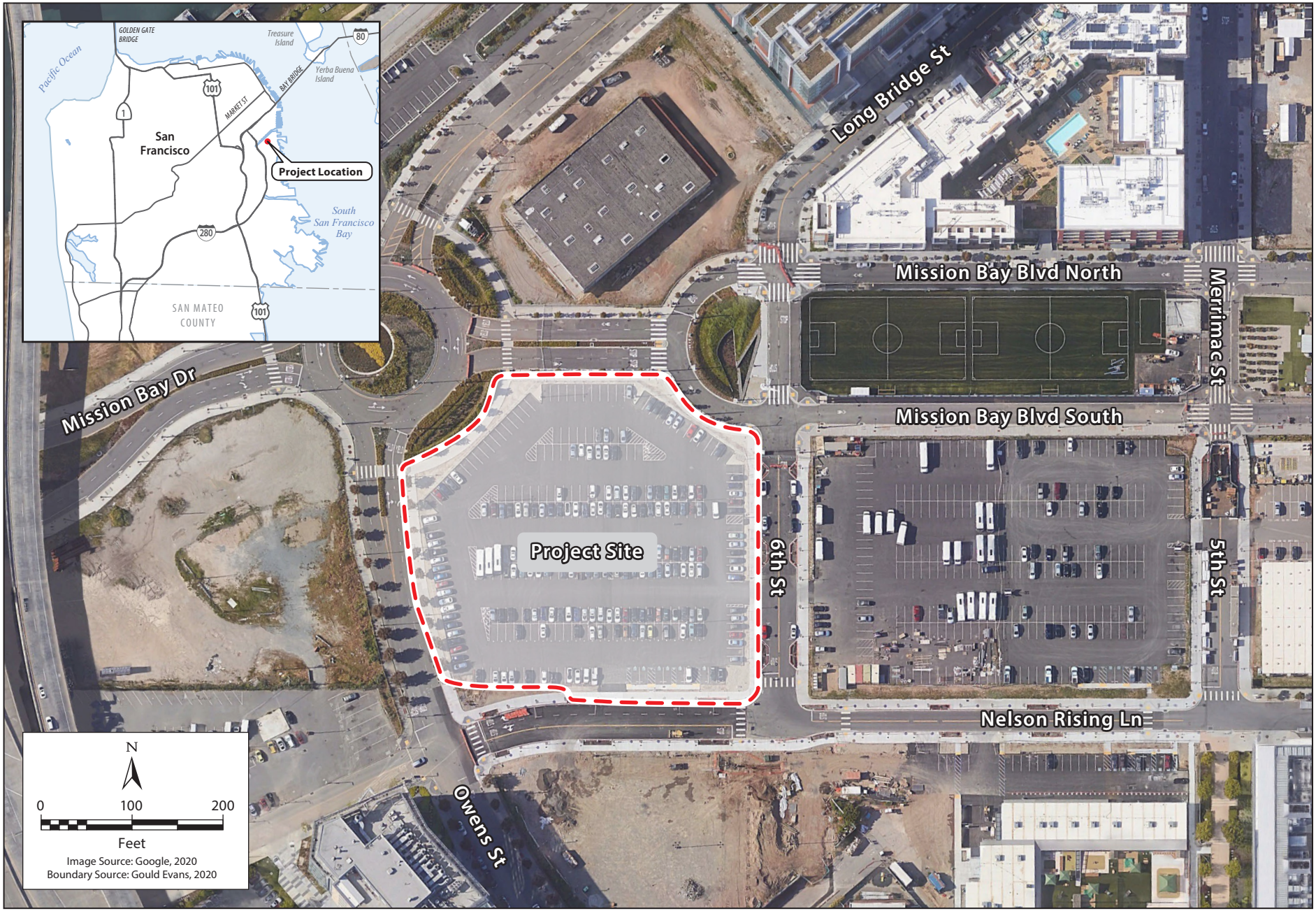
3 As part of the project, the project site would be merged into one parcel.

4 Ninyo & Moore*, Geotechnical Evaluation & Geologic Hazards Assessment: Mission Bay School, South Block 14, San Francisco, California,* May 6, 2020.

The project site currently contains a paved surface parking lot with approximately 251 parking spaces. Approximately 90 percent of the project site is currently covered with impervious surfaces. Existing vehicle ingress and egress at the site is provided by two driveways, one along Nelson Rising Lane and one along Sixth Street. Existing pedestrian access to the project site is provided by the sidewalks that surround the site. A fence surrounds most of the project site.

3.3.1 Existing Utilities

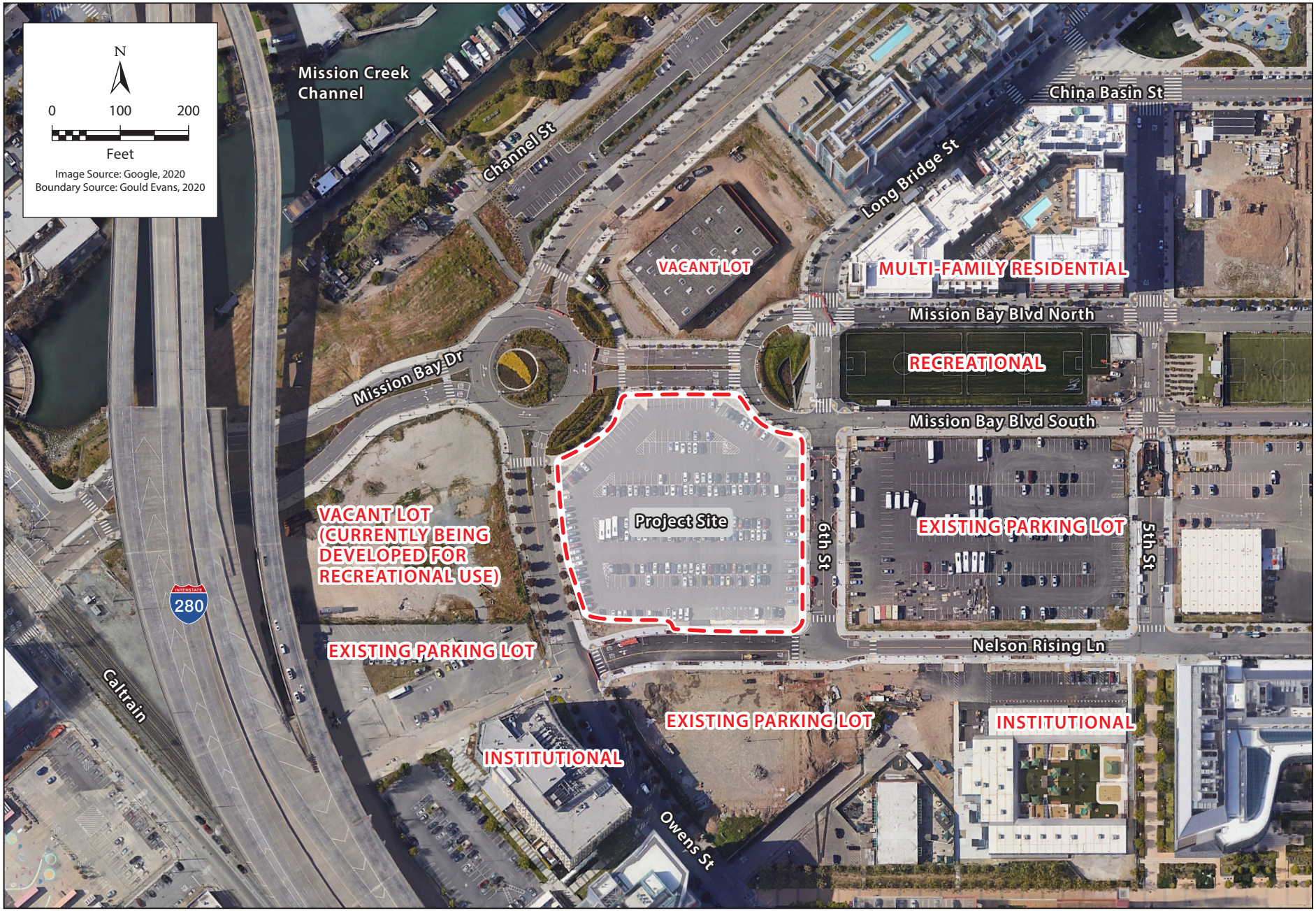
There are abandoned utility lines within the project site, including Pacific Gas & Electric, data/telecommunications, and combined sewer lines. Existing water facilities in the vicinity of the project site include a 12-inch water line in Owens Street and a 12-inch water line in Mission Bay Boulevard South. The water facilities in Fifth Street and Sixth Street are currently unknown. There is a 3-inch low-pressure water line (private) in Nelson Rising Lane. Existing fire-related water facilities in the vicinity of the project site include a 12-inch auxiliary water supply system line in Owens Street and a 12-inch auxiliary water supply system line in Mission Bay Boulevard South. A 12-inch fire water line (private) in Nelson Rising Lane, a 12-inch fire water line (private) in Sixth Street. Existing recycled water facilities in the vicinity of the project site include an 8-inch recycled water line in Owens Street and an 8-inch recycled water line in Mission Bay Boulevard South that terminates near the north east corner of the site; the recycled water facilities in Fifth Street, Sixth Street, and Nelson Rising Lane are currently unknown. Existing sewer facilities in the vicinity of the project site include a 15-inch sewer line in Owens Street, an 18-inch sewer line in Mission Bay Boulevard South, and an 8-inch sewer line (private) in Sixth Street, an 8-inch sewer line (private) in Nelson Rising Lane; the sewer facilities in Fifth Street are currently unknown. Existing storm drain facilities in the vicinity of the project site consist of a 12-inch storm drain in Owens Street near the southwest corner of the site, a 12-inch storm drain in Owens Street near the northwest corner of the site, a 48-inch storm drain in Mission Bay Boulevard North, and a 12-inch storm drain (private) in Sixth Street, an 18-inch storm drain (private) in Nelson Rising Lane.



Graphics ... 00385.19 (12-30-20) JC

Mission Bay School Project

Figure 3.0-1
Project Location



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Mission Bay School Project

Figure 3.0-2
Aerial Photograph and Surrounding Land Uses

3.3.2 Historical Site Uses and Contaminants of Concern

The project site is part of Mission Bay, which has a prior history of industrial development. Between the late 1800s and mid-2000s, the project site contained a lumber yard, a dwelling, a saloon, wine storage and lumber storage, a "pond", a baled hay warehouse, a cotton shed, a corral and a wagon shed, a tool house, truck/equipment storage, and a Southern Pacific Company warehouse.[5] By the mid-2000s, the southern portion of the project site appears to have been planted with vegetation. Between approximately 2009 and 2016, the project site was graded several times and used for storage of vehicles and/or equipment. By 2017, the project site was developed into an asphalt paved parking lot.

Based on investigations performed for the project site, the contaminants of concern (COC) in soil at the site are polynuclear aromatic hydrocarbons (PAHs) and metals including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, hexavalent chromium, arsenic, lead and mercury; the COCs are likely a result of the artificial fill used at the project site and/or historical site uses. The COCs in soil gas at the site are benzene, chloroform, naphthalene, TPH, and methane, which are also likely a result of the artificial fill used at the project site and/or historical site uses.

3.3.3 Existing Zoning and Height and Bulk District

On August 24, 2021, the District's Governing Board adopted a Resolution pursuant to Government Code section 53094, exempting the project from local zoning ordinances. Thus, such ordinances are inapplicable to the proposed project. Additionally, the California Supreme Court has held that public schools generally are a matter of statewide rather than local or municipal concern, and when they are engaged in sovereign activities, they are not subject to local regulation unless mandated by the Constitution or the Legislature. (*Hall v. City of Taft* (1956) 47 Cal.2d 177.) The following zoning and height and bulk district information is provided for informational purposes. Under the San Francisco Planning Code, the project site is zoned Mission Bay Redevelopment Area (MB-RA); the site is in the MB-RA height and bulk district (**Figure 3-3**). In addition, the project site is on development block 14 under the *Redevelopment Plan for the Mission Bay South Redevelopment Project*.[6] The project site is also designated as Mission Bay Community Facilities (MB-CF) are zoned HZ-9 under the redevelopment plan. According to the redevelopment plan, the MB-CF designation consists of land uses, other than housing sites or open space, owned by a government agency or other public or semi-public entity in some form of public or semi-public use. Uses permitted under this designation include fire and police stations, open lots or enclosed storage areas, railroad tracks and related facilities, and other public structures or uses.

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[5] Ninyo & Moore. *Draft Removal Action Work Plan: Mission Bay South Block 14, Mission Bay Drive at Owens Street, San Francisco, California.* October 23, 2020.

[6] Office of Community Investment and Infrastructure, *Redevelopment Plan for the Mission Bay South Redevelopment Project,* 2018*,* https://sfocii.org/sites/default/files/Redevelopment%20Plan%20for%20the%20Mission%20Bay%20South%20Redevelopment%20Project_March_6_2018_0.pdf, accessed November 23, 2020.

Graphics ... 00385.19 (12-30-20) JC

Mission Bay School Project

Figure 3.0-3
Height and Bulk Limits

3.4 PROJECT CHARACTERISTICS

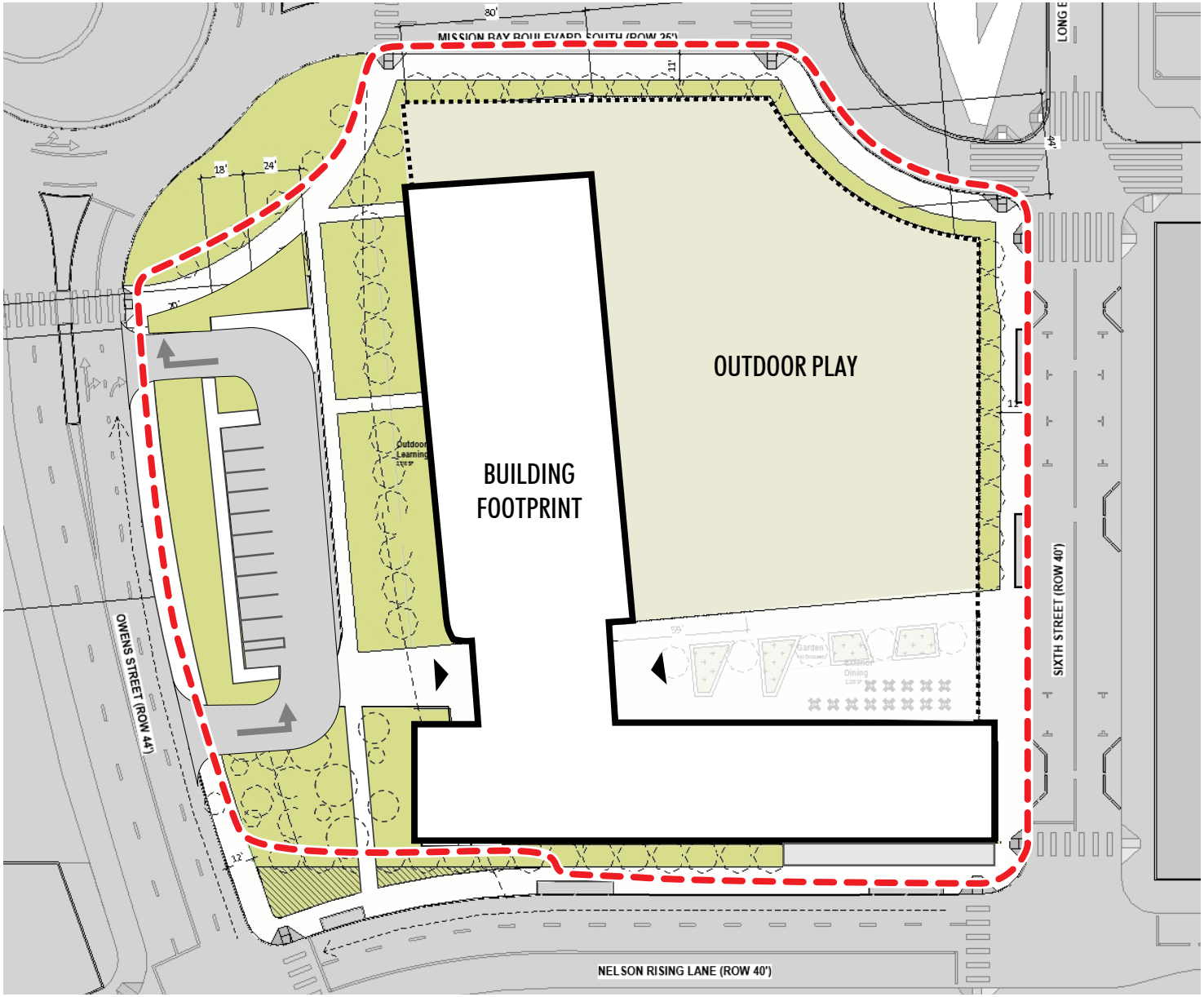
The project proposes demolition of a surface parking lot. The project would include construction of a multistory (maximum of 63 feet tall), approximately 105,700-square-foot school.[7] The proposed facility would include a preschool, transitional kindergarten, kindergarten through fifth grade elementary school, linked learning hub, professional learning space, outdoor learning area, outdoor play area, and paved surface parking lot with nine parking spaces. **Figure 3-4** shows the conceptual site plan. **Figures 3-5** through **3-8** show the project building elevations. **Table 3-1** summarizes the features of the proposed project.

The proposed building would consist of a west wing and a south wing. The west wing would be four stories tall, with a maximum building height of 63 feet (76 feet when accounting for the mechanical features). The south wing would be two stories tall, with a maximum building height of 30 feet. The building would include up to approximately 60,200 square feet for classrooms, up to approximately 18,100 square feet for linked learning hub classrooms, and up to approximately 4,200 square feet for professional learning spaces. The building would also include up to approximately 9,300 square feet for a multi-purpose room, up to approximately 6,600 square feet for a kitchen, and up to approximately 3,400 square feet for administrative uses. The first level of the building would include most of the support space (i.e., multi-purpose room, kitchen, administrative uses, etc.) as well as some classroom space. **Figure 3-9** shows the proposed level 1 building plan. The second through fourth levels of the building would include most of the classroom and professional learning space.

Exterior building materials would consist primarily of wood-like material and metal panels, glazed windows, steel fabrications, brick masonry, and railings. The metal panels would be painted and interspersed with wood-tone panels. The main pedestrian entrance, located along the western portion of the building, would include 24-foot sliding glass doors and a professional art installation on either side of the doors. Windows with both transparent glass and fritted glass[8] would be located on all sides and all floors of the proposed building. The rooftop above the second floor of the south wing would be enclosed with a galvanized steel fence with chain link that would be painted. Downlighting would be provided at entries and exits, and post-mounted lighting would be provided on the perimeter and in the outdoor learning and dining areas.

[7] As the design of the proposed project is refined, the building footprint may be reduced and the size of the outdoor play area may increase. For the purposes of the analysis in this initial study and to provide a conservative analysis, the maximum building square footage (approximately 105,700 square feet) and minimum outdoor play area square footage (54,600 square feet) are assumed.

[8] *Fritted glass* is opaque glass that oftentimes features decorative prints.



Legend

Project Site

Notes: ROW = right-of-way; ' = feet
This conceptual site plan shows the maximum building footprint. The building footprint may be reduced and the outdoor play area may increase.

N

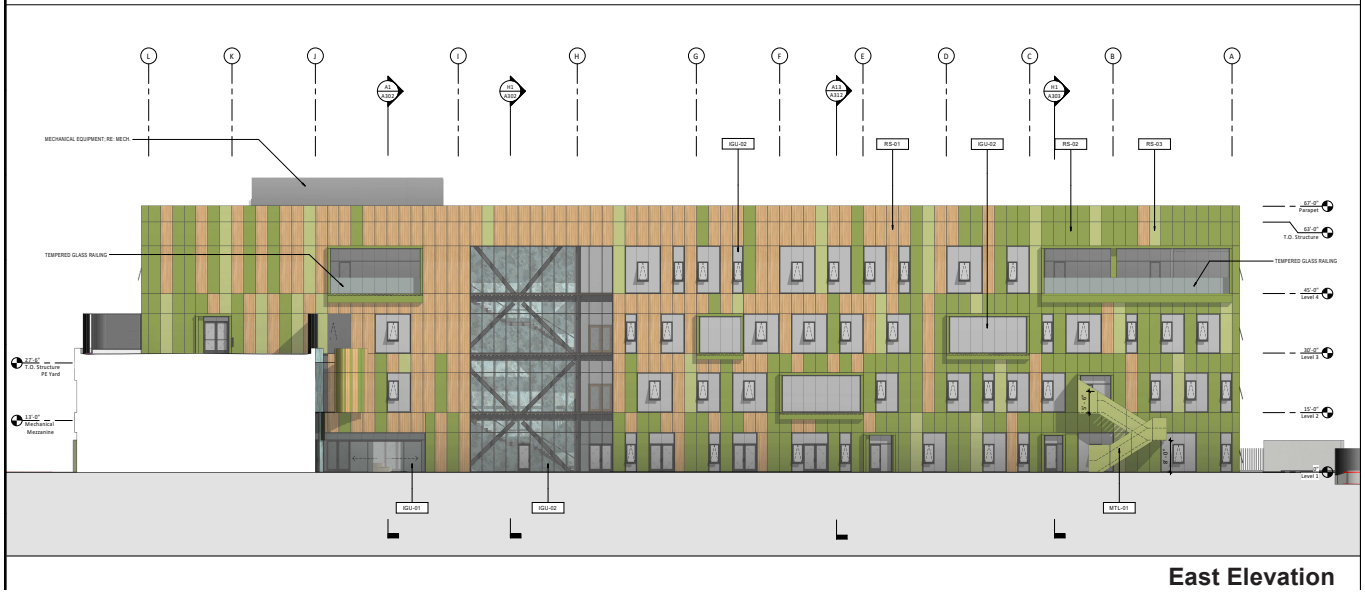
Not to scale.

Source: Gould Evans, 2020.

Graphics ... 00385.19 (12-30-20) JC

Mission Bay School Project

Figure 3.0-4
Conceptual Site Plan



Source: Gould Evans, 2020.

N

Not to scale.

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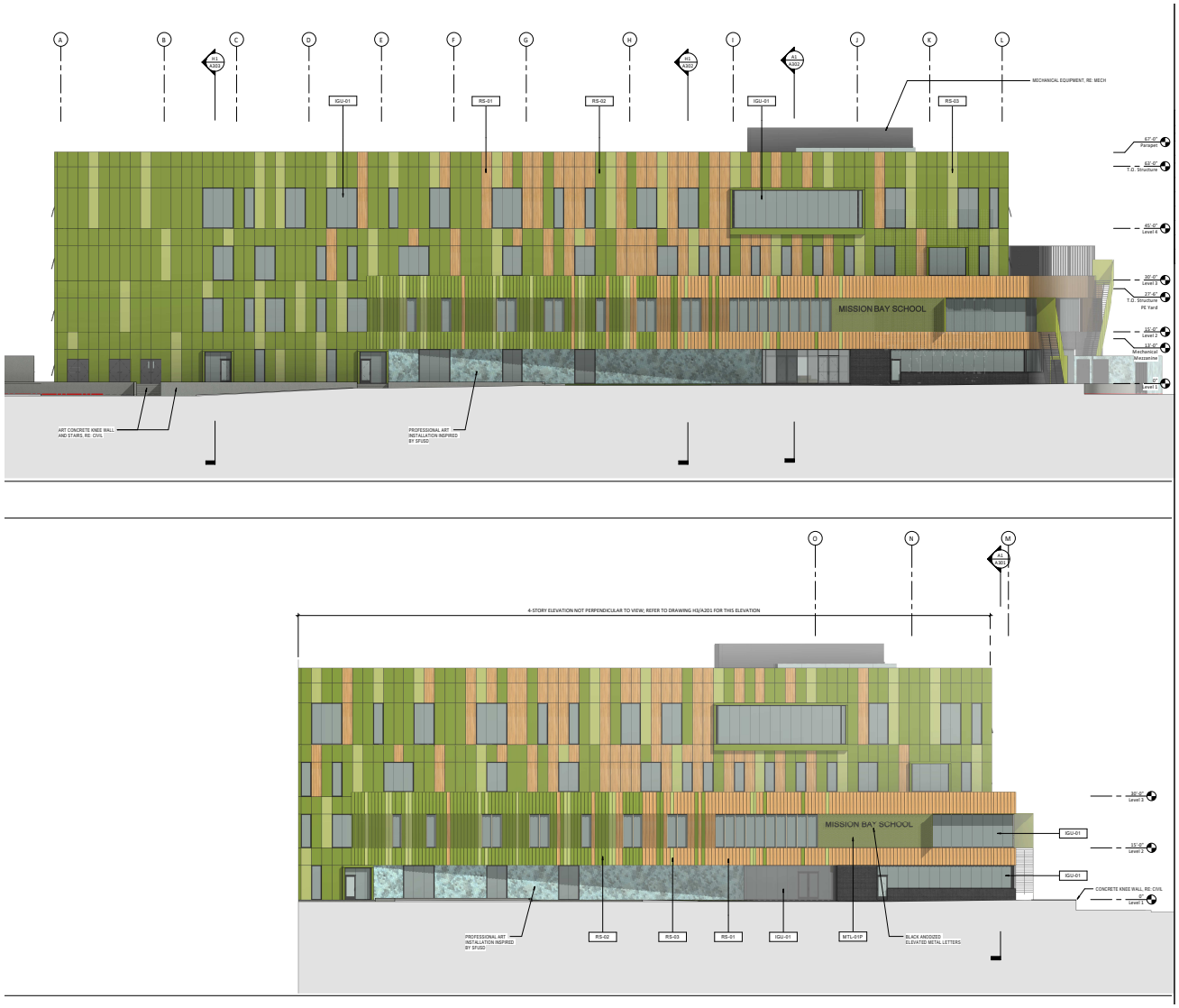
Mission Bay School Project

Figure 3.0-5
North and East Building Elevations



Source: Gould Evans, 2020.

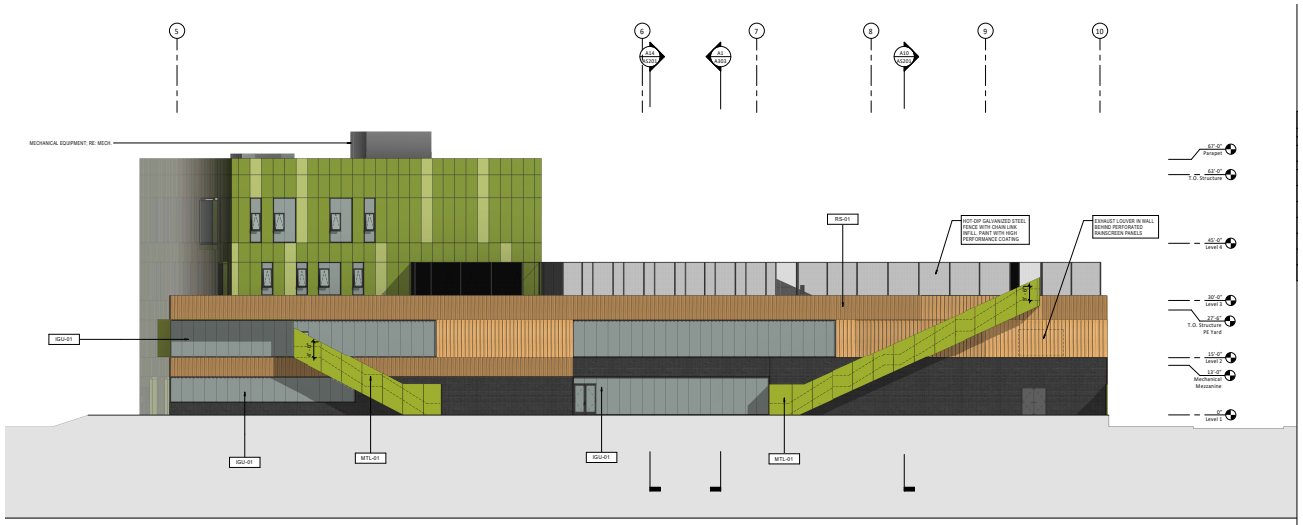
N

Not to scale.

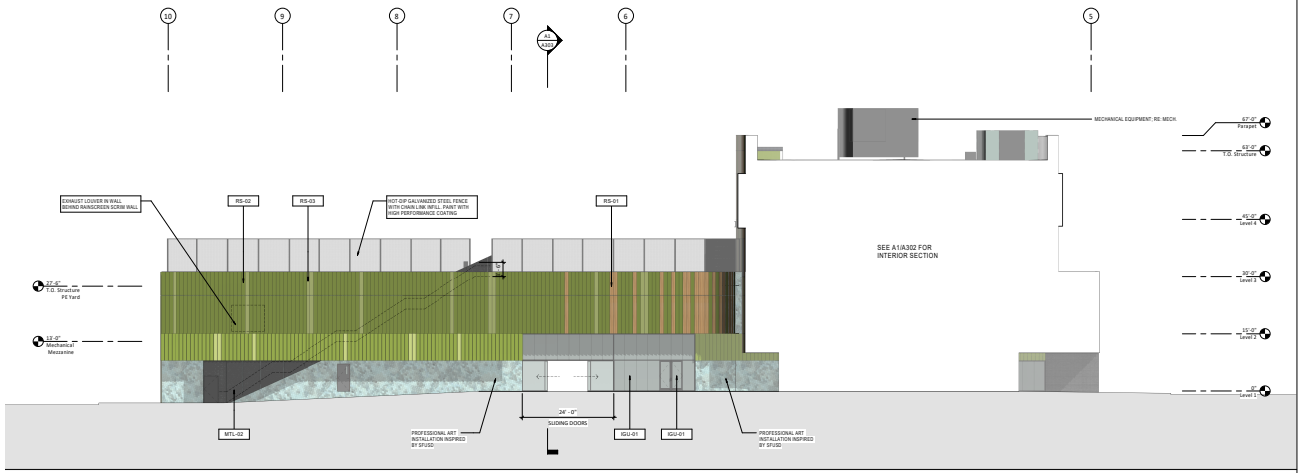
Graphics ... 00385.19 (12-2-20) JC

Mission Bay School Project

Figure 3.0-6
West Building Elevations



South Elevation



North Elevation

Source: Gould Evans, 2020.

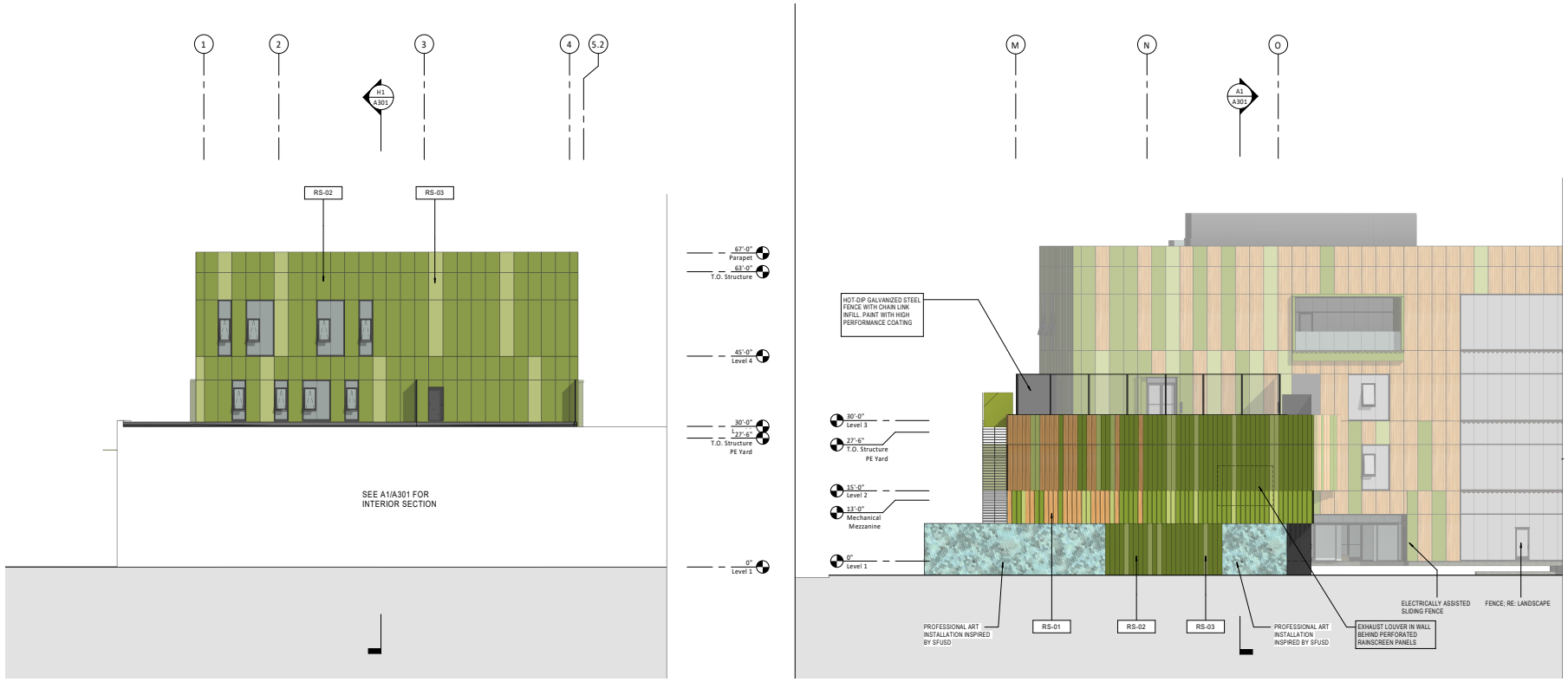
N

Not to scale.

Graphics ... 00385.19 (12-30-20) JC

Mission Bay School Project

Figure 3.0-7
South and North Building Elevations



Source: Gould Evans, 2020.

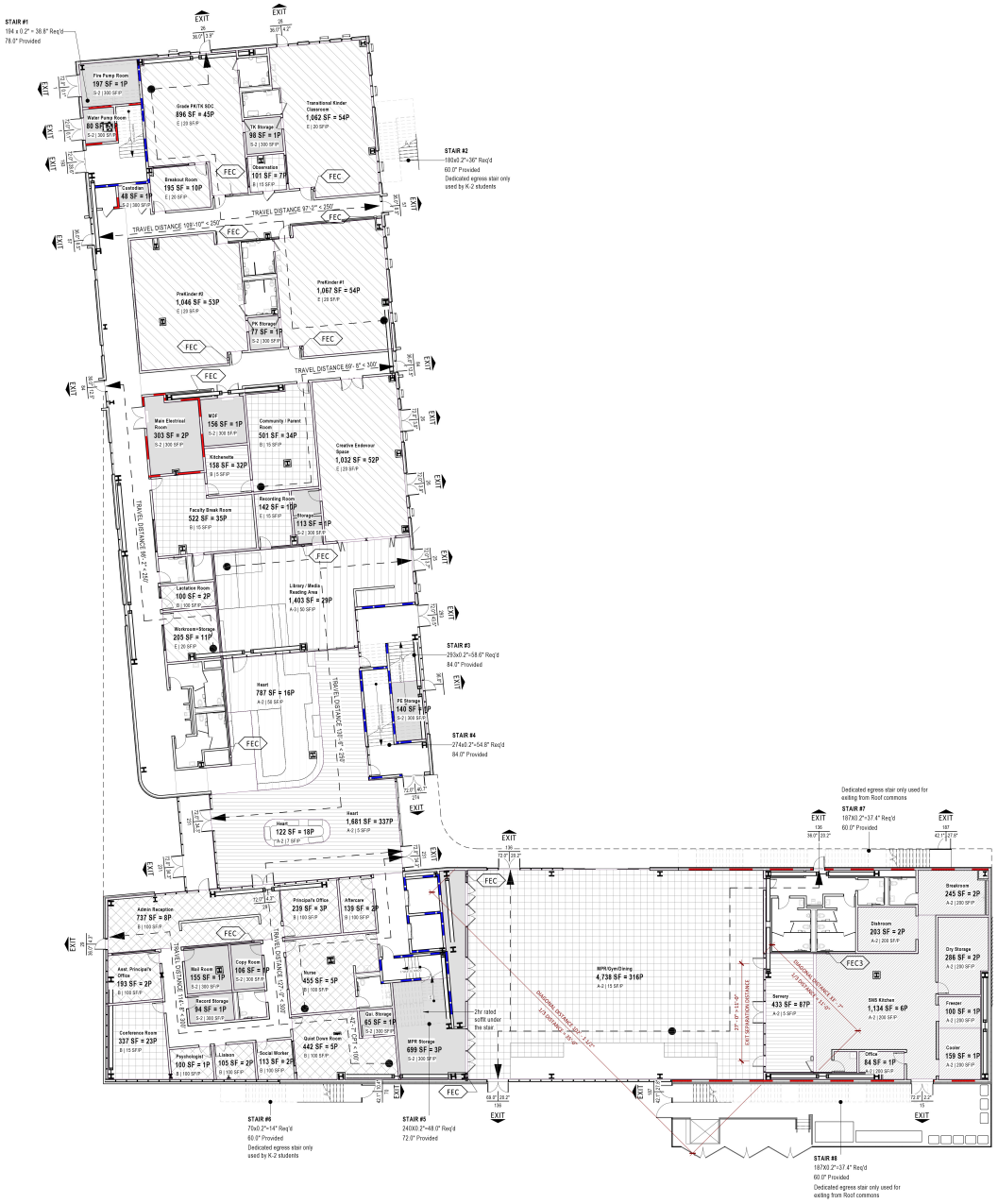
N

Not to scale.

Graphics ... 00385.19 (12-2-20) JC

Mission Bay School Project

Figure 3.0-8
East Building Elevations



Source: Gould Evans, 2020.

Not to scale.

Graphics ... 00385.19 (12-2-20) JC

Mission Bay School Project

Figure 3.0-9
Proposed Level 1 Building Plan

TABLE 3-1. PROJECT CHARACTERISTICS

Proposed Uses[a]	
Classrooms	60,200 square feet
Linked Learning Hub Classrooms	18,100 square feet
Multi-Purpose Room	9,300 square feet
Kitchen	6,600 square feet
Professional Learning Space	4,200 square feet
Administration	3,400 square feet
Support Space[b]	3,900 square feet
Total	***105,700 square feet***
Play Area[c]	54,600 square feet
Building Height[d]	Maximum of 63 feet (76 feet with mechanical features)
Number of Stories	Maximum of four stories
Vehicle Parking	Nine vehicle spaces, including two Americans with Disabilities Act–compliant accessible spaces
Bicycle Parking[e]	Class I: 16 bicycle spaces Class II: 64 bicycle spaces
Trees[f]	31 trees, accounting for the 11 trees to remain, four trees to be removed, and 20 new trees to be planted

Source: Gould Evans 2020.

a. Square footage has been rounded. As the design of the proposed project is refined, the building footprint may be reduced and the size of the outdoor play area may increase. For the purposes of the analysis in this Initial Study and to provide a conservative analysis, the maximum building square footage (approximately 105,700 square feet) and minimum outdoor play area square footage (54,600 square feet) are assumed.

b. The support space total includes the following areas: restrooms, mechanical uses, back-of-house, and circulation.

c. The play area total includes the approximately 10,800-square-foot physical education yard.

d. The height provided in parentheses includes the proposed height of the building, including the top of the mechanical features, which is exempt from the measurement of building height under the planning code.

e. As defined by the San Francisco Planning Code (section 155.1[a]), Class I spaces are "spaces in secure, weather-protected facilities intended for use as long-term, overnight, and work-day bicycle storage by dwelling unit residents, nonresidential occupants, and employees," and Class II spaces are "spaces located in a publicly accessible, highly visible location intended for transient or short-term use by visitors, guests, and patrons to the building or use."

f. The proposed project would plant between 20 and 30 trees. For the purposes of the analysis in this Initial Study and to provide a conservative analysis, the minimum number of trees to be planted (20 trees) is assumed.

The approximately 54,600-square-foot outdoor play area would be east of the proposed building. The outdoor play area would accommodate up to 12 tables with approximately 84 seats and include separate areas for pre-kindergarten, kindergarten, and grades one through five. One outdoor classroom for up to 30 students at a time could occur in the outdoor play area. More children would use the outdoor play area during physical education classes and recesses. No sound amplification would be used for outdoor classroom activities. Occasional community functions could also occur in the outdoor play area up to one time per week. Such functions could include up to 50 people and involve sound amplification.

3.4.1 Landscaping

The proposed project would plant between 20 and 30 trees. There would be a total of 31 trees within the project site, accounting for the four existing trees that would be removed, 11 existing trees that would be retained, and minimum of 20 new trees that would be planted.[9] Most of the new trees would be planted along the eastern and southern perimeters of the project site, within the proposed outdoor play area, immediately west of the proposed building, and within the proposed surface parking lot. Tree protection measures would be employed to preserve the existing trees. In addition, shrubs and ground cover would be planted throughout the project site. Native plants and plants with low irrigation requirements would be used on the site and grouped into hydro zones, based on water demand. **Figure 3-10** shows the conceptual landscaping plan. With project implementation, approximately 76 percent of the project site would be covered with impervious surfaces.

3.4.2 Circulation, Access, and Parking

Two existing driveways would be removed and replaced with sidewalks. Vehicle ingress and egress at the site would be provided by two new driveways along Owens Street; the northern driveway would be approximately 25 feet wide, and the southern driveway would be approximately 20 feet wide. The drop-off/pickup lot for passenger vehicles for the preschool and transitional kindergarten school students would be west of the proposed building. Nine vehicle parking spaces would be provided within the drop-off/pickup lot, including two accessible parking spaces for Americans with Disabilities Act. (ADA)-compliant vehicles. ADA drop-off areas would be within the drop-off/pickup lot and along Sixth Street. The drop-off/pickup area for passenger vehicles for the elementary school students and linked learning hub students would be at the white curb along Sixth Street. The proposed project would also include a 21-foot-wide curb cut along Sixth Street. The proposed project may include one on-street commercial loading space, a yellow lane adjacent to the project site along Nelson Rising Lane for service deliveries. **Figure 3-11** shows the conceptual access plan.

Bicycle access to the project site would be provided immediately south of the drop-off/pickup lot, along Mission Bay Boulevard South near the roundabout, and along Sixth Street. The proposed project would include 16 Class I bicycle spaces would be provided for the staff in an enclosed area with a lockable fence and 38 Class II bicycle spaces would be provided on the site for students. In addition, 26 Class II bicycle spaces would be provided for visitors.

Pedestrian access to the project site would be provided by existing sidewalks around the perimeter of the project site. The proposed project would include new sidewalks near the proposed driveways. The proposed project may include new sidewalks along Sixth Street near the proposed bioretention areas and the drop-off/pickup area.

3.4.3 Mechanical Equipment

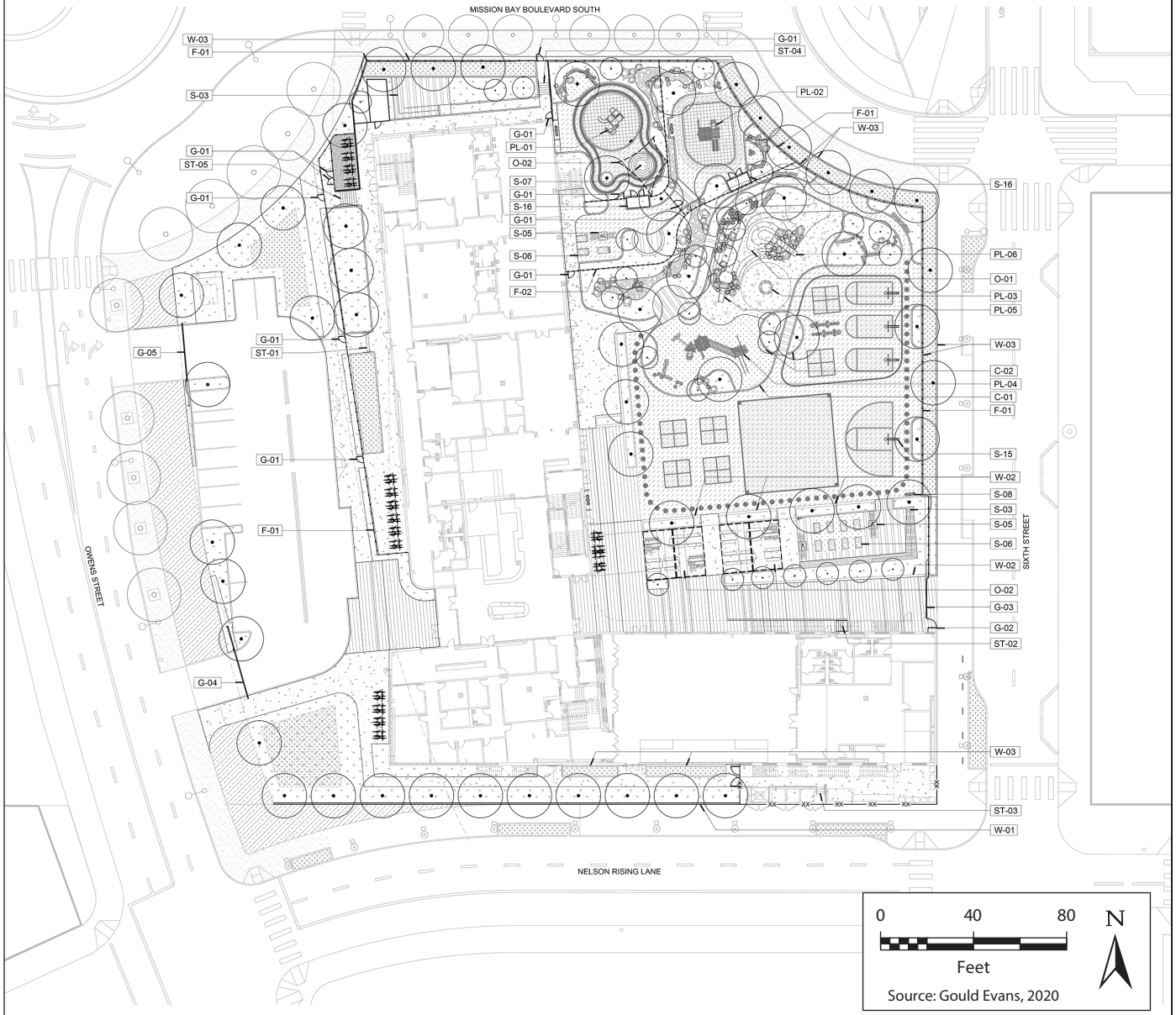
An electric pump for fire-related water and a booster pump for domestic water would be located on level 1 of the building. Ventilation fans and kitchen exhaust fans, which would discharge through louvers on the second floor, would be in the mechanical mezzanine (room 238) above the kitchen. The roof would include the cooling towers, the main air handling unit, one air-cooled heat pump chiller, four recirculating pumps, and one exhaust fan. A commercial composter would be located on the exterior of level 1 of the building near room 150.

[9] The proposed project would plant between 20 and 30 trees. For the purposes of the analysis in this Initial Study and to provide a conservative analysis, the minimum number of trees to be planted (20 trees) is assumed.

Legend

CURB	**C-01**	CONCRETE CURB, FLUSH
	C-02	CONCRETE CURB, 6" HIGH
FENCE	**F-01**	FENCE, 6` TALL
	F-02	FENCE, 4` TALL
	F-03	FENCE, 10` TALL (SAD
	F-04	SCREENING FENCE (SAD)
GATE	**G-01**	SINGLE SWING GATE, 3` WIDE PEDESTRIAN
	G-02	SINGLE SWING GATE, 4` WIDE PEDESTRIAN
	G-03	VEHICULAR GATE, 16` WIDE
	G-04	VEHICULAR GATE, 22` WIDE
	G-05	VEHICULAR GATE, 31` WIDE
AMENITIES AND STRUCTURES	**O-01**	PLAY MOUND
	O-02	OVERHEAD SHADE
PAVING	**P-01**	20` SETBACK (N.I.C.)
	P-02	EXISTING PAVING
	P-03	CONCRETE PAVING
	P-04	UNIT PAVERS
	P-05	ASPHALT
	P-06	PLEXIPAVE
	P-07	COURT STRIPING
	P-08	POURED-IN-PLACE RUBBER SURFACING
	P-09	SYNTHETIC TURF
	P-10	ENGINEERED WOOD FIBER
	P-11	WOOD DECKING
	P-12	DRY CREEK BED
PLAY EQUIPMENT	**PL-01**	PLAY STRUCTURE: CUBE
	PL-02	PLAY STRUCTURE: THE WIZARD`S HIDEAWAY
	PL-03	PLAY STRUCTURE: SUPERNOVA
	PL-04	PLAY STRUCTURE: DOUBLE TOWER WITH VALLEY BRIDGE
	PL-05	EMBANKMENT SLIDE, 3`-0" TALL
	PL-06	EMBANKMENT SLIDE, 5`-0" TALL
PLANTING	**PN-01**	PLANTING AREA
	PN-02	BIORETENTION AREA
	PN-03	GREEN ROOF TRAY SYSTEM
	PN-04	SOIL - RAISED BEDS
SITE FURNISHING	**S-01**	BIKE PARKING
	S-02	BIKE RACK, SINGL
	S-03	AMPHITHEATER SEATING
	S-04	ACCESSIBLE RAISED GARDEN BED
	S-05	RAISED GARDEN BED
	S-06	SYNTHETIC TURF MOUND/CLASSROOM
	S-07	HOSE BIBB
	S-08	DRINKING FOUNTAIN
	S-09	WOOD STUMP SEAT
	S-10	WOOD LOG SEAT, 8` LONG
	S-11	WOOD LOG SEAT, 4` LONG
	S-12	BOULDER
	S-13	PICINC TABLE
	S-14	ACCESSIBLE PICNIC TABLE
	S-15	BASKETBALL GOAL
	S-16	TRIKE STORAGE
	S-18	WOOD BENCH
	S-19	WOOD RAISED PLANTER
	S-20	CONCRETE RAISED PLANTER
STAIRS	**ST-01**	CONCRETE STEPS AND HANDRAIL, 2 RISERS
	ST-02	CONCRETE STEPS AND HANDRAIL, 3 RISERS
	ST-03	CONCRETE STEPS AND HANDRAIL, 4 RISERS
	ST-04	CONCRETE STEPS AND HANDRAIL, 6 RISERS
	ST-05	CONCRETE STEPS AND HANDRAIL, 8 RISERS
WALLS	**W-01**	CONCRETE RETAINING WALL
	W-02	CONCRETE SEAT WALL
	W-03	CONCRETE BIORETENTION WALL (SCD)

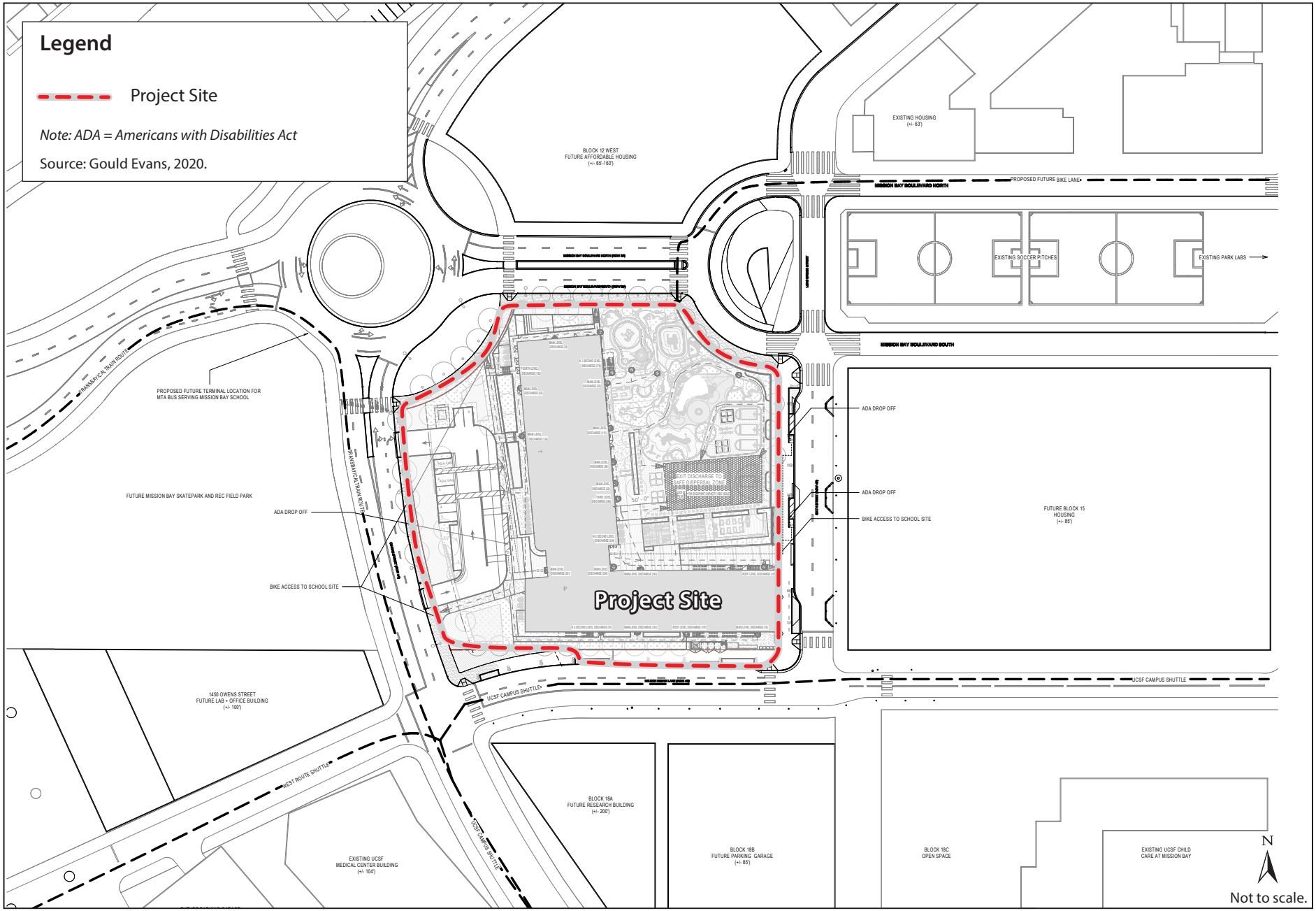
Note: The number of trees to be planted will likely be reduced compared to what is shown in this conceptual landscape plan.



Graphics ... 00385.19 (12-31-20) JC

Mission Bay School Project

Figure 3.0-10
Conceptual Landscape Plan



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Mission Bay School Project

Figure 3.0-11
Conceptual Site Access Plan

The proposed project would include one 86-horsepower (64-kilowatt-hour) diesel fire pump with an appropriate diesel particulate filter for engine exhaust. The fire pump would be used as a backup fire pump only during emergencies and for monthly testing. The fire pump would be on level 1 of the building. It is anticipated that fire pump testing would consist of 1 hour of testing each month.

In addition, the project would include uninterruptible power supplies (UPS) for additional backup power for the technology equipment. Batteries would provide enough energy to cover the total projected peak electrical demand for the technology equipment in the event of an equipment failure or other conditions that would result in an interruption to the electric power service provided by Pacific Gas & Electric. The lithium-ion batteries would be located in cabinets and installed in an electrical room within the building. The lithium-ion batteries would not spill in the unlikely event a cabinet becomes damaged. Because lithium-ion batteries do not off-gas hydrogen, exhaust is not required by either the National Fire Protection Association or the current (2019) California Building Code for rooms or cabinets containing only these types of batteries. The room containing the batteries would be protected with a pre-action sprinkler system and would have a minimum one-hour fire rating.

3.4.4 Utilities

The project would be served by the existing water, fire water, recycled water, sewer, storm drain, and data/telecommunications infrastructure. The proposed project would be able to access utilities only within the public streets adjacent to the project site (i.e., Owens Street and Mission Bay Boulevard South); thus, all utility tie-ins would connect along the northern and western perimeters of the project site. In addition, the existing storm drain and associated sanitary sewer manhole within the project site would be removed; the pipe would be cut and capped with 12 inches of concrete. The proposed project would not include natural gas infrastructure. On-site stormwater would be treated within approximately 5,000 square feet of bioretention areas located throughout the project site. The bioretention areas would filter and treat stormwater prior to entering the City's stormwater system.

3.4.5 Sustainability

The proposed project would comply with all applicable City and state green building measures as required by Cal Title 24 Part 6—California Energy Codes, and Cal Title Part 11—California Green Building Standards Codes. The proposed project would comply with the project sponsor's design standards that guide sustainability, which identify the following performance targets:

- Zero-net energy[10] ready
- Solar ready with the ability to add battery storage in the future
- Energy use intensity of 20 kilo-British thermal unit per square foot per year
- 50 percent water conservation, with recycled water to be used for irrigation and toilet flushing
- Airtight construction to 0.25 cubic feet per minute per square foot at 75 pascals
- Lighting power density less than 0.7 watts per square foot
- 75 percent construction waste diverted from the landfill

The outdoor play area would include design components and stormwater design best practices from the project sponsor's Green Schoolyards program. In addition, the proposed project would include an all-

[10] *Zero-net energy* buildings consume only as much energy as can be produced onsite through renewable resources.

electric design; no natural gas infrastructure or combustion equipment would be used. Furthermore, the proposed project would include ultra-low-flow toilets; Energy Star appliances (e.g., refrigerators, freezers, milk coolers, etc.); light-emitting diode bulbs for all lighting; onsite collection and separation of trash, recycling and composting; permeable surfaces; bioretention areas; and minimal onsite parking.

The proposed project would also comply with the Metropolitan Transportation Commission's Climate Initiatives Program. The goal of the program is to reduce the transportation sector's carbon footprint. The program includes Spare the Air Youth, which supports the Bay Area Safe Routes to School Program. The Bay Area Safe Routes to School Program aims to reduce greenhouse gas emissions by providing safe and direct access to schools, training for students, and information for families.

3.4.6 Transportation Demand Management Features

The proposed project would include the following TDM features:

- The project would include unbundled parking.
- The project parking rate would be 0.17 compared to neighborhood parking rate of 1.38.
- The project would complete streetscape improvements consistent with the Better Streets Plan, so that the public right-of-way is safe, accessible, convenient, and attractive to persons walking.
- The proposed project would include 16 Class I bicycle spaces would be provided for the staff in an enclosed area with a lockable fence and 38 Class II bicycle spaces would be provided on the site for students. In addition, 26 Class II bicycle spaces would be provided for visitors.
- The project site is located within 1,000 feet of a Bay Area Bike Share Station.
- Bicycle share program membership discount would be provided for project employees.
- Pre-tax transit savings opportunities would be offered to project employees.
- Shuttle bus service would be provided for linked learning hub students. At lunch time, a shuttle bus service would be provided for the linked learning hub students morning cohort from the site and a shuttle bus service would be provided for the afternoon cohort to the site. A shuttle bus service would only be provided for one commute for each cohort.
- TDM information (e.g., promotions to encourage use of sustainable transportation modes and welcome packets for project employees) and multimodal wayfinding signage would be provided onsite.

3.4.7 Security

The two new driveways along Owens Street would be secured with roller gates; an additional roller gate with an access door would be located along Sixth Street. A 5,500-square-foot safe dispersal zone[11] within the grades one through five outdoor play area would provide direct access to the access door along Sixth Street. An intercom system at the main entrance to the proposed building would be used to buzz in personnel. In addition, cameras would be incorporated around the perimeter of the project site, including all entry and exit points. On the upper levels of the proposed building, a 10-foot fence would be installed at the perimeter of the rooftop space to ensure the safety of students at play. The project site would be secured by an 8-foot fence.

[11] A *safe dispersal zone* is an area that allows occupants evacuating a structure to maintain a safe distance from the structure without leaving a property.

3.4.8 Employees and Students

The proposed project would employ up to 70 employees (including instruction, administration, and maintenance personnel) and will also serve as a professional development space for up to 60 teachers per day during operation when school is not in session. When school is in session, there would be up to 20 employees and teachers on site. The professional development space would be used by teachers who are employed elsewhere within the District and not at the project site. The proposed project would have a daily enrollment capacity of 500 students at the elementary school and up to 270 students at the linked learning hub (including approximately 135 students in the morning cohort and 135 students in the afternoon cohort).

3.4.9 Remediation

Due to the presence of the COCs discussed in Section 3.3.2, *Historical Site Uses and Contaminants of Concern*, a Draft Removal Action Work Plan was prepared for the proposed project.[12] The Draft Removal Action Work Plan evaluates three remedial action alternatives: 1) No Action, 2) Impacted Fill Material Excavation and Offsite Disposal, and 3) Engineered Cover/Cap, Vapor Intrusion Mitigation System and Institutional Controls. The Engineered Cover/Cap, Vapor Intrusion Mitigation System and Institutional Controls was selected as the preferred remedial action alternative to mitigate COCs at the project site. The preferred remedial action alternative involves engineered covers and caps of impacted fill material for the site and a vapor intrusion mitigation system for the building. Excavation/drilling and offsite disposal of impacted fill material from landscape areas, building foundations, and piers would be performed prior to facility construction. Clean import fill approved by the Department of Toxic Substances Control would be used for grading and landscape or backfill where proposed trenches are not capped. The Engineered Cover/Cap, Vapor Intrusion Mitigation System and Institutional Controls alternative was ranked the highest for overall protection of human health and the environment, feasibility, and State acceptance, and would have a higher degree of confidence for long-term effectiveness and permanence, and community acceptance.

During implementation of the remedial action, a site-specific environmental health and safety plan would be prepared and implemented by the contractor to ensure the health and safety of onsite workers and the surrounding community. In addition, a dust monitoring and control plan would be implemented during impacted fill material disturbance activities and is intended to document that the public and surrounding properties were protected from potential health and environmental hazards during the impacted fill material disturbance activities.

3.4.10 Construction

Demolition and surcharging[13] at the project site would begin in approximately March 2022. There would be an approximate one-year period when no construction activity would occur (i.e., mid-2022 to mid-2023). Site remediation and construction of the proposed building would begin in mid-2023 and continue for approximately 21 to 24 months. Construction would conclude by summer 2025, and the project would be fully operational in 2025. As the design of the project progresses, it may be determined that surcharging is not required for the proposed project.

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[12] Ninyo & Moore. *Draft Removal Action Work Plan: Mission Bay South Block 14, Mission Bay Drive at Owens Street, San Francisco, California.* October 23, 2020.

[13] Surcharging would involve the use of imported soil piled on the surface of the project site to cause lateral pressure. The additional pressure would shorten the consolidation time for the soil at the project site.

Project construction would consist of nine categories of construction activities: demolition of the existing parking lot; grading; utility installation; pier and foundation installation; site remediation; first-floor slab installation and structural steel and decking operations; concrete pours on the upper floors; interior and exterior building construction; and landscaping, paving, and miscellaneous site work. The estimated duration of each category of construction activity would range from approximately 20 days (for demolition of the existing parking lot) to approximately 230 days (interior and exterior building construction), with the potential for several of the construction categories to overlap.

Construction would occur Monday through Friday from 7 a.m. to 6 p.m. and on Saturdays and Sundays, as needed, from 8 a.m. to 5 p.m. Construction is not anticipated to occur on major legal holidays. The project sponsor anticipates approximately two instances of nighttime construction for concrete pours; the two instances of nighttime construction would be completed before 12 a.m.

Construction materials and equipment would be staged entirely on-site, in areas where construction is not occurring. Construction of the proposed project would require two staging areas: one in the western portion of the project site near Owens Street and one in the eastern portion of the project site near Sixth Street. It is anticipated that a tower crane would not be required for construction; however, it is likely that a mobile crane would be used for construction involving steel work or the placement of equipment during various construction categories. The location of the mobile crane would likely change periodically, depending on the construction activity occurring at a particular time. The proposed project could require limited closures of the sidewalks, public rights-of-way, and private rights-of-way adjacent to the project site. Roadway traffic control would be used as needed during construction. If sidewalks are required for construction staging, covered pedestrian walkways would be constructed in curb lanes.

The proposed building would be constructed on a deep foundation with drilled piers. To accommodate the drilled piers, the project would require a maximum excavation of 155 feet below ground surface at certain locations. To accommodate the foundation, the project would require excavation up to 10 feet below ground surface. To accommodate surface grading, utility trenches, and other ground improvements, the project would require excavation up to 5 feet below ground surface. Demolition of the existing surface parking lot would generate approximately 3,000 cubic yards of asphalt waste. The proposed project would require grading or disturbing the entire project site during construction. The proposed project would excavate approximately 1,300 cubic yards of soil that upon testing could be reused as fill onsite, with an additional import of approximately 1,200 cubic yards of soil to be used as fill onsite.

A hauling distance of 20 miles was assumed based on default values from the air quality modeling analysis. The final truck haul route would be subject to review and approval by San Francisco Public Works. The number of construction workers on-site would typically average 15 per day. The peak number of construction workers on-site on any given day is expected to be 30 during the exterior and interior building construction activity category.

A stormwater pollution prevention plan (SWPPP) would be implemented during project construction. Project construction would use water from a water truck (approximately 8,000 gallons per day). If dewatering is required during construction, disposal would be performed in accordance with the guidelines of the Regional Water Quality Control Board.

Approximately 75 percent of the non-hazardous construction and demolition waste would be recycled and/or salvaged for reuse. In addition, all trees, stumps, rocks, and associated vegetation and soil cleared from the site would be reused or recycled.

3.5 PROJECT-RELATED APPROVALS

The project would require the following approvals. In addition, project implementation may require other approvals.

- ***San Francisco Unified School District Board of Education*** – Approval of property title transfer, overriding considerations, and CEQA certification.
- ***Division of the State Architect*** – Approval of design.
- ***Department of Toxic Substances Control*** – Approval of the Removal Action Work Plan.
- ***San Francisco Public Works*** – Street and sidewalk permits for modifications to public sidewalks, street trees, and curb cuts.
- ***San Francisco Public Works, Bureau of Street Use and Mapping*** and ***Bureau of Urban Forestry*** – Inspection and approval of a street space permit if sidewalk(s) would be used for construction staging and pedestrian walkways are constructed in the curb lane(s). Approval of parcel creation. Approval of permit to prune, remove, or plant any street trees within the public right-of-way.
- ***University of California Board of Regents*** – Approval of transfer of title of land from University of California to the City of San Francisco on behalf of the San Francisco Unified School District, or the San Francisco Unified School District directly; approval of easement for 0.25 acre to San Francisco Unified School District for site access and landscaping; approval of design of site improvements on University of California-owned land adjacent to the project site that San Francisco Unified School District would design, construct, and maintain; approval of a license agreement during construction of improvements on land adjacent to the project site.
- ***San Francisco Public Utilities Commission*** – Approval of changes to sewer laterals. Approval of a stormwater control plan that complies with the City and County of San Francisco Stormwater Management Requirements and Design Guidelines because the proposed project would result in ground disturbance of an area greater than 5,000 square feet. Approval of an Erosion and Sediment Control Plan, in accordance with article 4.1 of the San Francisco Public Works Code. Approval of any changes to existing or proposed sewer laterals, fire hydrants, water service laterals, water meters, water mains, irrigation and/or recycled water service laterals, electrical services, and streetlights.
- ***San Francisco Municipal Transportation Agency*** – Approval of modifications to on-street loading zones and other colored curb zones.
- ***San Francisco Municipal Transportation Agency, Sustainable Streets Division*** – Approval of a special traffic permit if any portion of the public right-of-way is used for construction staging and pedestrian walkways are constructed in the curb lane(s).
- ***Bay Area Air Quality Management District*** – Approval of any necessary air quality permits for the installation, operation, and testing (e.g., Authority to Construct/Permit to Operate) of individual air pollution sources (e.g., boilers).

CHAPTER 4.0 INTRODUCTION TO ENVIRONMENTAL ANALYSIS

4.1 APPROACH TO ENVIRONMENTAL ANALYSIS

4.1.1 Introduction to Analysis

This section describes the format of the environmental analysis in each environmental topic section of the chapter, discusses the effect of Public Resources Code Section 21099 on the scope of CEQA analysis for the project, and explains the general approaches to baseline setting and cumulative analysis in this EIR.

In December 2015, the California Supreme Court found that "CEQA generally does not require an analysis of how existing environmental conditions will impact a project's future users or residents," unless the project "could exacerbate hazards that are already present." The Supreme Court identified several exceptions to this general rule in that CEQA could apply to impacts of the environment on the project, all of which are statutory provisions in CEQA that specifically require consideration of impacts of the environment, such as consideration of projects near airports, school construction projects, and statutory exemptions from housing and transit priority projects (*California Building Industry Assoc. v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369). The project would include construction of a school. Thus, this EIR does draw significance conclusions for those topics for which the existing environmental conditions could have an effect on the project.

4.1.2 Initial Study

The District prepared an initial study to determine which environmental topics would require further study and analysis in an EIR. The initial study (see **Appendix 1.2**) found impacts related to aesthetics, agriculture and forestry resources, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use, mineral resources, noise, population and housing, public services, recreation, transportation and circulation, tribal cultural resources, utilities and service systems, and wildfire. The initial study found significant impacts related to air quality, which are discussed in detail in this chapter.

4.1.3 Format of the Environmental Analysis

Section 4.2, *Air Quality*, address the physical environmental effects of the proposed project on air quality and contains the following subsections: *Environmental Setting, Regulatory Framework*, and *Impacts and Mitigation Measures*, described below. In accordance with CEQA Guidelines Section 15128, the initial study discusses topics where the proposed project would have less-than-significant with mitigation impacts, less-than-significant impacts, or no impacts, and therefore are not discussed in detail in this EIR.

4.1.3.1 Environmental Setting

This section presents a description of the existing physical environmental conditions in the study area with respect to each resource topic as of May 2021, the month and year when the District issued an NOP for initiating environmental review. The environmental setting constitutes baseline physical conditions by which potential impacts of the proposed project are assessed for significance. CEQA Guidelines section 15360 defines the environment or the setting, as "the physical conditions that exist within the area that will be affected by a proposed project."

4.1.3.2 Regulatory Framework

The *Regulatory Framework* subsection provides an overview of statutory and regulatory considerations that are applicable to the specific environmental topic.

4.1.3.3 Impacts and Mitigation Measures

The impacts and mitigation measures section for each environmental topic presents a discussion of the impacts (i.e., the changes to baseline physical environmental conditions) that could result from implementation of the proposed project. Where applicable, both construction and operational impacts are analyzed, as well as project-specific and cumulative impacts. The section begins with the criteria of significance, which establish the metric by which significance is determined. The latter part of this section assesses the impacts resulting from project implementation and mitigation measures, if required. Project impacts are organized into separate categories, based on the criteria listed in each topical section. Impacts are numbered and shown in bold type, and, following the impact statements, the corresponding mitigation measures, where identified, are numbered and indented. Impacts are numbered consecutively within each topic. Mitigation measures are labeled numerically within each impact statement. Each mitigation measure includes an abbreviated reference to the impact section (e.g., AQ-1, AQ-2).

4.1.4 Cumulative Impacts

This section considers the incremental effects of implementing the proposed project, together with the environmental effects of other closely related past, present, and reasonably foreseeable probable future projects proposed by the District, other jurisdictions, or other entities (i.e., private developers, nonprofit organizations, etc.). The analysis of cumulative impacts under each resource topic is based on the same setting, regulatory framework, and significance criteria as the analysis of project-specific impacts. Additional mitigation measures are identified if the analysis determines that the proposed project would cause or make a cumulatively considerable contribution to a significant adverse cumulative impact.

4.1.5 Approach to Cumulative Impact Analysis

In addition to proposed project-specific impacts, CEQA requires an evaluation of a proposed project's potential contributions to cumulative impacts. CEQA Guidelines section 15130(a)(1) states that a "cumulative impact consists of an impact that is created as a result of the combination of the proposed project evaluated in the EIR together with other proposed projects causing related impacts." *Other proposed projects* includes past, present, and reasonably probable future proposed projects.

CEQA Guidelines section 15130(b)(1) states that the approach to the cumulative impact analysis may be based on either of the following approaches, or a combination thereof:

- A list of past, present, and probable future projects producing related or cumulative impacts
- A summary of projections contained in an adopted general plan or related planning document that describes or evaluates conditions that contribute to the cumulative effect

The analyses in this EIR employ both a list-based approach and a projections approach, depending on which approach best suits the individual resource topic being analyzed. For instance, the cumulative analysis of noise impacts considers individual projects that are anticipated in the vicinity of the project site. Such projects in combination with the proposed project may result in cumulative effects. By comparison, the cumulative air quality analysis relies on a projection of overall citywide growth, along with consideration of reasonably foreseeable projects.

The cumulative impact analysis for the topics analyzed in the initial study is included in the Mandatory Findings of Significance section. The cumulative impact analysis for air quality is included in Section 4.2, *Air Quality*, immediately after the description of the project impacts and identified mitigation measures.

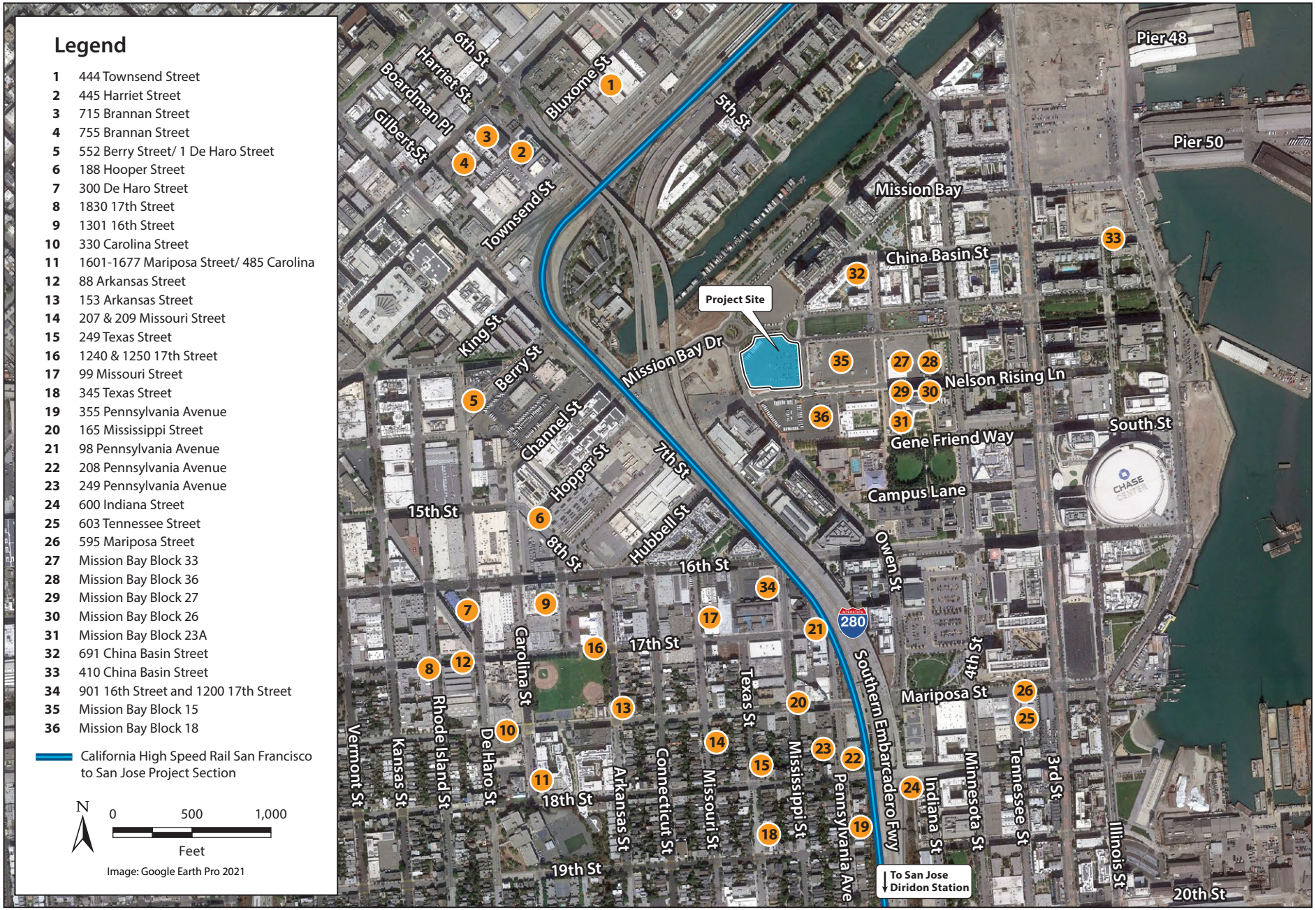
The reasonably foreseeable future projects within a 0.5-mile radius of the project site are presented in Table 4-1 and displayed in Figure 4-1.

TABLE 4-1. CUMULATIVE PROJECTS

Cumulative Project	Description
444 Townsend Street (2019-015122PRJ)	The project would convert 49,240 square feet to office use on the first and second floors.
445 Harriet Street (2016-011687PRJ)	The project would convert a light industrial warehouse to full-service restaurant, and add second story to the building.
715 Brannan Street (2016-004723PRJ)	The project would convert a portion of an existing one-story building from motor vehicle repair to retail sales and service use approximately 1,678 square feet in size.
755 Brannan Street (2017-002951ENV)	The project would demolish a two-story, 12,880-sf commercial building built in 1943, and construct a five-story, 55-foot-tall, 45,749-sf residential building with 57 dwelling units.
552 Berry Street/ 1 De Haro Street (2018-012073PRJ)	The project would demolish a one-story, warehouse building.
188 Hooper Street (2016-001557PRJ)	California College of the Arts is proposing to demolish three existing buildings, and construct a five-story, 56-foot-tall student housing residential building with 280 group housing units and 8,000 sf of retail sales and service uses.
300 De Haro Street (2020-006006PRJ)	The project would construct a seven-story, mixed-use development consisting of 290 group housing units with associated common facilities and open space provisions.
1830 17th Street (2016-011292PRJ)	The project would include demolition of existing building, and construction of new 3-story building with rehearsal and dance studio space on first floor, art activities space on second floor, and office space on third floor.
1301 16th Street (2013.0698E)	The project would construct a building with 176 residential units, 3,300 gross square feet of PDR uses, and 3,600 gross square feet of retail uses.
330 Carolina Street (2018-015417PRJ)	The project would include construction of sewer equipment to facilitate treatment and reuse of brewery process wastewater for onsite reuse.
1601-1677 Mariposa Street/ 485 Carolina (2012.1398PRJ)	The project would include demolition of an existing one-story industrial building/bus repair shop, and construction of new mixed-use project with 316 dwelling units, 8,823 square feet of commercial space, and 261 off-street parking spaces.
88 Arkansas Street (2015-00453RJ)	The project would demolish the existing commercial buildings and surface parking lot, and construct a five-story building with 127 residential units and 3,100 gross square feet of retail/restaurant uses.
153 Arkansas Street (2014.1246PRJ)	The project would include demolition of a single-family dwelling to permit the reconstruction of a two family dwelling.
207 & 209 Missouri Street (2017-00332PRJ)	The project would include demolition of an existing garage/storage shed and construct a new 3-story building containing two residences and parking for two vehicles.
249 Texas Street (2020-003223PRJ)	The project would include demolition of an existing three-story, single-family residence and the construction of a new three-story, 30-foot-tall residential building with two dwelling units, two below-grade off street parking spaces, and bicycle parking.
1240 & 1250 17th Street (2015-010660PRJ)	The project would convert existing industrial buildings into approximately 13,000 gross square feet of childcare uses plus outdoor playground to serve 172 children and 72 staff.

Cumulative Project	Description
99 Missouri Street (2019-015579PRJ)	The project would combine 8,050 square feet of retail space, 5,000 square feet of vacant auto- body shop, and 6,940 square feet of surface parking to create a single furniture showroom and retail store.
345 Texas Street (2020-007516PRL)	The project would replace existing wood shakes and trim on front of a house.
355 Pennsylvania Avenue (2016-008790PRJ)	The project would include renovation of a single-family building into a two-unit residence.
165 Mississippi Street (2019-004681PRJ)	The project would include a change of use to cannabis retail with no on-site smoking or vaporizing of cannabis products, removal of curb cut, interior and exterior alterations.
98 Pennsylvania Avenue (2020-010275PRJ)	The project would use the state density bonus program to construct a seven-story, 68-foot-tall, 76,012-square foot residential building with 79 dwelling units.
208 Pennsylvania Avenue (2014.1022PRJ)	The project would include a change of use in four dwelling units from live/work to residential; variance for rear yard, exposure and open space.
249 Pennsylvania Avenue (2014.1279PRJ)	The project would include demolition of two existing hardware warehouses, and construction of four-story building with three stories of residential units and ground floor with residential/commercial space.
600 Indiana Street (2019-022295PRJ)	The project would include a change of use from storage to cannabis retail
603 Tennessee Street (2015-011292PRJ)	The project would demolish an existing two-story storage building, and construct a new six-story, 24 dwelling, 58-foot-tall, multi-family residential building.
595 Mariposa Street (2016-012380GPR)	The project would include demolition of an existing surface parking lot and construction of a new five-story, 58-foot-tall building containing 20 dwelling units.
Mission Bay Block 33	The project would construct 340,000 square feet of non-residential uses.
Mission Bay Block 36	The project would construct 170,600 square feet of non-residential uses.
Mission Bay Block 27	The project would construct a seven-story office/retail building.
Mission Bay Block 26	The project would construct a 12-story, 423,000-square foot building for office and daycare uses.
Mission Bay Block 23A	The project would construct 274,000 square feet of non-residential uses.
691 China Basin Street	The project would construct new seven-story building with 152 dwelling units.
410 China Basin Street	The project would construct a four-story, 141 residential unit building with 100% affordable housing
901 16th Street and 1200 17th Street (Flower Mart) (2011.1300E)	The project would demolish metal warehouses and temporary office buildings, preserve and rehabilitate an office building, and construct approximately 395 residential units and ground-floor commercial spaces in a four-story building on 17th Street and a six-story building on 17th Street.
Mission Bay Block 15	The project would construct a 418,200 square foot housing complex with 774 beds in 523 residential units.
Mission Bay Block 18	The project would construct an eleven-story, approximately 110-foot, parking garage with 1,540 spaces.
California High Speed Rail San Francisco to San Jose Project Section	The project is the first phase of the California High-Speed Rail System, connecting communities in San Francisco and Silicon Valley to the rest of the state. The approximately 50-mile project section will travel between stations at the Transbay Transit Center, Fourth and King, San Francisco Airport (Millbrae), and San Jose (Diridon).

Source: San Francisco Planning Department 2021.



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Mission Bay School Project

Figure 4-1
Cumulative Projects

4.2 AIR QUALITY

4.2.1 Introduction

This section includes a discussion of existing air quality conditions, a summary of applicable air quality regulations, and an analysis of potential short-term, and long-term air quality impacts that could result from implementation of the proposed project. The methods of analysis for short-term construction, long-term regional (operational), local mobile-source, and toxic air emissions are consistent with the recommendations of the Bay Area Air Quality Management District (BAAQMD), the California Air Resources Board (CARB), and the U.S. Environmental Protection Agency (EPA). Mitigation is developed as necessary to reduce significant air quality impacts to the extent feasible. The project modeling inputs, data, and subsequent results are provided in **Appendix 4.2.**

No comments regarding air quality were received in response to the Notice of Preparation (NOP).

4.2.2 Environmental Setting

The project site is in the San Francisco Bay Area Air Basin (SFBAAB). Ambient air quality is affected by climatological conditions, topography, and the types and amounts of pollutants emitted. The following sections summarize how air pollution moves through the air, water, and soil in the air basin and how it changes chemically in the presence of other chemicals and particles. This section also summarizes regional and local climate conditions, existing air quality conditions, and sensitive receptors that may be affected by project-related emissions.

4.2.2.1 Pollutants of Concern

Criteria Air Pollutants

The federal and state governments have established ambient air quality standards for six criteria air pollutants. Ozone is considered a regional pollutant because its precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead are considered local pollutants that have the potential to accumulate in the air locally. Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}) and fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$) are both regional and local pollutants. The primary criteria pollutants generated by the project would be ozone precursors (i.e., nitrogen oxides [NO_X] and reactive organic gases [ROG]), CO, PM_{10}, and $PM_{2.5}$.[1,2,3].

At certain concentrations, all criteria pollutants can cause adverse health effects. The ambient air quality standards for these pollutants were established by the federal Clean Air Act (CAA) to protect public health and welfare with an adequate margin of safety. Epidemiological, controlled human-exposure, and

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1 As discussed above, there are also ambient air quality standards for SO_2, lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulates. However, these pollutants are typically associated with industrial sources, which are not part of the project and, therefore, not evaluated.

2 Most emissions of NO_X are in the form of nitric oxide (NO). Conversion to NO_2 occurs in the atmosphere as pollutants disperse downwind. Accordingly, NO_2 is not considered a local pollutant of concern for the project and is not evaluated further.

3 Reşitoğlu, Ibrahim A. 2018. NO_X *Pollutants from Diesel Vehicles and Trends in Control Technologies.* Published November 5. DOI: 10.5772/intechopen.81112. Available: https://www.intechopen.com/books/diesel-and-gasoline-engines/no-sub-x-sub-pollutants-from-diesel-vehicles-and-trends-in-the-control-technologies. Accessed: May 2021.

toxicology studies evaluate the potential health and environmental effects of criteria pollutants and provide the scientific basis for new and revised ambient air quality standards.

The principal characteristics of and the possible health and environmental effects from exposure to the primary criteria pollutants that could be generated by the project are discussed below.

Ozone, or smog, is a photochemical oxidant that forms when ROG and NO_X, both byproducts from the operation of an internal combustion engine, react with sunlight. ROG consists of compounds that are made up primarily of hydrogen and carbon atoms. Motor vehicle use is the major source of hydrocarbons. Other sources of ROG include paints and solvents, with their evaporating emissions; asphalt paving; and household consumer products, including aerosols. The two major forms of NO_X are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas that forms from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown, irritating gas that forms when NO and oxygen combine. NO_X, in addition to serving as an integral participant in ozone formation, also acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Ozone poses a higher risk to those who already suffer from respiratory diseases (e.g., asthma) as well as children, older adults, and people who are active outdoors. Exposure to ozone at certain concentrations can make breathing more difficult, cause shortness of breath and coughing, inflame and damage the airways, aggravate lung diseases, increase the frequency of asthma attacks, and cause chronic obstructive pulmonary disease. Studies show associations between short-term ozone exposure and non-accidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to ozone may increase the risk of respiratory-related deaths.[4] The concentration of ozone that results in adverse health effects depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large differences in the intensity of symptomatic responses in individuals, with one study finding no symptoms in the least responsive individual after a 2-hour exposure to 400 parts per billion of ozone and a 50 percent decrease in forced airway volume in the most responsive individual. Although the results vary, evidence suggests that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum ozone concentration reaches 80 parts per billion.[5] The average background level of ozone in the SFBAAB is approximately 45 parts per billion.[6]

In addition to human health effects, ozone has been tied to crop damage, typically in the form of stunted growth, leaf discoloration, cell damage, and premature death. Ozone can also act as a corrosive and oxidant, resulting in property damage, such as the degradation of rubber products and other materials.

Carbon monoxide is a colorless, odorless toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. In the air quality study area, high CO levels are of greatest concern during the winter, when periods of light winds combine with the formation of ground-level temperature inversions from evening through early morning. These conditions trap pollutants near the ground, reducing the dispersion of vehicle emissions. Moreover, motor vehicles exhibit increased CO emission rates at low air temperatures. The primary adverse health effect associated with CO is an interference in the transfer of normal oxygen to the blood, which may result in tissue oxygen deprivation.

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4 U.S. Environmental Protection Agency. 2020a. *Ground-level Ozone Basics.* Last updated: July 13. Available: https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics#wwh. Accessed: May 2021.

5 U.S. Environmental Protection Agency. 2016. *Health Effects of Ozone in the General Population.* Last updated: September 2. Available: https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-general-population. Accessed: May 2021.

6 Bay Area Air Quality Management District. 2017a. *Final 2017 Clean Air Plan, Spare the Air, Cool the Climate.* Adopted: April 19. Available: https://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 2021.

Exposure to relatively high concentrations of ozone can also cause fatigue, headaches, confusion, dizziness, and chest pain. There are no ecological or environmental effects of CO at or near existing background CO levels.[7]

Particulate matter consists of the finely divided solids and liquids found in soot, dust, aerosols, fumes, and mists. Two forms of particulates are considered in air quality studies, inhalable coarse particles, or PM_{10}, and inhalable fine particles, or $PM_{2.5}$. Particulate discharges into the atmosphere result primarily from industrial, agricultural, construction, and transportation activities. However, wind across arid landscapes also contributes substantially to local particulate loading.

Particulate pollution can be transported over long distances and adversely affect humans, especially people who are naturally sensitive or susceptible to breathing problems. Numerous studies have linked particulate exposure to premature death in people with pre-existing heart or lung disease, a nonfatal heart attack, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms. Studies show that long-term exposure to $PM_{2.5}$ is associated with increased risk of mortality, ranging from a 6 to 13 percent increased risk per 10 micrograms per cubic meter ($\mu g/m^3$) of $PM_{2.5}$.[8] Every 1 $\mu g/m^3$ reduction in the $PM_{2.5}$ concentration results in a 1 percent reduction in the mortality rate for individuals over 30 years old.[9] Studies also show an increase in overall mortality of approximately 0.5 percent for every 10 mg/m^3 increase in PM_{10}, as measured the day before death.[10] PM_{10} concentrations have decreased since 1990. Peak concentrations have declined by 60 percent, and annual average values have declined by 50 percent.[11] Depending on the composition, both PM_{10} and $PM_{2.5}$ can affect water quality, including acidity; deplete soil nutrients; damage sensitive forests and crops; affect ecosystem diversity; and contribute to acid rain.[12]

Toxic Air Contaminants

Although ambient air quality standards have been established for criteria pollutants, no ambient standards exist for toxic air contaminants (TACs). For evaluation purposes, TACs are separated into carcinogens and non-carcinogens, based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants (CAPs) for which acceptable levels of exposure can be determined and for which ambient standards have been established (Table 4.2-3). The cancer risk from TACs is expressed as excess cancer cases per 1 million exposed individuals, typically over a lifetime of exposure.

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7 California Air Resources Board. 2020a. *Carbon Monoxide and Health.* Available: https://ww2.arb.ca.gov/ resources/carbon-monoxide-and-health. Accessed: May 2021.

8 California Air Resources Board. 2010. Estimate of Premature Deaths Associated with Fine Particle Pollution ($PM_{2.5}$) in California Using a U.S. Environmental Protection Agency Methodology. Accessed: May 2021.

9 Ibid.

10 U.S. Environmental Protection Agency. 2005. Final Report: The National Morbidity, Mortality, and Air Pollution Study – Morbidity and Mortality from Air Pollution in the United States. Available: https://cfpub.epa.gov/ ncer_abstracts/index.cfm/fuseaction/display.highlight/abstract/2399/report/F. Accessed: May 2021.

11 Ibid.

12 U.S. Environmental Protection Agency. 2020b. *Health and Environmental Effects of Particulate Matter (PM).* Last updated: April. Available: https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm. Accessed: May 2021.

Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified, and their toxicity studied, by the California Office of Environmental Health Hazard Assessment (OEHHA). The primary TACs of concern associated with the project would be asbestos and diesel particulate matter (DPM).

Asbestos is the name given to several naturally occurring fibrous silicate minerals. Before the adverse health effects were identified, asbestos was widely used for insulation and fireproofing in buildings, and it can still be found in some older buildings. It is also naturally occurring in rock or soil in some parts of California. The inhalation of asbestos fibers into the lungs can result in a variety of adverse health effects, including inflammation of the lungs, respiratory ailments (e.g., asbestosis, which is scarring of lung tissue that results in constricted breathing), and cancer (e.g., lung cancer and mesothelioma, which is cancer of the linings of the lungs and abdomen).

DPM is contained in the exhaust emitted by diesel-fueled equipment and vehicles. Within the Bay Area, BAAQMD has found that of all controlled TACs, emissions of DPM are responsible for about 82 percent of the total ambient cancer risk.[13] Short-term exposure to DPM can cause acute irritation (e.g., eye, throat, and bronchial), neurophysiological symptoms (e.g., lightheadedness and nausea), and respiratory symptoms (e.g., cough and phlegm). EPA has determined that DPM is "likely to be carcinogenic to humans by inhalation."[14]

Odors

Offensive odors can be unpleasant and lead to citizen complaints to local governments and air districts. According to CARB's *Air Quality and Land Use Handbook,*[15] land uses associated with odor complaints typically include sewage treatment plants, landfills, recycling facilities, manufacturing facilities, and agricultural operations. CARB provides recommended screening distances for siting new receptors near existing odor sources.

4.2.2.2 Climate and Meteorology

Although the primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted, meteorological conditions and topography are also important. 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. Unique geographic features throughout the state define 15 individual air basins, each with distinctive regional climates.

The air quality study area for the project is the San Francisco Peninsula in the SFBAAB.[16] The peninsula subregion extends from northwest of San José to the Golden Gate Bridge. The Santa Cruz Mountains run along the center of the peninsula, with elevations above 2,000 feet at the southern end but decreasing to

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13 Bay Area Air Quality Management District. 2017a. *Final 2017 Clean Air Plan.* Adopted April 19. Available: https://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 2021.

14 U.S. Environmental Protection Agency. 2003. *Diesel Engine Exhaust; CASRN N.A.* February 28. Available: https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0642_summary.pdf#nameddest=woe. Accessed: May 2021.

15 California Air Resources Board. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* April. Available: https://ww3.arb.ca.gov/ch/handbook.pdf. Accessed: May 2021.

16 Bay Area Air Quality Management District. 2017b. *California Environmental Quality Act Air Quality Guidelines.* May. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: August 4, 2020.

500 feet in South San Francisco. Coastal towns experience a high incidence of cool, foggy weather in the summer. San Francisco lies at the northern end of the peninsula. Because most of the topography is below 200 feet, marine air can flow easily across most of the city, making the climate cool and windy. Cities in the southeastern peninsula experience warmer temperatures and fewer foggy days because the marine layer is blocked by the ridgeline to the west.

The regional climate within the SFBAAB is considered semi-arid and characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate onshore breezes in the daytime, and moderate humidity. A wide range of meteorological and emissions-related sources, such as the dense population centers, heavy vehicular traffic, and industrial activity, influence air quality in the SFBAAB.

Annual average wind speeds range from 5 to 10 miles per hour throughout the peninsula. The tendency is for higher wind speeds to be found along the western coast. However, winds on the east side of the peninsula can also be high at certain locales because low-lying areas in the mountains, at San Bruno Gap and Crystal Springs Gap, commonly allow marine layer to pass across the peninsula.

The prevailing winds are westerly along the peninsula's west coast. Individual sites can show significant differences, however. For example, Fort Funston in western San Francisco County shows a southwest wind pattern, while Pillar Point in San Mateo County, to the south, shows a northwest wind pattern. Sites on the east side of the mountains also show a westerly pattern, although their wind patterns are influenced by local topographic features. That is, a rise in elevation of a few hundred feet will induce a flow around a feature instead of over it during stable atmospheric conditions. This can change the wind pattern by as much as 90 degrees over short distances. On mornings without a strong pressure gradient, the east side of the peninsula often experiences eastern flows in the surface layer, induced by upslope flows on east-facing slopes and the bay breeze, which is rarely seen after noon because a stronger sea breeze dominates the flow pattern.

On the peninsula, there are two important gaps in the Santa Cruz Mountains. The larger of the two is the San Bruno Gap, extending from Fort Funston on the ocean side to San Francisco International Airport (SFO) on the bay side. Because the gap is oriented in the same northwest-to-southeast direction as prevailing winds, and because elevations along the gap are less than 200 feet, marine air is easily able to penetrate into the bay.

The other gap in the Santa Cruz Mountains is the Crystal Springs Gap, located along State Route 92 between Half Moon Bay and San Carlos. The low point is 900 feet, but elevations reach 1,500 feet both north and south of the gap. As the sea breeze strengthens on summer afternoons, the gap permits maritime air to pass across the mountains. Its cooling effect is commonly seen from San Mateo to Redwood City.

The project site is within the city of San Francisco, which experiences a temperate climate. According to historical climate data from SFO, which is approximately 10 miles to the south, the hottest month is September, with an average temperature of 63°F. The coldest month is January, with an average temperature of 49°F. In total, SFO receives an average of 23 inches of rain per year.[17]

[17] Climate Data.org. 2021. *San Francisco Climate*. Available: https://en.climate-data.org/north-america/united-states-of-america/california/san-francisco-385/. Accessed: May 2021.

4.2.2.3 Existing Air Quality Conditions

Ambient Concentrations of Criteria Air Pollutants

A number of monitoring stations are located in the SFBAAB to monitor progress toward attainment of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The NAAQS and CAAQS are discussed further in the *Regulatory Setting*. The nearest monitoring station to the project site is the San Francisco – Arkansas Street monitoring station, located approximately 0.31 mile (1,600 feet) southwest of the site.

Table 4.2-1 summarizes 2017 to 2019 data from the San Francisco – Arkansas Street monitoring station regarding criteria air pollutant levels. The table shows violations of the federal and state ozone standards in 2019 and violations of the federal $PM_{2.5}$ standard in 2017 and 2018. Violations of the federal PM_{10} standard were recorded in 2017. The ozone, $PM_{2.5}$, and PM_{10} violations of the ambient air quality standards indicate that certain individuals may experience health effects, including an increased incidence of cardiovascular and respiratory ailments.

TABLE 4.2-1. AMBIENT AIR QUALITY DATA AT THE SAN FRANCISCO – ARKANSAS STREET MONITORING STATION (2017–2019)

Pollutant Standards	2017	2018	2019
Ozone (O_3)			
Maximum 1-hour concentration (ppm)	0.087	0.065	0.091
Maximum 8-hour concentration (ppm)	0.054	0.049	0.073
Number of days standard exceeded[a]			
CAAQS 1-hour concentration (> 0.09 ppm)	0	0	0
CAAQS 8-hour concentration (> 0.070 ppm)	0	0	1
NAAQS 8-hour concentration (> 0.070 ppm)	0	0	1
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	1.4	1.6	1
Maximum 1-hour concentration (ppm)	2.5	1.9	1.2
Number of days standard exceeded[a]			
NAAQS 8-hour concentration (≥ 9 ppm)	0	0	0
CAAQS 8-hour concentration (≥ 9.0 ppm)	0	0	0
NAAQS 1-hour concentration (≥ 35 ppm)	0	0	0
CAAQS 1-hour concentration (≥ 20 ppm)	0	0	0
Nitrogen Dioxide (NO_2)			
State maximum 1-hour concentration (ppb)[c]	73.0	68.8	61.0
State second-highest 1-hour concentration (ppb)[c]	66.9	65.8	54.1
Annual average concentration (ppb)	11	11	10
Number of days standard exceeded[a]			
CAAQS 1-hour concentration (180 ppb)	0	0	0

Pollutant Standards	2017	2018	2019
Particulate Matter (PM_{10})			
Maximum state 24-hour concentration (µg/m^3)[c,d]	77.0	43.0	42.0
Maximum national 24-hour concentration (⌠g/m^3)	75.9	40.9	42.1
National annual average concentration[b]	11.0	10.0	7.5
Measured number of days standard exceeded			
CAAQS 24-hour standard (50 µg/m^3)	0	0	0
NAAQS 24-hour standard (150 µg/m^3)	2	N/A	0
Fine Particulate Matter ($PM_{2.5}$)			
National[e] maximum 24-hour concentration (mg/m^3)	49.9	177.4	25.4
National[e] second-highest 24-hour concentration (mg/m^3)	49.7	145.4	22.0
State[f] maximum 24-hour concentration (mg/m^3)	49.9	177.4	25.4
State[f] second-highest 24-hour concentration (mg/m^3)	49.7	145.4	22.0
National annual average concentration (mg/m^3)[b]	9.7	11.6	7.6
State annual average concentration (mg/m^3)	9.7	11.7	7.7
Measured number of days standard exceeded[a]			
NAAQS 24-hour concentration (> 35 mg/m^3)	7	14	0

Sources: California Air Resources Board 2020b[18]; U.S. Environmental Protection Agency 2021[19]

Notes:

[a] An exceedance is not necessarily related to a violation of the standard.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on approved local samplers and local conditions data.

[d] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[e] National statistics are based on samplers using federal reference or equivalent methods.

[f] State statistics are based on local approved samplers.

ppb = parts per billion; ppm = parts per million; NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; µg/m^3 = micrograms per cubic meter, mg/m^3 = milligrams per cubic meter

Regional Attainment Status

Criteria air pollutant concentrations, which are measured at several monitoring stations in the SFBAAB, are used by EPA and CARB to designate areas according to their attainment status. The current attainment designations for the SFBAAB are shown in Table 4.2-2.

[18] California Air Resources Board 2020b. *iADAM: Air Quality Data Statistics – Top 4 Summary (2017–2019, San Francisco – Arkansas Street Monitoring Station).* Available: https://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed: May 2021.

[19] U.S. Environmental Protection Agency. 2021. Outdoor Air Quality Data. Monitor Values Reports (Carbon Monoxide, 2017–2019, San Francisco County, San Francisco – Arkansas Street Monitoring Station). Available: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report. Accessed: May 2021.

TABLE 4.2-2. FEDERAL AND STATE AMBIENT AIR QUALITY ATTAINMENT STATUS FOR THE SFBAAB

Criteria Pollutant	National Ambient Air Quality Standards	California Ambient Air Quality Standards
Ozone (8-hour standard)	Marginal Nonattainment	Nonattainment
Carbon monoxide (CO)	Attainment	Attainment
Particulate matter (PM_{10})	Attainment	Nonattainment
Fine particulate matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Nitrogen dioxide (NO_2)	Attainment	Attainment
Sulfur dioxide (SO_2)	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(no federal standard)	Unclassified
Hydrogen sulfide	(no federal standard)	Unclassified
Visibility-reducing particles	(no federal standard)	Unclassified

Sources: California Air Resources Board 2019[20]; U.S. Environmental Protection Agency 2021[21]

Existing Sources of Toxic Air Contaminants and Associated Health Risk Exposure

Multiple sources of TACs are found within 2,000 feet of the project site. These include traffic on an elevated section of Interstate (I) 280, approximately 500 feet away. Diesel-powered trucks traveling on I-280 emit DPM; passenger vehicles emit organic gasses, including various TACs. Local roadways adjacent to the project site are also used by gasoline- and diesel-powered vehicles that emit TACs. In addition, all vehicle types generate particulate matter from brake and tire wear and resuspend dust. Diesel locomotives operating on the Caltrain tracks, also approximately 500 feet from the project site, are another source of DPM. There are also multiple stationary sources of TACs near the project site that require permits from BAAQMD to operate. These include steam boilers, emergency generators, a fluid heater, medical sterilizer, hospital cleaning apparatus, a drying oven, mixing vat, and a burner for coffee roasting.

An air quality site assessment prepared for the project site included a health risk assessment (HRA) that quantified the level of health risk exposure for students and teachers at the proposed school site. The assessment estimated that the level of cancer risk at the project site would be a maximum of 7.2 in 1 million, which does not exceed BAAQMD's recommended cumulative risk level of 100 in 1 million. The assessment estimated that the non-cancer chronic hazard index would be less than 0.1, as would the acute hazard index. These values are less than BAAQMD's recommended hazard index level of 10.[22]

[20] California Air Resources Board. 2019. Summaries of Historical Area Designations for State Standards (San Francisco County). Available: https://ww2.arb.ca.gov/our-work/programs/state-and-federal-area-designations/state-area-designations/summary-tables. Accessed: May 2021.

[21] U.S. Environmental Protection Agency. 2021. Nonattainment Areas for Criteria Pollutants (Green Book) (San Francisco County). Available: https://www.epa.gov/green-book. Accessed: May 2021.

[22] ICF. 2020. Air Quality Site Assessment Report for the Mission Bay Block 14 and 15 Project. June. Prepared for the San Francisco Unified School District.

Major Roadways Contributing to Air Pollution

Third Street, 16th Street, and Mariposa Street are arterials within 1,000 feet of the project site that have an annual average daily traffic (ADT) of at least 10,000, based on the San Francisco Chained Activity Modeling Process, known as SF-CHAMP. This traffic contributes to concentrations of $PM_{2.5}$, DPM, and other air contaminants that are emitted from motor vehicles near the street level. Aside from the surrounding roadways, no mobile-source activities or non-permitted sources (e.g., railyards, trucking distribution facilities, high-volume fueling stations) are located within 1,000 feet of the project site.

4.2.2.4 Sensitive Receptors

Sensitive land uses are defined as locations where human populations, especially children, seniors, and sick persons, are located and where there is reasonable expectation of continuous human exposure, according to the averaging periods for the air quality standards (i.e., 24-hour or 8-hour standard). Per BAAQMD, typical sensitive land uses are residences, hospitals, and schools. Parks and playgrounds where sensitive receptors (e.g., children and seniors) are present are also considered sensitive land uses.[23]

The project is located the Mission Bay neighborhood of the city, an area that is highly urbanized. The nearest sensitive receptors to the project site include the University of California, San Francisco (UCSF) Orthopedic Trauma Service (hospital), located approximately 140 feet to the south; University Child Care at Mission Bay (childcare), located 310 feet to the southeast; and the SFF Soccer fields (park), located approximately 90 feet to the northeast. The nearest residential uses include the apartment buildings along Long Bridge Street and China Basin Street, which are approximately 230 feet northeast of the project site, and the apartment buildings along Merimac Street, which are approximately 600 feet northeast of the site. The nearest school is the Sandler Neurosciences Center, located 560 feet east of the project site; however, this school comprises primarily non-sensitive receptors. All sensitive receptors within 1,000 feet of the project site were analyzed in the HRA and cumulative impact assessment.

4.2.3 Regulatory Framework

The federal CAA and its subsequent amendments form the basis for the nation's air pollution control effort. EPA is responsible for implementing most aspects of the CAA. A key element of the CAA is the NAAQS for criteria pollutants. The CAA delegates enforcement of the NAAQS to the states. In California, CARB is responsible for enforcing air pollution regulations and ensuring the NAAQS and CAAQS are met. CARB, in turn, delegates regulatory authority for stationary sources and other air quality management responsibilities to local air agencies. BAAQMD is the local air agency for the project area.

This section provides a summary of the City's air quality plans and policies, as well as regional, state, and federal agencies that have policy and regulatory control over the project site.

[23] Ibid.

4.2.3.1 Federal

Clean Air Act and National Ambient Air Quality Standards

The CAA, enacted in 1963, has been amended in 1965, 1967, 1970, 1977, and 1990. The CAA establishes federal air quality standards, known as NAAQS, for six criteria pollutants and specifies future dates for achieving compliance. The CAA also mandates that states submit and implement a State Implementation Plan (SIP) for local areas that fail to meet the standards. The plans must include pollution control measures that demonstrate how the standards will be met. The 1990 CAA amendments identify specific emissions reduction goals for areas that fail to meet the NAAQS. These amendments require both a demonstration of reasonable progress toward attainment as well as incorporation of sanctions for failure to attain or meet interim milestones. Table 4.2-3 shows the NAAQS currently in effect for each criteria pollutant as well as the CAAQS (discussed below).

Non-road Diesel Rule

EPA has established a series of increasingly strict emissions standards for new off-road diesel equipment, on-road diesel trucks, and locomotives. New equipment, including heavy-duty trucks and off-road construction equipment, is required to comply with these emissions standards.

Corporate Average Fuel Economy Standards

The National Highway Traffic Safety Administration (NHTSA) Corporate Average Fuel Economy (CAFE) standards require substantial improvements in fuel economy as well as reductions in emissions of criteria air pollutants and precursors, as well as GHGs, from all light-duty vehicles sold in the United States. On August 2, 2018, NHTSA and EPA proposed an amendment to the fuel efficiency standards for passenger cars and light trucks and established new standards for model years 2021 through 2026 that would maintain the then-current 2020 standards through 2026—this was known as the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule. On September 19, 2019, NHTSA and EPA issued a final action on the One National Program Rule, which is considered Part One of the SAFE Vehicles Rule and a precursor to the proposed fuel efficiency standards. The One National Program Rule enables NHTSA and EPA to provide nationwide uniform fuel economy and air pollutant standards by 1) clarifying that federal law preempts state and local tailpipe standards, 2) affirming NHTSA's statutory authority to set nationally applicable fuel economy standards, and 3) withdrawing California's CAA preemption waiver to set state-specific standards.

NHTSA and EPA published their decision to withdraw California's waiver and finalize the regulatory text related to the preemption on September 27, 2019 (84 *Federal Register* 51310). California, 22 other states, the District of Columbia, and two cities filed suit against Part One of the SAFE Vehicles Rule on September 20, 2019 (*California et al. v. United States Department of Transportation et al.* 1:19-cv-02826, U.S. District Court for the District of Columbia). On October 28, 2019, the Union of Concerned Scientists, Environmental Defense Fund, and other groups filed a protective petition for review after the federal government sought to transfer the suit to the District of Columbia (*Union of Concerned Scientists v. National Highway Traffic Safety Administration*). The lawsuit filed by California and others has been stayed, pending resolution of the petition.

TABLE 4.2-3. FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Criteria Pollutant	Averaging Time	California Standards	National Standards[a]	
			Primary	Secondary
Ozone	1 hour	0.09 ppm	None[b]	None[b]
	8 hours	0.070 ppm	0.070 ppm	0.070 ppm
CO	8 hours	9.0 ppm	9 ppm	None
	1 hour	20 ppm	35 ppm	None
PM_{10}	24 hours	50 ⌈g/m^3	150 ⌈g/m^3	150 ⌈g/m^3
	Annual mean	20 ⌈g/m^3	None	None
$PM_{2.5}$	24 hours	None	35 ⌈g/m^3	35 ⌈g/m^3
	Annual mean	12 ⌈g/m^3	12.0 ⌈g/m^3	15 ⌈g/m^3
NO_2	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1 hour	0.18 ppm	0.100 ppm	None
SO_2[c]	Annual mean	None	0.030 ppm	None
	24 hours	0.04 ppm	0.14 ppm	None
	3 hours	None	None	0.5 ppm
	1 hour	0.25 ppm	0.075 ppm	None
Lead	30-day average	1.5 ⌈g/m^3	None	None
	Calendar quarter	None	1.5 ⌈g/m^3	1.5 ⌈g/m^3
	3-month average	None	0.15 ⌈g/m^3	0.15 ⌈g/m^3
Sulfates	24 hours	25 ⌈g/m^3	None	None
Visibility-reducing particles	8 hours	—[d]	None	None
Hydrogen sulfide	1 hour	0.03 ppm	None	None
Vinyl chloride	24 hours	0.01 ppm	None	None

Source: California Air Resources Board 2016[24].

Notes:

a. National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

b. The federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and a benchmark for SIPs.

c. The annual and 24-hour NAAQS for SO_2 apply for only 1 year after designation of the new 1-hour standard in those areas that were previously in nonattainment for the 24-hour and annual NAAQS.

d. The CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer, which equates to visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.

ppm = parts per million; ⌈g/m^3 = micrograms per cubic meter

NHTSA and EPA published final rules on April 30, 2020, to amend and establish national air pollutant and fuel economy standards (Part Two of the SAFE Vehicles Rule) (85 *Federal Register* 24174). The revised rule changes the national fuel economy standards for light-duty vehicles from 46.7 miles per gallon (mpg) to 40.4 mpg in future years. California, 22 other states, and the District of Columbia filed a petition for review of the final rule on May 27, 2020.[25]

On January 20, 2021, the president issued an executive order, directing NHTSA and EPA to review the SAFE Vehicles Rule, Part One, and propose a new rule for suspending, revising, or rescinding it by April

[24] California Air Resources Board. 2016. *Ambient Air Quality Standards.* May 4. Available: https://ww3.arb.ca.gov/ research/aaqs/aaqs2.pdf. Accessed: May 2021

[25] *California et al. v. United States Department of Transportation et al.*, 1:19-cv-02826, U.S. District Court for the District of Columbia.

2021. The executive order also requires NHTSA and EPA to propose a new rule for suspending, revising, or rescinding Part Two by July 2021.

The fate of the SAFE Vehicles Rule remains uncertain in the face of pending legal deliberations and the new federal administration.

4.2.3.2 State

California Clean Air Act and California Ambient Air Quality Standards

In 1988, the state legislature adopted the California CAA, which established a statewide air pollution control program. The California CAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the CAA, the California CAA does not set precise attainment deadlines. Instead, the California CAA establishes increasingly stringent requirements for areas that require more time to achieve the standards. The CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS are shown in Table 4.2-3.

CARB and local air districts bear responsibility for meeting the CAAQS, which are to be achieved through district-level air quality management plans that have been incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to CARB, which, in turn, has delegated that authority to individual air districts. Traditionally, CARB has established state air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emissions inventories, collected air quality and meteorological data, and approved SIPs.

The California CAA substantially adds to the authority and responsibilities of air districts. The California CAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The California CAA also emphasizes control of "indirect and area-wide sources" of air pollutant emissions. The California CAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution.

Statewide Truck and Bus Regulation

CARB adopted its Truck and Bus Regulation in 2008 to focus its efforts on reducing emissions of DPM, NO_X, and other criteria pollutants from diesel-fueled vehicles. This regulation applies to any diesel-fueled vehicle, as well as any dual-fuel or alternative-fuel diesel vehicle, that travels on public highways; yard trucks with on-road engines; yard trucks with off-road engines used for agricultural operations; school buses; and vehicles with a gross vehicle weight rating (GVWR) of more than 14,000 pounds. The purpose of the regulation is to require trucks and buses registered in the state to have 2010 or newer engines by 2023. Compliance schedules have been established for lighter vehicles (GVWR of 14,000 to 26,000 pounds) and heavier vehicles (GVWR of more than 26,001 pounds).[26] As of January 1, 2020, only vehicles that met the requirements of the Trucks and Bus Regulation were allowed to register with the California Department of Motor Vehicles.

[26] California Air Resources Board. 2020. *CARB Truck Rule Compliance Required for DMV Registration*. July. Available: https://ww3.arb.ca.gov/msprog/truckstop/pdfs/sb1_faqeng.pdf. Accessed: May 2021.

Toxic Air Contaminant Regulation

California regulates TACs primarily through the Toxic Air Contaminant Identification and Control Act (Tanner Act) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 ("Hot Spots" Act). In the early 1980s, CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Act created California's program to reduce the public's exposure to air toxics. The "Hot Spots" Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification for people who were exposed to a significant health risk, and facility plans to reduce risks.

In August 1998, CARB identified DPM from diesel-fueled engines as a TAC. In September 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan was to reduce DPM (i.e., respirable particulate matter) emissions, as well as the associated health risk, by 75 percent in 2010 and 85 percent by 2020. The plan identifies 14 measures that CARB will implement over the next several years.

Off-Road Diesel Vehicle Regulation

Off-road vehicles include, but are not limited to, diesel compression-ignition equipment; spark-ignition gasoline and liquified petroleum gas equipment; support equipment at ports, airports, and railways; and marine vehicles. In 2007, CARB aimed to reduce emissions of DPM, NO_X, and other criteria pollutants from off-road diesel-fueled equipment with adoption of the In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation). The Off-Road Regulation applies to all diesel-fueled equipment or alternative-fuel diesel equipment with a compression-ignition engine greater than 25 horsepower (e.g., tractors, bulldozers, backhoes) as well as dual-fuel equipment. The regulation also applies to all equipment that is rented or leased.[27] The purpose of the regulation is to reduce emissions by retiring, repowering, or replacing older, dirtier engines with newer, cleaner engines. The regulation established a compliance schedule for owners of small, medium, and large fleets. The schedule for large and medium fleets requires full implementation by 2023; small fleets have until 2028.[28]

4.2.3.3 Regional

Bay Area Air Quality Management District

At the local level, responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by the California Environmental Quality Act (CEQA). The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations to address the requirements of federal and state air quality laws and ensure that the NAAQS and CAAQS are met.

The project falls under the jurisdiction of BAAQMD, which has local air quality jurisdiction over projects in the SFBAAB, including the county. BAAQMD developed advisory emissions thresholds to assist CEQA lead agencies in determining the level of significance of a project's emissions, as outlined in the

[27] California Air Resources Board. 2008. *Final Regulation Order, Airborne Toxic Control Measure to Limit* Diesel-*Fueled Commercial Motor Vehicle Idling.* Available: https://ww3.arb.ca.gov/regact/idling/fro1.pdf. Accessed: May 2021.

[28] Ibid.

California Environmental Quality Act Air Quality Guidelines (CEQA Air Quality Guidelines).[29] BAAQMD has also adopted air quality plans to improve air quality, protect public health, and protect the climate, including the 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 Clean Air Plan).[30]

The 2017 Clean Air Plan, adopted by BAAQMD on April 19, 2017, updates the prior 2010 Bay Area ozone plan and outlines feasible measures for reducing ozone. The plan also provides a control strategy for reducing particulate matter, air toxics, and GHGs in a single, integrated plan and establishes emissions control measures for adoption or implementation. The 2017 Clean Air Plan contains the following primary goals:

- *Protect Air Quality and Health at the Regional and Local Scale*: Attain all state and national air quality standards and eliminate disparities among Bay Area communities with respect to cancer health risks from TACs, and
- *Protect the Climate*: Reduce Bay Area GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

The 2017 Clean Air Plan is the current air quality plan for the SFBAAB. Consistency with the plan is the basis for determining whether a project would conflict with or obstruct implementation of an air quality plan.

In addition to air quality plans, BAAQMD also adopts rules and regulations to improve existing and future air quality. The project may be subject to the following district rules:

- Regulation 2, Rule 2 (New Source Review)—This regulation contains requirements for best available control technology and emission offsets;
    - Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminates)—This regulation outlines guidance for evaluating TAC emissions and their potential health risks;
    - Regulation 6, Rule 1 (PM)—This regulation restricts emissions of particulate matter darker than a 1 on the Ringlemann Chart to less than 3 minutes in any 1 hour;
    - Regulation 7 (Odorous Substances)—This regulation establishes general odor limitations on odorous substances and specific emission limitations on certain odorous compounds;
    - Regulation 8, Rule 3 (Architectural Coatings)—This regulation limits the quantity of ROG in architectural coatings;
    - Regulation 9, Rule 8 (Stationary Internal Combustion Engines)—This regulation limits emissions of NO_X and CO from stationary internal combustion engines of more than 50 horsepower; and
    - Regulation 11, Rule (Hazardous Pollutants – Asbestos Demolition, Renovation, and Manufacturing)—This regulation, which incorporates EPA's National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations, controls emissions of asbestos to the atmosphere during demolition, renovation, and transport activities.

[29] Bay Area Air Quality Management District. 2017b. *California Environmental Quality Act Air Quality Guidelines.* May. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: May 2021.

[30] Bay Area Air Quality Management District. 2017a. *Final 2017 Clean Air Plan.* Adopted April 19. Available: https://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 2021.

BAAQMD CARE Program

The Community Air Risk Evaluation (CARE) Program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources, with an emphasis on diesel exhaust, which is a major contributor to airborne health risks in California. The CARE Program is an ongoing program that encourages community involvement and input. The technical analysis portion of the CARE Program is being implemented in three phases: an assessment of the sources of TAC emissions; modeling and measurement programs to estimate concentrations of TACs; and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and a high density of sensitive populations. Risk reduction activities associated with the CARE Program are focused on the most at-risk communities in the Bay Area.

For commercial and industrial sources, BAAQMD regulates TACs using a risk-based approach. This approach relies on an HRA to determine which sources and pollutants to control as well as the degree of control. An HRA is an analysis in which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency of substances to provide a quantitative estimate of health risks.[31] As part of ongoing efforts to identify and assess potential health risks to the public, BAAQMD has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Bay Area. BAAQMD has identified seven affected communities; the city, including the project site, has been identified as an affected community within the 2013 Cumulative Impact Area.[32,33]

BAAQMD CEQA Air Quality Guidelines

The BAAQMD CEQA Air Quality Guidelines were prepared to assist in the evaluation of the air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and GHG emissions.

In June 2010, BAAQMD adopted its updated CEQA Air Quality Guidelines and finalized them in May 2011. The guidelines, which superseded the agency's previously adopted air quality guidelines of 1999, were intended to advise lead agencies on how to evaluate potential air quality impacts. In May 2017, BAAQMD published an updated version of the CEQA Air Quality Guidelines. The 2017 CEQA Air Quality Guidelines included thresholds for evaluating a project's impact on air quality.

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31 In general, an HRA is required if BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk. Such an assessment generally evaluates chronic, long-term effects, including the increased risk of cancer as a result of exposure to one or more TACs.

32 The affected communities are Richmond/San Pablo; eastern San Francisco, including Treasure Island; San José; western Alameda County; Concord; Vallejo; and Pittsburg/Antioch.

33 Bay Area Air Quality Management District. 2015. *Identifying Areas with Cumulative Impacts from Air Pollution in the San Francisco Bay Area*. March. Available: https://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CARE%20Program/Documents/ImpactCommunities_2_Methodology.ashx. Accessed: May 2021.

4.2.3.4 Local

San Francisco Modeling of Air Pollutant Exposure Zones

In an effort to identify the areas of San Francisco that are most adversely affected by TACs, the City partnered with BAAQMD to inventory and assess exposures to air pollution from mobile, stationary, and area sources. Any area with poor air quality, termed an Air Pollutant Exposure Zone (APEZ), was identified by considering the following health-protective criteria:

1. Cancer risk greater than 100 per 1 million from the contribution of emissions from all modeled sources, or
2. Cumulative $PM_{2.5}$ concentrations greater than 10 µg/m3.

The APEZ also includes all parcels within 500 feet of a freeway. To be more health protective, the criteria for identifying the APEZ is lower in certain health-vulnerable[34] zip codes. In such areas, the criteria for identifying the APEZ are 10 percent lower than elsewhere in the city (i.e., areas where the cancer risk exceeds 90 in 1 million or the $PM_{2.5}$ concentration exceeds 9 $\mu g/m^3$).

In 2020, the City completed an update to the citywide HRA and APEZ map.[35] This included updated emissions estimates for mobile, permitted stationary, and maritime sources; air dispersion modeling on a 20- by 20-meter receptor grid that encompassed the entire city; and an HRA that was based on updated guidance from OEHHA. The citywide analysis, which included a wide range of emissions sources in the city, estimated emissions of fine particulate matter, DPM, and other TACs to determine pollutant concentrations and resulting cancer risks. According to the updated modeling results, the project site is located within an APEZ.

San Francisco Construction Dust Control Ordinance (Article 22B)

Since certification of the Mission Bay Final Subsequent EIR in 1998, the City adopted San Francisco Health Code Article 22B and San Francisco Building Code Section 106.A.3.2.6, which collectively constitute the Construction Dust Control Ordinance (adopted in July 2008). The ordinance requires all site preparation work, demolition, or other construction activities in San Francisco with the potential to create dust or expose or disturb more than 10 cubic yards or 500 square feet of soil to comply with specified dust control measures, regardless of whether the activity requires a permit from the Department of Building Inspection. For projects involving more than 0.5 acre, the Construction Dust Control Ordinance requires the project sponsor to submit a Dust Control Plan for approval from the San Francisco Department of Public Health . The Construction Dust Control Ordinance requires project sponsors, as well as the contractors responsible for construction activities, to control dust on the construction site in accordance with the ordinance or implement practices that would result in equivalent dust control and be acceptable to the director of public health. Dust suppression activities may include watering all active construction areas to prevent dust from becoming airborne. It may be necessary to increase the frequency of watering when wind speeds exceed 15 miles per hour. Reclaimed water must be used if required by San Francisco Public Works Code Article 21, Section 1100 et seq. The San Francisco Unified School

[34] California Air Resources Board. 1998. *Fact Sheet: The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines*. October. Available: https://ww3.arb.ca.gov/toxics/dieseltac/ factsht1.pdf. Accessed: May 2021.

[35] San Francisco Department of Public Health, San Francisco Planning Department, Ramboll. 2020. *Draft San Francisco Citywide Health Risk Assessment: Technical Support Documentation.* February. Available: https://www.sfdph.org/dph/files/EHSdocs/AirQuality/Air_Pollutant_Exposure_Zone_Technical_Documentation_2020.pdf. Accessed: May 2021.

District (District or SFUSD) will implement a Draft Removal Action Work Plan (RAW) which includes a Dust Control Plan.

San Francisco Health Code Provisions for Urban Infill Development (Article 38)

The City adopted Article 38 of the San Francisco Health Code in 2008, with revisions taking effect in December 2014.[36] The revised code requires sensitive land use developments within the APEZ to incorporate ventilation systems equivalent to Minimum Efficiency Reporting Value (MERV) 13 to remove particulates from outdoor air. This regulation also applies to conversion to a sensitive use (e.g., residences, senior care facilities, day-care centers). Article 38 would apply to the proposed project because it is considered development of a sensitive land use.

San Francisco Unified School District Carbon Reduction Plan

In August 2020, SFUSD released an updated Carbon Reduction Plan that details a variety of goals to help the District phase out fossil fuel use by 2040. The Carbon Reduction Plan applies to District operations, such as the use of energy and water at its facilities and in its vehicle fleet, which are sources of emissions the District can control. Although the Carbon Reduction Plan focuses predominantly on GHG emissions, the following building, fleet, and renewables goals would help reduce the project's operational air quality emissions:

Carbon Reduction Plan Goals

Buildings

- New buildings will be designed with the goal of using no more energy than they generate on-site.
- New and modernized buildings will be plumbed for rainwater collection where feasible.
- SFUSD will strive to reduce gas usage 30 percent by 2020, 50 percent by 2030, and 100 percent by 2040.
- SFUSD will strive to reduce its water usage 30 percent by 2020 and 50 percent by 2030.

Fleet

- All new SFUSD-owned vehicles will be emissions free.
- SFUSD will strive to fuel all diesel-powered buses with renewable diesel by 2020.
- All SFUSD-owned vehicles will be electric or powered by low-carbon fuels by 2030.

Renewables

- SFUSD will strive to generate 100 percent of its power needs on-site by 2050.
- SFUSD will strive to meet 50 percent of water demand through rainwater by 2050.

[36] San Francisco Health Code. 2014. *Article 38 of the San Francisco Health Code*. Available: https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_health/0-0-0-6054. Accessed: May 2021.

San Francisco Unified School District Sustainability.

The district has developed a number of sustainability goals that are relevant to criteria pollutant emissions. Specifically, the following goals would help reduce the project's potential future emissions:

- **Sustainable Transportation**: Reduce SFUSD's transportation carbon footprint by converting to a zero-emissions fleet by 2030 and reducing solo family car trips from 48 to 30 percent by 2030.
    - *Zero-Emissions Vehicles*: SFUSD is purchasing only plug-in electric vehicles (as available) and working with its school bus transportation provider to do the same.
    - *Trip Reduction*: The district is assessing the possibility of reducing school commute lengths as it develops a new school assignment policy.
    - *Mode Shift*: As part of the citywide Safe Routes to School Program, families are encouraged to walk, bike, carpool, or take transit to school.
    - *Traffic Safety*: In collaboration with the San Francisco Municipal Transportation Agency, the district is working to improve congestion and safety around schools.
    - *Education*: SFUSD is creating walking, transit, and bike curriculum to educate the next generation of transportation users.
    - *Staff Mobility*: The Sustainability Office is rolling out numerous programs and incentives to encourage staff members to leave their cars at home during the work commute.

4.2.4 Impacts and Mitigation Measures

This section contains the impact analysis for the project as it relates to air quality. The methods used to determine the potential project-related impacts, as well as the thresholds of significance used to conclude whether or not an impact would be significant, are described below. Measures that would mitigate (i.e., avoid, minimize, rectify, eliminate, or compensate for) significant impacts are included within each impact discussion where deemed necessary and appropriate.

4.2.4.1 Significance Criteria

CEQA Guidelines Appendix G (14 CCR 15000 et seq.) identifies the significance criteria to be considered in determining whether a project could have significant impacts on air quality.

Would the project:

- Conflict with or obstruct implementation of the applicable air quality plan (AQ-1)?
- Result in a cumulatively considerable net increase in any criteria pollutant for which the project region is classified as a nonattainment area under an applicable federal or state ambient air quality standard (AQ-2)?
- Expose sensitive receptors to substantial pollutant concentrations (AQ-3)?
- Result in other emissions (such as those leading to odors) that would adversely affect a substantial number of people (AQ-4)?
- In combination with past, present, and reasonably foreseeable future projects result in a significant cumulative impact on air quality (C-AQ-1)?

As discussed above, the pollutants that would be generated by the proposed project are associated with some form of health risk (e.g., asthma, lower respiratory problems). Regional pollutants can be

transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. As discussed above, the primary pollutants of concern generated by the project are ozone precursors (ROG and NO_X), CO, particulate matter, and TACs (including DPM and asbestos). The emissions thresholds that can be used to evaluate the significance level of regional and localized pollutants are discussed in the subsections that follow. Thresholds and guidance for evaluating potential odors associated with the project area are also presented.

Regional Project-Generated Criteria Pollutant Emissions (Ozone Precursors and Regional Particulate Matter)

This analysis evaluates the impacts of regional emissions generated by the project using a two-tiered approach that considers guidance recommended by BAAQMD in the agency's CEQA Air Quality Guidelines.[37] First, this analysis considers whether the project would conflict with the most recent air quality plan.[38] Specifically, the impact analysis evaluates whether the project would support the primary goals of the 2017 Clean Air Plan, including applicable control measures, and whether it would disrupt or hinder implementation of any control measures. Second, calculated regional criteria pollutant emissions are compared with BAAQMD's project-level thresholds. BAAQMD's thresholds, as summarized in Table 4.2-4, are recommended by the agency to evaluate the significance of a project's regional criteria pollutant emissions.[39] According to BAAQMD, projects with emissions in excess of the thresholds shown in Table 4.2-4 would be expected to have a significant cumulative impact on regional air quality because an exceedance of the thresholds is anticipated to contribute to NAAQS and CAAQS violations.

TABLE 4.2-4. BAAQMD PROJECT-LEVEL REGIONAL CRITERIA POLLUTANT EMISSION THRESHOLDS

Analysis	Thresholds
Regional Criteria Pollutants (Construction)	• Reactive Organic Gases: 54 pounds/day • Nitrogen Oxides: 54 pounds/day • Particulate Matter: 82 pounds/day (exhaust only); compliance with best management practices (fugitive dust) • Fine Particulate Matter: 54 pounds/day (exhaust only); compliance with best management practices (fugitive dust)
Regional Criteria Pollutants (Operations)	• Reactive Organic Gases: Same as construction • Nitrogen Oxides: Same as construction • Particulate Matter: 82 pounds/day (exhaust only) • Fine Particulate Matter: 54 pounds/day (exhaust only)

Source: Bay Area Air Quality Management District 2017b[40].

[37] Bay Area Air Quality Management District. 2017b. *California Environmental Quality Act Air Quality Guidelines.* May. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: May 2021.

[38] Bay Area Air Quality Management District. 2017a. *Final 2017 Clean Air Plan.* Adopted April 19. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. May 2021.

[39] Bay Area Air Quality Management District. 2017b. *California Environmental Quality Act Air Quality Guidelines.* May. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: April 2021.

[40] Bay Area Air Quality Management District. 2017b. *California Environmental Quality Act Air Quality Guidelines*. May. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines _may2017-pdf.pdf?la=en. Accessed: May 2021.

Adverse health effects induced by regional criteria pollutant emissions generated by the proposed project (ozone precursors and particulate matter) are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). For these reasons, ozone precursors (ROG and NO_X) contribute to the formation of ground-borne ozone on a regional scale. Emissions of ROG and NO_X generated in one area may not equate to a specific ozone concentration in that same area. Similarly, some types of particulate pollution may be transported over long distances or form through atmospheric reactions. As such, the magnitude and locations of specific health effects from exposure to increased ozone or regional particulate matter concentrations are the product of emissions generated by numerous sources throughout a region, as opposed to a single individual project. Moreover, exposure to regional air pollution does not guarantee that an individual will experience an adverse health effect because there are large individual differences in the intensity of symptomatic responses to air pollutants. These differences are influenced, in part, by the underlying health condition of an individual, which cannot be known. Nonetheless, emissions generated by the proposed project could increase photochemical reactions and the formation of tropospheric ozone and secondary particulate matter, which, at certain concentrations, could lead to increased incidences of specific health consequences, such as various respiratory and cardiovascular ailments. As discussed previously, air districts develop region-specific CEQA thresholds of significance in consideration of existing air quality concentrations and attainment designations under the NAAQS and CAAQS, which are informed by a wide range of scientific evidence that demonstrates that there are known safe concentrations of criteria pollutants. Accordingly, the proposed project would expose receptors to substantial regional pollution if the thresholds summarized in Table 4.2-4 are exceeded.

Health-Based Thresholds for Project-Generated Pollutants of Human Health Concern

The California Supreme Court's decision in *Sierra Club v. County of Fresno* (6 Cal. 5th 502), hereafter referred to as the *Friant Ranch* Decision, reviewed the long-term regional air quality analysis contained in the EIR for the proposed Community Plan Update and *Friant Ranch* Specific Plan (*Friant Ranch* Project). The *Friant Ranch* Project proposed a 942-acre master-plan development in unincorporated Fresno County, within the San Joaquin Valley Air Basin, which is currently designated as a nonattainment area with respect to the NAAQS and CAAQS for ozone and $PM_{2.5}$. The court found that the EIR's air quality analysis was inadequate because it failed to provide enough detail "for the public to translate the bare [criteria pollutant emissions] numbers provided into adverse health impacts or to understand why such a translation is not possible at this time." The court's decision notes that environmental documents must attempt to connect a project's air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis.

All criteria pollutants generated by the proposed project would be associated with some form of health risk (e.g., asthma, lower respiratory problems). Criteria pollutants can be classified as either regional pollutants or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. O_3 is considered a regional criteria pollutant, whereas CO, NO_2, SO_2, and lead are localized pollutants. Particulate matter can be both a local and a regional pollutant, depending on its composition. The primary criteria pollutants of concern generated by the proposed project would be ozone precursors (ROG and NO_X), CO, and particulate matter, including DPM.

The sections that follow discuss thresholds and analysis considerations for regional and local project-generated criteria pollutants with respect to their human health implications.

Localized Project-Generated Criteria Pollutant Emissions (Carbon Monoxide and Particulate Matter) and Air Toxics (Diesel Particulate Matter)

Localized pollutants generated by a project can be deposited near the emissions source, potentially affecting the nearby population. Although these pollutants dissipate with distance, emissions from individual projects can result in direct and material health impacts on adjacent sensitive receptors. The localized pollutants of concern that would be generated by the project are CO, particulate matter, and DPM. The applicable thresholds for each pollutant are described below.

Carbon Monoxide

Heavy traffic congestion can contribute to high levels of CO. Individuals exposed to such "hot spots" may have a greater likelihood of developing adverse health effects. BAAQMD has adopted screening criteria that provide a conservative indication of whether project-generated traffic would cause a potential CO hot spot. If the screening criteria are not met, a quantitative analysis, through site-specific dispersion modeling of project-related CO concentrations, would not be necessary. The project would not cause localized violations of the CAAQS for CO. BAAQMD's CO screening criteria are summarized below.[41]

- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., a tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).
- The project would be consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.

BAAQMD does not consider construction-generated CO to be a significant pollutant of concern because construction activities typically do not generate substantial quantities of this particular pollutant.[42]

Particulate Matter

BAAQMD adopted an incremental $PM_{2.5}$ concentration-based significance threshold in which a "substantial" contribution at the project level for an individual source is defined as total (i.e., exhaust and fugitive) $PM_{2.5}$ concentrations exceeding 0.3 $\mu g/m^3$. In addition, BAAQMD considers projects to have a cumulatively considerable $PM_{2.5}$ impact if sensitive receptors are exposed to $PM_{2.5}$ concentrations from local sources within 1,000 feet, including existing sources, project-related sources, and reasonably foreseeable future sources, that exceed 0.8 $\mu g/m^3$.[43]

BAAQMD has not established PM_{10} thresholds of significance. BAAQMD's $PM_{2.5}$ thresholds apply to both new receptors and new sources. However, BAAQMD considers impacts related to fugitive PM_{10} from earthmoving activities to be less than significant with application of BAAQMD's basic construction mitigation measures.

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41 Bay Area Air Quality Management District. 2017b. *California Environmental Quality Act Air Quality Guidelines*. May. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: May 2021.

42 Ibid.

43 Ibid.

Diesel Particle Matter

DPM has been identified as a TAC. It is particularly concerning because long-term exposure can lead to cancer, birth defects, and damage to the brain and nervous systems. BAAQMD has adopted incremental cancer and hazard thresholds to evaluate receptor exposure to single sources of DPM emissions. The "substantial" DPM threshold defined by BAAQMD is exposure of a sensitive receptor to an individual emissions source, resulting in an excess cancer risk level of more than 10 in 1 million or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0.[44] BAAQMD also considers projects to have a cumulatively considerable DPM impact if they contribute to DPM emissions that, when combined with cumulative sources within 1,000 feet of sensitive receptors, result in excess cancer risk levels of more than 100 in 1 million or an hazard index greater than 10.0. BAAQMD considers projects to have a significant cumulative impact if they introduce new receptors at a location where the combined exposure to all cumulative sources within 1,000 feet is in excess of cumulative thresholds.[45]

Asbestos

BAAQMD considers a project to have a significant impact if it does not comply with the applicable regulatory requirements outlined in BAAQMD's Regulation 11, Rule 2.

Odors

BAAQMD[46] and CARB[47] have identified several types of land uses as being commonly associated with odors, such as landfills, wastewater treatment facilities, and animal processing centers. BAAQMD's CEQA Air Quality Guidelines recommend that project analyses identify the location of existing and planned odor sources and include policies to reduce potential odor impacts in the project area.

4.2.4.2 Approach to Analysis

Demolition and surcharging[48] at the project site would begin in approximately March 2022. There would be an approximate one-year period when no construction activity would occur (i.e., mid-2022 to mid-2023). Site remediation and construction of the proposed building would begin in mid-2023 and continue for approximately 21 to 24 months. Construction would conclude by summer 2025, and the project would be fully operational in 2025. As the design of the project progresses, it may be determined that surcharging is not required for the proposed project.

Site Assessment

Because the proposed project consists of a preschool and an elementary school, an air quality site assessment was conducted. The *Air Quality Site Assessment Report for the Mission Bay Block 14 and 15 Project* (AQTR)[49] evaluated the air quality–related health risks at Block 14 and Block 15. The evaluation considered whether a school sited at Block 14 and Block 15 would result in students being exposed to significant health risks. Per Senate Bill 352 and Public Resources Code Section 21151.8(a)(1)(D), if a

44 Ibid.

45 Ibid.

46 Ibid.

47 California Air Resources Board. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* April. Available: https://ww3.arb.ca.gov/ch/handbook.pdf. Accessed: March 16, 2020.

48 Surcharging would involve the use of imported soil piled on the surface of the project site to cause lateral pressure. The additional pressure would shorten the consolidation time for the soil at the project site.

49 ICF. 2020. *Air Quality Site Assessment Report for the Mission Bay Block 14 and 15 Project*. June.

potential school site is within 500 feet of the edge of a busy freeway, dispersion modeling is required to demonstrate that exposure to the ambient air quality in the area would not pose significant health risks for students. Block 14 (the project site) is within 500 feet of I-280. The AQTR concluded that health risks, including $PM_{2.5}$ concentrations, at Block 14 and Block 15 would not exceed any of the thresholds established by BAAQMD for the siting of new schools. However, the AQTR concluded that incremental[50] $PM_{2.5}$ concentrations in the area near Block 14 and Block 15, where teachers and students may be present, are well above 0.8 $\mu g/m^3$ (refer to AQTR Table 10 and Table 11). The BAAQMD has determined that 0.8 $\mu g/m^3$ is a reasonable CEQA threshold of significance for local-scale increments of $PM_{2.5}$. Detailed modeling methods, results, and analysis for the on-site receptors are provided in the AQTR, which is included in **Appendix 4.2**.

Construction Emissions

The proposed project would generate construction-related emissions from the exhaust of mobile and stationary construction equipment, the exhaust of employees' vehicles and haul trucks, land clearing and material movement, paving, and the application of architectural coatings. Criteria pollutant emissions were estimated using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Data regarding the construction schedule, construction equipment, vendor trips, haul trips, and material quantities were provided by the project sponsor. Two construction scenarios were evaluated to account for the possibility of surcharging being required. The surcharging scenario would result in additional truck trips and additional equipment for loading and unloading soil. The construction modeling inputs and CalEEMod outputs are provided in **Appendix 4.2**.

Operational Emissions

Operation of the proposed project would generate emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$. Criteria pollutant emissions from motor vehicles associated with development of the proposed project were evaluated using CalEEMod, emission factors from the CARB 2021 EMission FACtor model (EMFAC2021), and trip generation rates and trip lengths provided in the Transportation Impact Analysis (TIA) prepared for the proposed project.[51] For transportation purposes, it was assumed that the project would result in 200 days of vehicle travel per year, with an average of 1,562 trips per day; daily vehicle miles traveled (VMT) would total 4,288. Area-, energy-, and stationary-source emissions associated with the proposed project were also estimated using CalEEMod (outputs included in **Appendix 4.2**). The project would not have any natural gas infrastructure and therefore would not produce criteria pollutant emissions from energy sources. Area sources stem from the reapplication of architectural coatings as part of ongoing building maintenance, the use of consumer products, and the use of landscaping equipment. Stationary-source emissions would result from the testing of a diesel-powered fire pump with a rating of 86 horsepower that would operate for approximately 1 hour per month. The proposed project would be fully operational by 2025. A detailed description of the model input and output parameters and assumptions is provided in **Appendix 4.2**.

Diesel Particulate Matter Analysis and $PM_{2.5}$

The proposed project would generate DPM and $PM_{2.5}$ emissions during construction. Because the proposed project would introduce DPM and $PM_{2.5}$ emissions in an area near existing sensitive receptors, an HRA was conducted. The HRA used EPA's most recent air dispersion model, AERMOD (version

[50] BAAQMD adopted an incremental $PM_{2.5}$ concentration-based significance threshold in which a "substantial" contribution at the project level for an individual source is defined as total (i.e., exhaust and fugitive) $PM_{2.5}$ concentrations exceeding an established project-level or cumulative threshold.

[51] Fehr and Peers. 2021. *SFUSD Mission Bay Transportation Study – Preliminary Findings Summary*.

19191); cancer and chronic risk assessment values for DPM provided by OEHHA; and other assumptions for model inputs recommended in BAAQMD's HRA Modeling Protocol.[52] The HRA applies the most recent guidance and calculation methods from OEHHA's *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments*.[53] The HRA consists of three parts, an emissions inventory, air dispersion modeling, and risk calculations. A description of each of these parts follows.

Emission Inventory

The emissions inventory includes DPM and $PM_{2.5}$ emissions from construction, which were quantified using the methods described above. During construction, DPM emissions would be generated by off-road equipment and on-road travel by heavy-duty trucks. The construction $PM_{2.5}$ inventory consists of $PM_{2.5}$ exhaust and fugitive dust emissions from off-road equipment, on-site soil movement, and on-road travel by heavy-duty trucks and workers' vehicles.

Air Dispersion Modeling

The HRA uses EPA's AERMOD to model annual average DPM and $PM_{2.5}$ concentrations at nearby receptors. Modeling inputs, including emissions rates, in grams of pollutant emitted per second, and source characteristics (e.g., release height, stack diameter, plume width), were based on guidance provided by OEHHA and BAAQMD. Meteorological data were obtained from CARB for Oakland International Airport, which is the nearest station, approximately 9 miles southeast of the project site.

On-site construction emissions from off-road equipment were characterized as a polygon area source that outlined the footprint of the project site. A release height of 5.0 meters represented exhaust emissions, and a release height of 0 meters represented on-site fugitive dust emissions.[54] The release height represents the height above the ground at which pollutants are emitted. On-road travel emissions from haul and vendor trucks, as well as workers' vehicles for $PM_{2.5}$ analysis, were characterized as line volume sources with release heights of 0.9 meter for fugitive dust emissions and 3.4 meters for exhaust emissions. Line volume sources represent a series of individual volumes sources.

To account for the plume rise associated with mechanically generated air turbulence from construction emissions for the AERMOD run, the initial vertical dimension of the area source was modeled at 1.4 meters for exhaust and 1.0 meters for fugitive dust; for the line volume, the sources were 3.2 meters for exhaust and 0.8 meter for fugitive dust. Plume rise is the height that pollutants rise above a release height. For exhaust, plume rise occurs from the temperature of the exhaust gas. (Exhaust gas temperatures can be high, causing the plume to rise.) For dust, plume rise accounts for the mechanical entrainment of dust in the wheels of equipment and trucks. Emissions from off-road equipment were assumed to be generated throughout the construction footprint. Emissions from off-site trucks were modeled along the road segments adjacent to the construction footprint.

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52 Bay Area Air Quality Management District. 2020. *Health Risk Assessment Modeling Protocol*. December. Available: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol_august_2020-pdf.pdf?la=en. Accessed: May 2021.

53 Office of Environmental Health Hazard Assessment. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments*. February. Available: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed: May 2021.

54 South Coast Air Quality Management District. 2008. *Final Localized Significance Threshold Methodology*. Revised July. Available: https://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2. Accessed: May 2021.

The modeling of emissions from construction activities was based on typical construction hours and the typical number of days in the workweek (i.e., 8 hours per day, 5 days per week). The urban dispersion option was used in the analysis because of the project site's urban characteristics and because surrounding areas are developed with buildings and paved surfaces that can influence how pollutants are dispersed in the area. Off-site sensitive receptors were placed at sensitive receptor locations in all directions within 1,000 feet of the project site using a 10- by 10-meter receptor grid. Receptors were given a height of 1.5 meters to represent the average human breathing zone.[55]A complete list of dispersion modeling inputs is provided in **Appendix 4.2**.

Risk Calculations

The risk calculations incorporate OEHHA's age sensitivity factors, which account for increased sensitivity to carcinogens during early-in-life exposure. The approach for estimating cancer risk from long-term inhalation, including exposure to carcinogens, requires calculating a range of potential doses and multiplying by cancer potency factors in units corresponding to the inverse dose to obtain a range of cancer risks. For cancer risk, the risk for each age group is calculated using the appropriate daily breathing rates, age sensitivity factors, and exposure durations. The cancer risks calculated for individual age groups are summed to estimate the cancer risk for each receptor. Chronic cancer and hazard risks were calculated using values from OEHHA's 2015 HRA guidance.[56] Two cancer risk scenarios were evaluated for the proposed project. Scenario 1, Non-Surcharging, evaluates a receptor beginning in the third trimester of pregnancy and being exposed to construction emissions for a duration of 1.75 years. Scenario 2, Surcharging, evaluates a receptor beginning in the third trimester of pregnancy and being exposed to approximately 3 years of construction. The risk calculations and additional assumptions are provided in **Appendix 4.2**.

4.2.4.3 Impact Evaluation

Impact AQ-1: The proposed project would not conflict with or obstruct implementation of the applicable air quality plan. (Less than Significant)

The CAA requires an air quality control plan, or SIP, to be prepared for areas with air quality that violates the NAAQS. The SIP sets forth the strategies and pollution control measures that states use to attain the NAAQS. The California CAA requires attainment plans to demonstrate a 5 percent per year reduction in nonattainment air pollutants or their precursors, averaged every consecutive 3-year period, unless an approved alternative measure of progress is developed. Air quality attainment plans outline emissions limits and control measures to achieve and maintain the standards by the earliest practical date. The current air quality attainment plan for the SFBAAB is the 2017 Clean Air Plan.[57]

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55 Bay Area Air Quality Management District. 2020. *Health Risk Assessment Modeling Protocol*. December. Available: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol_august_2020-pdf.pdf?la=en. Accessed: May 2021.

56 Office of Environmental Health Hazard Assessment. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments.* February. Available: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed: April 15, 2021.

57 Bay Area Air Quality Management District. 2017a. *Final 2017 Clean Air Plan.* Adopted: April 19. Available: https://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: March 16, 2020.

According to BAAQMD's CEQA Air Quality Guidelines, the determination of 2017 Clean Air Plan consistency should consider the following for project-level analyses:[58]

- Does the project support the primary goals of the 2017 Clean Air Plan?
- Does the project include applicable control measures from the 2017 Clean Air Plan?
- Does the project disrupt or hinder implementation of any 2017 Clean Air Plan control measure?

Each of these questions is addressed below.

Support of 2017 Clean Air Plan Goals

The primary goals of the 2017 Clean Air Plan are to (1) reduce emissions and decrease concentrations of harmful pollutants, (2) safeguard public health by reducing exposures to air pollutants that pose the greatest health risk, and (3) reduce GHG emissions and protect the climate. The project would employ up to 70 teachers and have a daily enrollment capacity that would accommodate up to 500 students. The proposed project would not induce new growth in the city.

The project includes numerous improvements to support regional attainment of the NAAQS and CAAQS. For example, the proposed project would implement sustainability measures. These could include installing high-efficiency, Energy Star-rated appliances; not providing natural gas hookups; implementing waste diversion strategies; and installing water reduction features consistent with the 2017 Clean Air Plan. In addition, the proposed project would be located in an area with low VMT numbers. Its per capita VMT would result in a greater reduction than the applicable VMT threshold identified by CARB. Furthermore, the proposed project would comply with all applicable City and state measures, including Title 24, Part 6, of the CALGreen and its baseline standard requirements for energy efficiency.

Based on the above analysis, the proposed project would support the primary goals of the 2017 Clean Air Plan.

Support Applicable Control Measures and Their Implementation

To meet its primary goals, the 2017 Clean Air Plan recommends specific control measures and actions. These control measures are grouped into various categories, including stationary-source measures, mobile-source measures, and transportation control measures. The 2017 Clean Air Plan recognizes that community design dictates individual travel mode and that a key long-term control strategy for reducing emissions of criteria pollutants, air toxics, and GHGs from motor vehicles is to channel future Bay Area growth into vibrant urban communities where goods and services are close at hand and people have a range of viable transportation options. To that end, the 2017 Clean Air Plan includes control measures to reduce air pollution in the SFBAAB. The control measures most applicable to the proposed project are transportation, energy, building, waste management, water, and stationary-source measures, including the following:

- *TR2: Trip Reduction Programs* – Implement the regional Commuter Benefits Program (Rule 14-1), which requires employers with 50 or more Bay Area employees to provide commuter benefits. Encourage trip reduction policies and programs in local plans (e.g., general and specific plans) while providing grants to support trip reduction efforts. Encourage local governments to require mitigation

[58] Bay Area Air Quality Management District. 2017b. *California Environmental Quality Act Air Quality Guidelines*. May. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: March 16, 2020.

for vehicle travel as part of new development approval, adopt transit benefit ordinances to reduce transit costs for employees, and develop innovative ways to encourage ridesharing, transit, cycling, and walking for work-related trips. Fund various employer-based trip reduction programs.

- *TR9: Bicycle and Pedestrian Access and Facilities* – Encourage bicycle and pedestrian facilities in local plans (e.g., general and specific plans); fund bicycle lanes, routes, paths, and parking facilities.
- *TR14: Cars and Light Trucks* – Commit regional clean air funds toward qualifying vehicle purchases and infrastructure development. Partner with private, local, state, and federal programs to promote the purchase and lease of battery electric and plug-in hybrid electric vehicles.
- *TR23: Lawn and Garden Equipment* – Seek additional funding to expand the Commercial Lawn and Garden Equipment Replacement Program to all nine Bay Area counties. Explore options to expand the program to cover shredders, stump grinders, and commercial turf equipment.
- *EN2: Decrease Electricity Demand* – Work with local governments to adopt additional energy efficiency policies and programs. Support local government energy efficiency program through best practices, model ordinances, and technical support. Work with partners to develop messaging that will decrease electricity demand during peak times.
- *BL1: Green Buildings* – Collaborate with partners such as KyotoUSA to identify energy-related improvements and opportunities for on-site renewable energy systems in school districts; investigate funding strategies to implement upgrades. Identify barriers to effective local implementation of the CALGreen (Title 24) statewide building energy code; develop solutions to improve implementation/enforcement. Work with the Association of Bay Area Governments BayREN program to make additional funding available for energy-related projects in the buildings sector. Engage with additional partners to reduce emissions from specific types of buildings.
- *BL2: Decarbonize Buildings* – Explore potential air district rulemaking options regarding the sale of fossil fuel–based space and water heating systems for both residential and commercial use. Explore incentives for property owners to replace their furnaces, water heaters, or natural gas–powered appliances with zero-carbon alternatives. Update air district guidance documents to recommend that commercial and multi-family developments install ground-source heat pumps and solar hot water heaters.
- *NW2: Urban Tree Planting* – Develop or identify a model municipal tree planting ordinance and encourage local governments to adopt such an ordinance. Include tree planting recommendations, the air district's technical guidance, best practices for local plans, and CEQA review.
- *WA3: Green Waste Diversion* – Develop model policies to facilitate local adoption of ordinances and programs to reduce the amount of green waste going to landfills.
- *WA4: Recycle and Waste Reduction* – Develop or identify and promote model ordinances regarding community-wide zero-waste goals and the recycling of construction and demolition materials in commercial and public construction projects.
- *WR2: Support Water Conservation* – Develop a list of best practices to reduce water consumption and increase on-site water recycling in new and existing buildings; incorporate such best practices into local planning guidance.
- *SS32: Emergency Backup Generators* – Reduce emissions of diesel particulate matter and black carbon from backup generators through Adopted Regulation 11 Rule 18 to reduce health risks for affected individuals and support climate protection benefits. BAAQMD Regulation 11 Rule 18 shall not apply to facilities for which the only source of toxic air contaminant emissions is one or more

stationary diesel-fueled, compression-ignited engines operated only for emergency-use, as defined in Regulation 9, Rule 8, Section 9-8-231, and reliability-related activities, and the facility prioritization score is less than 250. BAAQMD Regulation 11 Rule 18 does not apply to the proposed project.

The proposed project would include design features that would support emissions reduction strategies for the transportation sector. For instance, the proposed project would promote alternative modes of transportation by incorporating 80 Class I/II on-site bike spaces to promote bicycling and by limiting on-site parking to nine spaces. The bicycle spaces and restricted on-site parking would reduce the need for single-occupancy vehicle trips. Other project TDM features, such as shuttle bus service and TDM information and other multimodal wayfinding signage, would support alternative modes of transportation (Measure TR2, TR9, and TR14). The project would also be consistent with the sustainability goals of SFUSD's Carbon Reduction Plan. For example, with respect to fleet and sustainable transportation, future SFUSD-owned buses and vehicles will be electric or powered by low-carbon fuels by 2030.

As noted above, proposed project also would implement a number of sustainability features. For example, it would be zero net energy ready and would not include natural gas infrastructure (Measures BL1, BL2, and EN2). In addition, low-flow plumbing fixtures, as required by the CALGreen code, would be installed (Measure WR2), and waste diversion programs, consistent with Assembly Bill 341 (Measures WA3 and WA4), would be implemented to reduce resource consumption as well as criteria pollutants and GHG emissions. The proposed project would result in a net increase in the number of trees (approximately 16 additional trees) (Measure NW2). In addition, the planting of drought-tolerate plants would reduce emissions associated with landscape maintenance in the play area (Measure TR23). These features would be confirmed during the project approval process (e.g., plan review, site development approval). The proposed diesel fire pump would be subject to the permit authority of BAAQMD, which would reduce associated health risks and air quality impacts (Measure SS32).

Based on the above analysis, the proposed project would support the applicable control measures identified in the 2017 Clean Air Plan.

Disrupt or Hinder Implementation of 2017 Clean Air Plan Control Measures

As discussed above, the proposed project would incorporate sustainability design features. The proposed project would not disrupt, delay, or otherwise hinder implementation of any applicable control measure from the 2017 Clean Air Plan. Rather, the proposed project would support and facilitate their implementation. For example, the proposed project would promote sustainable building designs and support alternative modes of transportation (e.g., transit, walking, bicycling). Similarly, the proposed project would not disrupt or hinder implementation of any applicable 2017 Clean Air Plan control measure related to parking. The proposed project would reduce on-site parking and include 80 Class I/II bicycle spaces.

Based on the above analysis, the proposed project would support the goals of the 2017 Clean Air Plan and would not conflict with implementation of any of its measures. Accordingly, the proposed project would not fundamentally conflict with the 2017 Clean Air Plan and would have a ***less than significant impact*** related to implementation of an applicable air quality plan.

Impact AQ-2: The proposed project could result in a cumulatively considerable net increase in any criteria pollutant for which the project region is classified as a nonattainment area under an

applicable federal or state ambient air quality standard during construction. (Less than Significant with Mitigation)

Construction

Construction activities would generate criteria pollutant emissions from the exhaust of off-road equipment, the exhaust of construction workers' vehicles and heavy-duty trucks traveling to and from the project site, the application of architectural coatings, and paving activities. Fugitive PM_{10} and $PM_{2.5}$ dust would also be generated during soil movement and disturbance. The number of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously. To provide the most conservative analysis, maximum daily emissions estimates were calculated to assess construction impacts. Maximum daily emissions typically occur during phases when the intensity of construction is greatest and when multiple construction phases take place on the same day. Unmitigated maximum daily criteria air pollutant emissions generated during project construction are shown in Table 4.2-5. Please refer to **Appendix 4.2** for air quality modeling input and output parameters, detailed assumptions, and daily construction-related emissions estimates.

TABLE 4.2-5. ESTIMATED UNMITIGATED CRITERIA POLLUTANT EMISSIONS FROM CONSTRUCTION OF THE PROPOSED PROJECT (POUNDS/DAY)

				PM_{10}		$PM_{2.5}$	
Construction Year	**ROG**	**NO_X**	**CO**	**Dust**	**Exhaust**	**Dust**	**Exhaust**
Surcharging Scenario							
2022	2.8	45.3	19.9	13.7	1.0	7.1	0.9
2023	6.7	67.9	67.3	14.4	2.7	7.0	2.5
2024	7.7	49.3	36.1	1.0	1.9	0.3	1.8
2025	6.5	22.0	34.3	0.8	0.8	0.2	0.8
BAAQMD Threshold	54	54	None	BMPs	82	BMPs	54
Exceed Threshold?	No	Yes	N/A	—	No	—	No
Non-Surcharging Scenario							
2023	6.7	66.7	66.8	13.9	2.7	6.9	2.5
2024	7.7	49.3	36.1	1.0	1.9	0.3	1.8
2025	6.5	22.0	34.3	0.8	0.8	0.2	0.7
BAAQMD Threshold	54	54	None	BMPs	82	BMPs	54
Exceed Threshold?	No	Yes	N/A	—	No	—	No

Source: See **Appendix 4.2** for CalEEMod outputs.

Notes:

Exceedances of BAAQMD thresholds are underlined.

ROG= reactive organic gases; NOX = nitrogen oxide; CO = carbon monoxide; PM10 = particulate matter no more than 10 microns in diameter; PM2.5 = particulate matter no more than 2.5 microns in diameter; BAAQMD = Bay Area Air Quality Management District; BMPs = best management practices

As shown in Table 4.2-5, construction of the proposed project would not generate PM, ROG, or CO exhaust emissions in excess of BAAQMD's numeric thresholds. However, the proposed project would generate NO_X emissions in excess of BAAQMD's significance threshold during various years of construction. These emissions, if left unmitigated, could contribute to a ground-level formation of ozone in the SFBAAB, which, at certain concentrations, could contribute to short- and long-term human health effects.

Currently, San Francisco County does not attain the NAAQS or CAAQS for ozone or the CAAQS for particulate matter (see Table 4.2-2). Certain individuals residing in areas that do not meet the ambient air quality standards could be exposed to pollutant concentrations that cause or aggravate acute and/or chronic health conditions (e.g., asthma). Although construction of the proposed project would contribute to future ROG and NO_X emissions, maximum daily construction-generated emissions would represent approximately 0.0001 percent of total NO_X in the SFBAAB.[59] The magnitude and location of any potential change in ambient air quality and, therefore, health consequences from additional emissions cannot be quantified with a high level of certainty because of the dynamic and complex nature of pollutant formation and distribution. However, it is known that public health will continue to be affected in the city as long as the region fails to attain the NAAQS or CAAQS.

Implementation of Mitigation Measure AQ-1 would require the use of EPA Tier 4 Final equipment to reduce the project's construction-related NO_X emissions. This would result in lower exhaust emissions. In addition, BAAQMD's CEQA Air Quality Guidelines consider fugitive dust impacts to be less than significant with application of best management practices (BMPs). If BMPs are not implemented, then dust impacts would be significant. Therefore, Mitigation Measure AQ-2, which requires BMPs, dust mitigation measures, and consistency with the Draft Removal Action Work Plan to reduce fugitive dust, would be implemented to reduce impacts from construction-related fugitive dust, including any cumulative impacts. Table 4.2-6 highlights the project's mitigated construction emissions, which would not result in any exceedances of the thresholds. As such, construction of the proposed project would not be expected to contribute a significant level of air pollution such that air quality within the SFBAAB would be degraded. Consequently, the impact from construction-generated criteria pollutant emissions would be ***less than significant with mitigation***.

MM AQ-1 Use Clean Diesel-Powered Equipment during Construction to Control Construction-Related Emissions

The District will ensure that all off-road diesel-powered equipment used by the project contractor(s) during construction is equipped with EPA-approved Tier 4 Final engines. The District will provide publicly available documentation of the use of EPA-approved Tier 4 Final engines, or cleaner, prior to the commencement of project construction activities.

TABLE 4.2-6. ESTIMATED MITIGATED CRITERIA POLLUTANT EMISSIONS FROM CONSTRUCTION OF THE PROPOSED PROJECT (POUNDS/DAY)

				PM_{10}		$PM_{2.5}$	
Construction Year	**ROG**	**NO_X**	**CO**	**Dust**	**Exhaust**	**Dust**	**Exhaust**
Surcharging Scenario[a]							
2022	1.0	25.4	24.3	4.7	0.1	2.1	0.1
2023	2.3	19.6	81.6	4.6	0.3	2.1	0.3
2024	5.2	11.2	47.8	1.0	0.3	0.3	0.3
2025	5.1	7.6	35.5	0.8	0.1	0.2	0.1
BAAQMD Threshold	54	54	None	BMPs	82	BMPs	54
Exceed Threshold?	No	No	N/A	—	No	—	No

[59] NO_X emissions reported in the *2017 Clean Air Plan* totaled 300 tons per day. Maximum unmitigated project-generated NO_X emissions would be 68 pounds per day, which equates to 0.034 ton per day.
Bay Area Air Quality Management District. 2017a. *Final 2017 Clean Air Plan.* Adopted: April 19. Available: https://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: March 16, 2020.

Construction Year	ROG	NO_X	CO	PM_{10}		$PM_{2.5}$	
				Dust	Exhaust	Dust	Exhaust
Non-Surcharging Scenario[a]							
2023	2.3	14.3	81.0	4.2	0.3	2.0	0.3
2024	5.2	11.2	47.8	1.0	0.3	0.3	0.3
2025	5.1	7.6	35.5	0.8	0.1	0.2	0.1
BAAQMD Threshold	54	54	None	BMPs	82	BMPs	54
Exceed Threshold?	No	No	N/A	—	No	—	No

Source: See **Appendix 4.2** for CalEEMod outputs.

Notes:

[a] Emission reductions include compliance with Mitigation Measures AQ-1 and AQ-2, which require EPA Tier 4 Final equipment, limiting on-site vehicle speeds to 15 miles per hour, watering disturbed areas every 2 hours, and maintaining a soil moisture level of 12 percent.

ROG= reactive organic gases; NO_X = nitrogen oxide; CO = carbon monoxide; PM_{10} = particulate matter no more than 10 microns in diameter; $PM_{2.5}$ = particulate matter no more than 2.5 microns in diameter; BAAQMD = Bay Area Air Quality Management District; BMPs = best management practices

MM AQ-2 Implement Dust Control Measures and BAAQMD Construction-Related Mitigation Measures

The District will require all construction contractors to implement dust control measures as well as additional construction-related mitigation measures recommended by BAAQMD and included in the Draft Removal Action Work Plan (RAW).[60,61] The emissions reduction measures will include, at a minimum, all of the items listed below. The District will make documentation available to the public to show that these basic construction measures have been reflected in all construction contracts prior to the commencement of project construction activities.

- The project contractor will be required to water all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, unpaved access roads) every 2 hours and maintained with a minimum soil moisture level of 12 percent. Moisture content can be verified by lab samples or a moisture probe.
- All excavation, grading, and/or demolition activities will be suspended when average wind speeds exceed 20 miles per hour.
- All trucks and equipment, including their tires, will be washed off prior to leaving the site.
- All haul trucks will be covered when transporting soil, sand, or other loose material off-site.
- All visible mud or dirt track-out material on adjacent public roads will be removed using wet-power vacuum-type street sweepers at least once a day. The use of dry-power sweeping is prohibited.
- All vehicle speeds will be limited to 15 miles per hour on unpaved roads.
- All roadways, driveways, and sidewalks that are to be paved will be paved as soon as possible. Building pads will be laid as soon as possible after grading, unless seeding or a soil binder is used.

[60] Bay Area Air Quality Management District. 2017. *California Environmental Quality Act Air Quality Guidelines.* Table 8-2 and Table 8-*3*, pages 8-4 and 8-5. Available; https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: April 2021.

[61] Ninyo & Moore. *Draft Removal Action Work Plan: Mission Bay South Block 14, Mission Bay Drive at Owens Street, San Francisco, California.* October 23, 2020.

- All construction equipment will be maintained and properly tuned in accordance with manufacturers' specifications. All equipment will be checked by a certified visible-emissions evaluator.

Operation

The criteria pollutant emissions that would be generated during project operations were quantified using CalEEMod and EMFAC2021. Long-term emissions would be caused primarily by vehicle trips associated with student drop-offs, employee trips, and occasional weekly delivery trucks, with additional emissions from area sources (e.g., cleaning supplies, architectural coatings, landscape maintenance equipment). Stationary-source emissions would be associated with intermittent use of a diesel-powered fire pump with a rating of 86 horsepower that would be tested approximately 1 hour per month.

Table 4.2-7 summarizes daily operational emissions generated at full buildout of the project. An existing parking lot currently occupies the project site; however, a parking lot is not by itself a trip generator. People travel in vehicles to other destinations in the proposed project area and would likely continue to do so if the parking lot is removed, but would park in different locations; as such, it is assumed that the construction of the proposed project would not eliminate the current number of trips to the existing parking lot. Therefore, it was conservatively assumed that there are no existing emissions to be subtracted from the proposed project emissions. The emissions presented in Table 4.2-7 represent the total proposed project emissions.

TABLE 4.2-7. ESTIMATED UNMITIGATED CRITERIA POLLUTANT EMISSIONS FROM OPERATION OF THE PROPOSED PROJECT (POUNDS/DAY)

Condition/Source	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Project					
Area Sources	2.6	< 1	< 1	< 1	< 1
Energy Sources[a]	0.0	0.0	0.0	0.0	0.0
Mobile Sources	3.4	2.4	18.2	2.4	0.6
Stationary Sources[b]	0.1	0.5	0.5	< 1	< 1
Project Total[c]	6.1	2.8	18.7	2.4	0.6
BAAQMD Threshold	54	54	—	82	54
Exceed Threshold?	No	No	—	No	No

Source: See **Appendix 4.2** for CalEEMod outputs.

Notes:

[a] The project would not include natural gas infrastructure; therefore, energy emissions would be zero.

[b] To conservatively model the worst-case scenario the 86-horsepower fire pump was modeled as an emergency generator within CalEEMod.

[c] Values may not total because of rounding.

ROG= reactive organic gases; NOX = nitrogen oxide; CO = carbon monoxide; PM10 = particulate matter no more than 10 microns in diameter; PM2.5 = particulate matter no more than 2.5 microns in diameter; BAAQMD = Bay Area Air Quality Management District

As shown in Table 4.2-7, operation of the proposed project would not generate levels of ROG, NO_X, or particulate matter that would exceed BAAQMD-recommended mass emission thresholds. As noted previously, the project would not rely on natural gas combustion; therefore, energy-related criteria pollutant emissions would not occur. Mobile-source emissions would be the primary source of emissions but would not exceed any thresholds because the project would be located in an area with low VMT numbers and the vehicles in question would be mostly light-duty automobiles. Area and stationary sources are not substantial sources of emissions. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase in any criteria air pollutant, either as a result of project construction or operation, for which the SFBAAB is designated as a nonattainment area with respect to

the federal or state ambient air quality standards. This impact would be ***less than significant with mitigation.***

Impact AQ-3: The project could expose sensitive receptors to substantial pollutant concentrations. (Significant and Unavoidable)

The primary pollutants of concern to human health generated by the proposed project are criteria pollutants and TACs.

Regional Criteria Pollutants

As noted above, the California Supreme Court concluded in the *Friant Ranch* Decision that environmental documents must attempt to connect a project's regional air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis. Models and tools have been developed to correlate regional criteria pollutant emissions to potential community health impacts. **Appendix 4.2** summarizes many of these tools, describes their intended application, and analyzes whether they could be used to reasonably correlate project-level emissions to specific health consequences. As described in **Appendix 4.2**, although models are capable of quantifying data regarding ozone and secondary particulate matter formation, as well as associated health effects, the tools were developed to support regional planning and policy analysis and have limited sensitivity with respect to small changes in criteria pollutant concentrations induced by individual projects. Therefore, correlating project-generated criteria pollutants to locations where specific health effects could occur or the resultant number of additional days of nonattainment cannot be achieved with any degree of accuracy for relatively small projects (i.e., relative to the regional air basin).

The technical limitations of existing models for correlating project-level regional emissions to specific health consequences are recognized by air quality management districts throughout the state, including the San Joaquin Valley Air Pollution Control District (SJVAPCD) and South Coast Air Quality Management District (SCAQMD), which provided amici curiae briefs for the *Friant Ranch* legal proceedings. In its brief, SJVAPCD acknowledged that HRAs for localized air toxics, such as DPM, are commonly prepared; however, "it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task." SJVAPCD further noted that emissions solely from the *Friant Ranch* Project, which equate to less than one-tenth of 1 percent of total NO_X and volatile organic compounds in the San Joaquin Valley, are not likely to "yield valid information," and that any such information "would not be accurate when applied at the local level."[62] SCAQMD presents similar information in its brief, stating that "it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels."[63]

As discussed above, BAAQMD's regional thresholds, presented in Table 4.2-4, consider existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed by a wide range of scientific evidence that demonstrates that there are

[62] San Joaquin Valley Air Pollution Control District. 2015. *Final Staff Report.* Update to the District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May 28.

[63] For example, SCAQMD's analysis of its 2012 Air Quality Attainment Plan showed modeled NO_X and ROG reductions of 432 and 187 tons per day, respectively, reduced ozone levels by only 9 parts per billion. Analysis of SCAQMD's Rule 1315 showed that emissions of NO_X and ROG of 6,620 and 89,180 pounds per day, respectively, contributed to 20 premature deaths per year and 89,947 school absences.
South Coast Air Quality Management District. 2015. *Application of the South Coast Air Quality Management District for Leave to File Amicus Curiae in Support of Neither Party and (proposed) Brief of Amicus Curie.* Filed April 13.

known safe concentrations of criteria pollutants. While recognizing that air quality is a cumulative problem, BAAQMD considers projects that generate criteria pollutant and ozone precursor emissions below the thresholds to be minor in nature. Such projects would not adversely affect air quality to the extent that the health-protective NAAQS or CAAQS would be exceeded. Regional emissions generated by a project could increase photochemical reactions and the formation of tropospheric ozone and secondary particulate matter, which, at certain concentrations, could lead to an increased incidence of specific health consequences. Although the health effects are associated with ozone and particulate pollution, they result from cumulative and regional emissions.

As discussed above under Impact AQ-2, mitigation is being applied to reduce construction emissions associated with ozone precursors and particulate matter, as specified below.

- Mitigation Measure AQ-1, Use Clean Diesel-Powered Equipment during Construction to Control Construction-Related Emissions
- Mitigation Measure AQ-2, Implement Dust Control Measures and BAAQMD Construction-Related Mitigation Measures

The project's operational emissions would not exceed BAAQMD's ROG and NO_X thresholds. For construction, implementation of Mitigation Measures AQ-1 and AQ-2 would ensure that the proposed project would not contribute a significant level of air pollution such that regional air quality within the SFBAAB would be degraded. Accordingly, health impacts related to regional criteria pollutants would be ***less than significant with mitigation.***

Localized Criteria Pollutants

Localized criteria pollutants generated by the proposed project (e.g., fugitive dust, CO) can be deposited near the emissions source and affect the nearby population. Although these pollutants dissipate with distance, emissions from individual projects can result in direct and material health impacts on adjacent sensitive receptors. As discussed above, the NAAQS and CAAQS are health protective standards that have been set at levels that are considered safe and capable of protecting public health, including the health of sensitive populations, such as asthmatics, children, and the elderly.

During grading and excavation associated with construction, localized fugitive dust would be generated. The amount of dust generated by a project is highly variable and dependent on the size of the disturbed area at any given time, the amount of activity, soil conditions, and meteorological conditions. BAAQMD considers dust impacts to be less than significant if BAAQMD's construction BMPs are employed to reduce such emissions. Because BAAQMD's basic construction mitigation measures would be implemented, per Mitigation Measure AQ-2, impacts from construction-related fugitive dust emissions would be ***less than significant*** and would not expose receptors to substantial pollutant concentrations or risks.

Localized Carbon Monoxide Hot Spots

Continuous engine exhaust during project operations may elevate localized CO concentrations, resulting in hot spots. Receptors exposed to these CO hot spots may have a greater likelihood of developing adverse health effects. CO hot spots are typically observed at heavily congested intersections where a substantial number of gasoline-powered vehicles idle for prolonged durations.

ADT at eight roadway segments in the project vicinity was analyzed to determine whether CO emitted by project-generated traffic would exceed BAAQMD screening criteria. The highest ADT level in 2040 with

the project would be 13,140 along Mission Bay Drive. Therefore, it can be reasonably assumed that maximum traffic volumes at area intersections under all scenarios would be less than BAAQMD's recommended screening criterion of 44,000 vehicles per hour. In addition, intersection traffic volumes under all scenarios would not exceed the screening criterion of 24,000 vehicles per hour, which BAAQMD recommends for areas where vertical and/or horizontal mixing is substantially limited. Furthermore, the highest recorded CO hourly concentration at the San Francisco – Arkansas Street monitoring station, located 0.31 mile from the project site, was 2.5 parts per million in 2017, which is significantly under the CAAQS 1-hour threshold of 20 parts per million. Therefore, the proposed project would not result in, or contribute to, a localized concentration of CO that would exceed the applicable NAAQS or CAAQS. This impact would be ***less than significant***.

Toxic Air Contaminants

The primary TACs of concern associated with the proposed project are asbestos and DPM.

Asbestos

Structure demolition on the project site may disperse asbestos-containing material (ACM) to adjacent sensitive receptor locations. However, all demolition activities would be subject to EPA's NESHAP if asbestos is present in any of the structures on-site. The asbestos NESHAP regulations protect the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of ACM. The asbestos NESHAP regulations for demolition and renovation are outlined in BAAQMD Regulation 11, Rule 2. In addition to demolition and renovation measures, BAAQMD Regulation 11, Rule 2 also includes measures to address ACM during haul truck transport. More specifically, it includes provisions such as treating ACM with water prior to transport and placing such material in leak-tight containers for haul truck transport to disposal sites. Consequently, regulatory mechanisms exist to ensure that impacts from ACM, if present during demolition activities at the project site, would be ***less than significant***.

Diesel Particulate Matter and $PM_{2.5}$ – Construction Health Risk Assessment

DPM is a carcinogen emitted by diesel internal combustion engines. Construction activities would generate DPM (i.e. $PM_{2.5}$ in exhaust from diesel-fueled vehicles)[64] that could expose adjacent receptors to significant health risks beginning as early as 2022. This would be a potentially significant impact. DPM concentrations would be dramatically reduced, even at distances of 500 feet, as explained in BAAQMD's CEQA Air Quality Guidelines:

> Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations. Concentrations of mobile-source diesel particulate matter emissions are typically reduced by 70 percent at a distance of approximately 500 feet. In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. This results in difficulties with producing accurate estimates of health risks.[65]

[64] Per BAAQMD guidance, $PM_{2.5}$ exhaust is used as a surrogate for DPM.

[65] Bay Area Air Quality Management District. 2017b. *California Environmental Quality Act Air Quality Guidelines.* May. Available: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: May 2021.

Table 4.2-8 presents the maximum mitigated construction-related health risks for the maximum exposed off-site receptor within 1,000 feet of construction activities, resulting from exposure to DPM and $PM_{2.5}$. As shown in Table 4.2-8, cancer risks, chronic hazard risks, and annual $PM_{2.5}$ concentrations would not exceed BAAQMD's thresholds with implementation of Mitigation Measures AQ-1 and AQ-2. The maximum exposed receptor affected by concentrations of $PM_{2.5}$ exhaust, or DPM, is at University Child Care at Mission Bay, a location where the additional cancer risk would be 1.9 per 1 million under the surcharging scenario and 1.8 per 1 million under the non-surcharging scenario. These cancer risk values are well below the threshold of 10 per 1 million. The non-cancer hazard index for both scenarios would be less than 0.1, which is well below the threshold of 1.0. The maximum annual $PM_{2.5}$ concentration (i.e., dust and exhaust emissions) would be experienced at the SFF Soccer field, an area where the concentration would be 0.13 $\mu g/m^3$ under the surcharging scenario and 0.09 $\mu g/m^3$ under the non-surcharging scenario. These concentrations are below the threshold of 0.3 $\mu g/m^3$. Therefore, this impact would be ***less than significant with mitigation.***

TABLE 4.2-8. MITIGATED PROJECT-LEVEL CANCER AND CHRONIC HAZARD RISKS AND $PM_{2.5}$ CONCENTRATIONS DURING CONSTRUCTION

Receptor	Cancer Risk (cases per million)	Non-Cancer Hazard Index	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Surcharging Scenario			
Maximum Exposed Offsite Receptor[a]	1.9	<0.1	0.13
Significance Threshold	*10*	*1.0*	*0.3*
Exceed Threshold?	*No*	*No*	*No*
Non-Surcharging Scenario			
Maximum Exposed Off-site Receptor[a]	1.8	<0.1	0.09
Significance Threshold	*10*	*1.0*	*0.3*
Exceed Threshold?	*No*	*No*	*No*

Source: See **Appendix 4.2** for modeling outputs and calculations.

Notes:

Emission reductions include compliance with Mitigation Measures AQ-1 and AQ-2, which require EPA Tier 4 Final equipment, limiting on-site vehicle speeds to 15 miles per hour, watering disturbed areas every 2 hours, and maintaining a soil moisture level of 12 percent.

[a] The maximum exposed off-site receptor is not the same for the cancer risk, non-cancer hazard index, and annual PM2.5 concentration. The highest off-site cancer risk and non-cancer hazard index can be found at University Child Care at Mission Bay (UTM Coordinates Zone 10 S, Easting: 553418, Northing: 4180389), while the highest off-site annual PM2.5 concentration can be found at the SFF Soccer fields (UTM Coordinates Zone 10 S, Easting: 553336, Northing: 4180525). The highest off-site cancer risk, non-cancer hazard index, and annual PM2.5 concentration values among the receptors are shown in this table.

$\mu g/m^3$ = micrograms per cubic meter; $PM_{2.5}$ = particulate matter no more than 2.5 microns in diameter

Operations

According to the BAAQMD Stationary-Source Inquiry Tool, the project site has an existing diesel generator[66] that has an associated cancer risk of 11.55 per 1 million. With development of the proposed project, this emergency generator would no longer be on-site. The project would include a newer and smaller 86-horsepower fire pump with a diesel particulate filter; the fire pump would be northwest of the

[66] Bay Area Air Quality Management District. 2021. *Permitted Stationary Sources Risk and Hazards GIS Tool.* Facility ID 13160-14. Available: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65. Accessed: April 2021.

elementary school building, on Level 1, approximately 600 feet away from the maximum exposed off-site receptor, University Child Care at Mission Bay. This fire pump would operate for approximately 1 hour per month, 12 months per year, and require a permit from BAAQMD. Note that BAAQMD will not issue a permit for a new permitted source that results in an operational cancer risk in excess of 10.0 cases per 1 million or a hazard index in excess of 1.0. Therefore, it can be reasonably assumed that the new on-site fire pump would reduce the current operational DPM impact compared with the existing on-site generator. Project operations would not expose sensitive receptors to substantial pollutant concentrations, and the impact would be ***less than significant***.

On-Site Receptors

As discussed in *Approach to Analysis*, the AQTR evaluated the air quality–related health risks at the project site to determine if students would be exposed to significant risks, consistent with Senate Bill 352 and Public Resources Code Section 21151.8. As determined in the AQTR, on-site receptors (e.g., students and teachers) would be exposed to a maximum on-site cancer risk of 7.2 per 1 million, which is below the BAAQMD threshold of 100 per 1 million for new receptors. In addition, future students would not be exposed to a chronic hazard risk that would exceed BAAQMD thresholds. Readers can refer to the AQTR for the detailed modeling methods, results, and analysis for the on-site receptors.

The AQTR also included modeled $PM_{2.5}$ concentrations from roadway, rail, and stationary sources in the project area. As discussed in the AQTR, the $PM_{2.5}$ concentration at the project site from modeled sources would exceed the BAAQMD incremental threshold of 0.8 $\mu g/m^3$, which is applicable to new sensitive receptors. It should be noted that this result does not indicate that students would be exposed to significant health risks. Air quality near the project site attains the NAAQS for annual average $PM_{2.5}$ (AQTR Tables 1 and 2). The NAAQS are health protective standards that have been set at levels that are considered safe for protecting public health, including the health of children.

To reduce the effect of $PM_{2.5}$ on future students, the project would incorporate Mitigation Measure AQ-3, Advanced MERV Filtration, to exceed the MERV 13 requirements of Article 38 of the San Francisco Health Code (see *Regulatory Framework*). Mitigation Measure AQ-3 would require MERV 14 or better filtration systems and would require that all windows on the western and southern portion of the building be inoperable to reduce any indoor $PM_{2.5}$ concentrations that students may be exposed to. The proposed project would also incorporate Mitigation Measure AQ-4, Outdoor Play Area Siting and Vegetative Barriers, to help alleviate outdoor $PM_{2.5}$ concentrations. Mitigation Measure AQ-4 would require that the outdoor play area be sited on the eastern portion of the project site, as far as feasibly possible from I-280, the Caltrain tracks[67], and roads surrounding the project site, and that vegetive barriers are created, to the extent feasible. It should also be noted that the proposed 63 feet tall multi-story building would separate the outdoor play area from I-280 and the Caltrain tracks, further reducing outdoor potential $PM_{2.5}$ concentrations at the outdoor play area. However, Mitigation Measure AQ-4 would not mitigate outdoor $PM_{2.5}$ concentrations at the outdoor play area to a less-than-significant level, and there are no other feasible mitigation measures that could be implemented to reduce outdoor $PM_{2.5}$ concentrations below the BAAQMD threshold. As a result, outdoor $PM_{2.5}$ concentrations would exceed the BAAQMD 0.8 $\mu g/m^3$ $PM_{2.5}$ threshold, which has been established for the evaluation of impacts on new sensitive receptors for CEQA purposes.

[67] As discussed in the AQTR, Caltrain has plans to electrify 75 percent of its train fleet. Partial-electrification of Caltrain's train fleet would help reduce on-site $PM_{2.5}$ concentrations. However, as shown in the AQTR, the on-site $PM_{2.5}$ concentrations would still exceed the BAAQMD threshold even with this partial-electrification of the train fleet.

It should be stressed that while the project would be in exceedance of the BAAQMD $PM_{2.5}$ threshold, thus resulting in significant impact, this exceedance does not imply that health risks would be significant. As noted above, the nearest monitoring station shows that ambient $PM_{2.5}$ concentrations are in attainment with the NAAQS. Nevertheless, the BAAQMD threshold for evaluating the incremental $PM_{2.5}$ concentration from modeled sources would be exceeded, and no additional feasible mitigation is available to reduce this impact. Therefore, a ***significant and unavoidable*** impact would occur.

MM AQ-3 Advanced MERV Filtration

Prior to the start of building construction, the District will submit a ventilation plan to the San Francisco Department of Public Health, consistent with Article 38 of the San Francisco Health Code, showing that all filtration systems on-site will use MERV 14 or better filters (as defined by American Society of Heating, Refrigerating, and Air-Conditioning Engineers [ASHRAE] Standard 52.2). MERV 14 or better filters would reduce particulate matter in the range of 0.3 to 1.0 µm 25 percent more compared with MERV 13 filters, resulting in a total reduction of 75 percent compared to unfiltered air. MERV 14 or better filters would reduce particulate matter in the range of 1.0 to 3.0 µm 5 percent more compared with MERV 13 filters, for a total reduction of 90 percent.[68] The District shall be responsible in replacing each MERV 14 filter every three (3) months, or as often as recommended by the manufacturer. Additionally, all windows on the western and southern side of the proposed building will be inoperable to reduce unfiltered air from entering the building.

MM AQ-4 Outdoor Play Area Siting and Vegetative Barriers

In order to help reduce outdoor $PM_{2.5}$ concentrations at the outdoor play area, the District will site the outdoor play area on the eastern portion of the project site, as far as feasibly possible from I-280 and the Caltrain railway tracks. Additionally, to the extent feasible, the project sponsor will site the outdoor play area as far as feasibly possible from all roadways and plant native shrubs and trees, to create a vegetative barrier, on the western and southern portion of the project site and the western portion of outdoor play area to help reduce potential outdoor $PM_{2.5}$ concentrations.

Impact AQ-4: The proposed project would not result in the other emissions (such as those leading to odors) that would adversely affect a substantial number of people. (Less than Significant)

BAAQMD and CARB have identified the types of land uses listed below as being commonly associated with odors. Although this list is not exhaustive, it is intended to help lead agencies recognize the types of facilities where more analysis may be warranted.

- Sewage treatment plants
- Coffee roasters
- Asphalt plants
- Metal smelters

[68] American Society of Heating, Refrigerating, and Air-Conditioning Engineers. 2017. *ANSI/ASHRAE Standard 52.2-2017: Table 12-1 Minimum Efficiency Reporting Value (MERV) Parameters.* Available: https://www.ashrae.org/ File%20Library/Technical%20Resources/COVID-19/52_2_2017_COVID-19_20200401.pdf. Accessed: May 2021.

- Landfills
- Recycling facilities
- Waste transfer stations
- Petroleum refineries
- Biomass operations
- Auto body shops
- Coating operations
- Fiberglass manufacturers
- Foundries
- Rendering plants
- Livestock operations

There are sensitive receptors within 1,000 feet of the project site, and the project would result in new receptors. As discussed above, the California Supreme Court has opined that impacts of the environment on projects are not subject to CEQA analysis, with limited exceptions where the proposed project would exacerbate existing hazards. This general rule implies that it is not a requirement to evaluate the impact of existing odor-generating uses on future land uses. Therefore, odor impacts from existing odor-generating facilities in the project area are not considered in this analysis, consistent with current case law.

The proposed project consists of a preschool and elementary school, parking lot, and play area. Thus, the project is not a land use that is commonly associated with nuisance odors (e.g., waste treatment facility, rendering plant, oil refinery). In addition, the project also does not propose any changes that would affect existing odor-generating facilities.

Potential odor emitters during construction activities include diesel exhaust, asphalt paving, and the use of architectural coatings and solvents. Construction-related operations would be temporary, and construction activities would not be likely to result in nuisance odors that would violate BAAQMD Regulation 7. Odors during operation could emanate from vehicle exhaust and the reapplication of architectural coatings. These odors would be limited to areas adjacent to the building. Although such brief exhaust- and paint-related odors may be considered adverse, they would not affect a substantial number of people. Given mandatory compliance with BAAQMD regulations, no construction or operational activities proposed would create a significant level of objectionable odors. Therefore, odor impacts would be ***less than significant***.

4.2.4.4 Cumulative Impacts

The cumulative geographic context for air quality is the SFBAAB. The cumulative geographic context for health risks is the immediate vicinity of the project site (i.e., within 1,000 feet). The cumulative geographic context for odors is the city. The approach to cumulative impacts is described in Section 4, *Environmental Impact Analysis*.

Impact C-AQ-1: The proposed project in combination with past, present, and reasonably foreseeable future projects could result in a significant cumulative impact on air quality. (Less than Significant with Mitigation)

Cumulative Air Quality Management Plan Consistency

As discussed under Impact AQ-1, the project would support the goals of BAAQMD's 2017 Clean Air Plan, would include all applicable control measures, and would not conflict with 2017 Clean Air Plan implementation. The purpose of the Clean Air Plan is to improve regional air quality in the air basin; therefore, the analysis and less-than-significant finding under Impact AQ-1 are inherently cumulative. This impact would not be cumulatively considerable. For these reasons, the proposed project in combination with past, present, and reasonably foreseeable future projects would not result in a significant cumulative impact related to air quality plan consistency. The cumulative impact would be ***less than significant***.

Cumulative Construction and Operational Emissions

As discussed above, BAAQMD has identified project-level thresholds for evaluating criteria pollutant impacts (Table 4.2-4). In developing the thresholds, BAAQMD considered the levels at which project emissions would be cumulatively considerable. As noted in BAAQMD's guidelines:

> In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary.

Consequently, exceedances of project-level thresholds would be cumulatively considerable, and the cumulative impact would be significant. As discussed under Impact AQ-2, implementation of Mitigation Measures AQ-1 and AQ-2 would be required to ensure that the proposed project would not contribute a significant level of air pollution such that regional air quality within the SFBAAB would be degraded. Accordingly, the proposed project's contribution to a cumulative criteria pollutant emissions impact would be ***less than significant with mitigation.***

Cumulative Sensitive Receptor Pollutant Concentrations

An HRA was completed for the proposed project (see Impact AQ-3 and **Appendix 4.2**). According to BAAQMD's guidelines, combined risk and concentration levels should be determined for all nearby DPM and $PM_{2.5}$ sources within 1,000 feet of a project site; these combined risk and concentration levels should be compared with BAAQMD's cumulative thresholds.

The proposed project would involve construction activities that would generate DPM and $PM_{2.5}$ exhaust and dust emissions. Along with the proposed project, existing DPM and $PM_{2.5}$ sources within 1,000 feet of the project site could contribute to a cumulative health risk for sensitive receptors near the site. This is a potentially significant impact. An inquiry to obtain stationary-source data was sent to BAAQMD, which provided the active stationary sources within 1,000 feet of the project site. In addition, BAAQMD raster data files were used to calculate the cancer risk and annual $PM_{2.5}$ concentration from roadway and rail sources at the maximum exposed receptors. The BAAQMD Health Risk Calculator, Beta 4.0, was used to estimate background impacts and concentrations for existing stationary sources at the maximum exposed receptors. The BAAQMD calculator was used in conjunction with the stationary-source risk and $PM_{2.5}$ data to scale the data for increasing distances. The combined risks from construction of the proposed

project and ambient sources are summarized in Table 4.2-9. The methods used to estimate project emissions are described above in *Methods for Analysis* and supplemented with more detail in **Appendix 4.2**.

As shown in Table 4.2-9, cumulative risks and concentration levels would not exceed BAAQMD's cumulative thresholds. Implementation of Mitigation Measures AQ-1 and AQ-2 would reduce risks and concentration levels (e.g., DPM, $PM_{2.5}$ exhaust, $PM_{2.5}$ fugitive dust) associated with construction of the proposed project. With these mitigation measures, the project would not exceed BAAQMD's cumulative thresholds. Accordingly, the proposed project would not contribute to cumulative exposure to health risks associated with TACs. This impact would be ***less than significant with mitigation***.

TABLE 4.2-9. MAXIMUM MITIGATED CUMULATIVE HEALTH RISKS FROM THE PROPOSED PROJECT

Source	Cancer Risk (case per million)	Non-Cancer Hazard Index	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Contribution from Existing Sources[a]			
Stationary Sources	7.8	< 0.01	0.14
Roadway Sources	36.2	—	0.48
Rail Sources	14.6	—	0.03
Contribution from Project Construction – Surcharging[b]			
Maximum Exposed Receptor[c]	1.9	< 0.01	0.13
Cumulative Totals			
Existing plus Construction	60.6	< 0.01	0.78
BAAQMD Thresholds	*100*	*10*	*0.8*
Contribution from Existing Sources[a]			
Stationary Sources	7.8	< 0.01	0.14
Roadway Sources	36.2	—	0.48
Rail Sources	14.6	—	0.03
Contribution from Project Construction – Non-Surcharging[b]			
Maximum Exposed Receptor[c]	1.8	< 0.01	0.09
Cumulative Totals			
Existing plus Construction	60.5	< 0.01	0.74
BAAQMD Thresholds	*100*	*10*	*0.8*

Source: See **Appendix 4.2** for modeling outputs and calculations.

Notes:

$\mu g/m^3$ = micrograms per cubic meter

a. The contribution from existing sources represents health risks within 1,000 feet of the maximum exposed receptor related to DPM and total $PM_{2.5}$. As described above, the maximum exposed receptor consists of two off-site receptors during construction. Therefore, the highest risk, index, and concentration values among the two receptors are reported in this table.

b. Contributions from project construction reported with implementation of construction mitigation measures.

c. The highest risk, index, and concentration values among the two off-site receptors are reported in this table.

Cumulative Odors

As discussed under Impact AQ-4, the proposed project would not generate substantial odors. Therefore, the proposed project in combination with past, present, and reasonably foreseeable future projects would not result in a significant cumulative odor impact. The cumulative impact would be ***less than significant***.

CHAPTER 5.0 ALTERNATIVES

5.1 INTRODUCTION

This chapter presents the alternatives analysis CEQA requires for the project. The discussion includes the methodology analysts used to select alternatives to the project for detailed CEQA analysis, with the intent of developing potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified, while still meeting most of the project's basic objectives. This chapter also identifies a reasonable range of alternatives that meet the criteria, and then evaluates their comparative merits as they pertain to minimizing adverse environmental effects.

5.1.1 Project Objectives

Refer to Section 3.1.1, *Project Objectives*, in Chapter 3, *Project Description*, of this draft EIR for a list of the project objectives that have been identified by the District.

5.1.2 Significant Impacts of the Project

Based on the analysis provided in Chapter 4 of this draft EIR, the project would have the following significant and unavoidable impact.

- **Impact AQ-3: The project could expose sensitive receptors to substantial pollutant concentrations.** On-site receptors (e.g., students and teachers) would be exposed to a maximum onsite cancer risk of 7.2 per 1 million, which is below the BAAQMD threshold of 100 per 1 million for new receptors. In addition, future students would not be exposed to a chronic hazard risk that would exceed BAAQMD thresholds. However, the $PM_{2.5}$ concentrations at the project site from roadway, rail, and stationary sources in the project area would exceed the BAAQMD threshold applicable to new sensitive receptors. To reduce the effects of $PM_{2.5}$ on future students, the project would incorporate MM AQ-3, *Advanced MERV Filtration*, and MM AQ-4, *Outdoor Play Area Siting and Vegetative Barriers*. In addition, the proposed 63-foot-tall building would separate the outdoor play area from I-280 and the Caltrain tracks[1], further reducing outdoor $PM_{2.5}$ concentrations at the outdoor play area. However, Mitigation Measure AQ-4 would not mitigate outdoor $PM_{2.5}$ concentrations at the outdoor play area to a less-than-significant level, and there are no other feasible mitigation measures that could be implemented to reduce outdoor $PM_{2.5}$ concentrations below the BAAQMD threshold. As noted in the analysis, it should be stressed that this exceedance does not imply that health risks would be significant, as the nearest monitoring station shows that ambient $PM_{2.5}$ concentrations are in attainment with the NAAQS. Nevertheless, the BAAQMD threshold for evaluating the incremental $PM_{2.5}$ concentration from modeled sources would be exceeded, and no additional feasible mitigation is available to further reduce this impact. Therefore, a significant and unavoidable impact would occur.

5.2 ALTERNATIVES CONSIDERED, BUT REJECTED

CEQA Guidelines Section 15126.6(c) provides 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

[1] As discussed in the AQTR, Caltrain has plans to electrify 75 percent of its train fleet. Partial-electrification of Caltrain's train fleet would help reduce on-site $PM_{2.5}$ concentrations. However, as shown in the AQTR, the on-site $PM_{2.5}$ concentrations would still exceed the BAAQMD threshold even with this partial-electrification of the train fleet.

reasons underlying the lead agency's determination." The screening process for identifying viable EIR alternatives included consideration of the following criteria.

- Ability to meet the project objectives
- Potential ability to substantially lessen or avoid environmental effects associated with the proposed project
- Potential feasibility

In developing the proposed project, the District considered multiple alternative concepts/designs for development of the project site. In some cases, alternative concepts were determined to be infeasible, were determined to result in the same or more severe environmental impacts compared with those of the project, or were already covered within the range of selected alternatives. The alternatives considered, but rejected, and the reasons for their rejection from further analysis are noted below.

5.2.1 Alternative Site Location (Block 15)

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 alternative that would construct the proposed project at a site adjacent to the project site (Block 15) was considered based on its potential to reduce the project's significant air quality impact (Impact AQ-3). An alternative site location would result in similar demolition or construction activities and new operational sources of air pollutants as the proposed project. Existing stationary sources of air pollution on and near Block 15 and major roadways contributing to air pollution in the project vicinity would remain the same as those under the proposed project. Because the alternative site location at Block 15 would involve the same construction and operational activities as the proposed project, it would result in less-than-significant impacts related to conflicts with the applicable air quality plan and other emissions, such as those leading to odors. In addition, the alternative site location would result in less-than-significant impacts with implementation of MM AQ-1, *Use Clean Diesel-Powered Equipment during Construction to Control Construction-Related Emissions*, and MM AQ-2, *Implement Dust Control Measures and BAAQMD Construction-Related Mitigation Measures*, for impacts related to net increase in criteria pollutants.

If the project was constructed at Block 15, it would expose onsite receptors (e.g., students and teachers) to a maximum onsite cancer risk of 7.2 per 1 million, which is below the BAAQMD threshold of 100 per 1 million for new receptors. Under an alternative site location at Block 15, future students would not be exposed to a chronic hazard risk that would exceed BAAQMD thresholds. However, the $PM_{2.5}$ concentrations at Block 15 from roadway, rail, and stationary sources in the area would exceed the BAAQMD threshold applicable to new sensitive receptors. To reduce the effects of $PM_{2.5}$ on future students, this alternative would incorporate the same mitigation measures as the proposed project (MM AQ-3, *Advanced MERV Filtration*, and MM AQ-4, *Outdoor Play Area Siting and Vegetative Barriers)*. In addition, the proposed 63-foot-tall building would separate the outdoor play area from I-280 and the Caltrain tracks, further reducing outdoor $PM_{2.5}$ concentrations at the outdoor play area. Nevertheless, the BAAQMD threshold for evaluating the incremental $PM_{2.5}$ 5 concentration from modeled sources would still be exceeded, and, like the project, a significant and unavoidable impact would occur.

Based on the above analysis, this alternative was rejected because it would not substantially lessen or avoid the significant environmental effect associated with the proposed project. Given the lack of availability of available land that is not adjacent to major roadways or existing stationary sources of pollution, in general, eliminating these constraints to siting a new school would be difficult in any area of the City.

5.2.2 Alternative Site Location (Block 4E)

In addition to Block 15, another alternative site location (Block 4E) was considered for the proposed project based on its potential to reduce the project's significant air quality impact (Impact AQ-3). Block 4E is located approximately 0.28-mile northeast of the project site, and is bounded by Third Street to the east, China Basin Street to the south, a residential condominium to the west, and Mission Rock Street to the north.

Block 4E would result in similar demolition and construction activities and new operational sources of air pollutants as the proposed project. The only difference in these activities would relate to the smaller capacity of the site for development due to its size. Because the alternative site location at Block 4E would result in similar construction and operational activities as the proposed project, and is located in close proximity to the project site, it would result in similar less-than-significant impacts related to conflicts with the applicable air quality plan and other emissions. In addition, similar to the proposed project, the alternative site location would result in less-than-significant impacts related to net increases in criteria pollutants with implementation of MM AQ-1, *Use Clean Diesel-Powered Equipment during Construction to Control Construction-Related Emissions*, and MM AQ-2, *Implement Dust Control Measures and BAAQMD Construction-Related Mitigation Measures*.

Regarding the exposure of sensitive receptors to substantial pollutant concentrations, this alternative would result in similar impacts as compared to the proposed project. As with the proposed project, under an alternative site location at Block 4E, future students would not be exposed to a chronic hazard risk that would exceed BAAQMD thresholds, but likely would still be exposed to $PM_{2.5}$. emissions in exceedance of the BAAQMD threshold. Similar to the project site, Block 4E is within a highly urbanized area with multiple BAAQMD permitted facilities that are stationary sources of air pollution, including $PM_{2.5}$. While Block 4E is farther away from I-280 and the Caltrain Tracks, Block 4E is adjacent to Third Street, which experiences higher traffic volumes compared to the roadways near the project site. Because these high traffic volumes are a source of substantial road dust emissions, it is anticipated that Third Street would be a major source of entrained $PM_{2.5}$ emissions. Therefore, if the project was constructed at Block 4E, it is likely that, similar to the proposed project, onsite sensitive receptors (e.g., students and teachers) would be exposed to $PM_{2.5}$ emissions from both stationary sources and nearby roadways in concentrations that are above the BAAQMD threshold. Nonetheless, this alternative would incorporate the same mitigation measures as the proposed project (MM AQ-3, *Advanced MERV Filtration*, and MM AQ-4, *Outdoor Play Area Siting and Vegetative Barriers),* to reduce the effects of $PM_{2.5}$ on future students to the extent feasible. Further, like the proposed project, the 63-foot-tall building would separate the outdoor play area from surrounding roadways, further reducing outdoor $PM_{2.5}$ concentrations at the outdoor play area. Ultimately, however, because sensitive receptors would likely be exposed to $PM_{2.5}$ concentrations in exceedance of the BAAQMD threshold, the significant and unavoidable impact related to the exposure of sensitive receptors to substantial pollutant concentrations would not be substantially reduced as compared to the proposed project. It should also be noted that, in general, eliminating these such constraints to siting a new school would be difficult in any area of the City, given the lack of availability of available land that is not adjacent to major roadways or existing stationary sources of pollution.

Additionally, Block 4E as an alternative site location was rejected due to the reduced size of the site (approximately 0.95 acre compared to the 2.45-acre project site), which would limit its ability to satisfy the project objectives. Block 4E would not be able to accommodate the amount of development proposed under the project due to the smaller size of the lot, and would thus not meet the project objectives of offering and expanding recreational and extracurricular opportunities onsite or providing a location for professional development opportunities. To construct at Block 4E, the proposed school would be reduced in size by approximately 50 percent, thereby reducing the amount of space available for the proposed

uses, including the preschool, transitional kindergarten, kindergarten through fifth grade elementary school, linked learning hub, professional learning space, outdoor learning area, outdoor play area, and surface parking. Further, the reduced size of the school would result in the proposed school being able to serve fewer students than the proposed project, thus limiting its ability to serve new housing development in Mission Bay.

Based on the above analysis, this alternative was rejected because it would not substantially lessen or avoid the significant environmental effect associated with the proposed project, and would not meet most of the project objectives.

5.2.3 Alternative Site Design

The District considered alternative site designs for the school at the project site. Brief description of each of the alternative site designs are provided below.

- Option A—This option would orient the proposed building so that there would be a four-story west wing, and a two story north wing. The outdoor play area would be located in the southeastern portion of the site adjacent to Nelson Rising Lane and Sixth Street.
- Option B—This option would be comprised of a larger, six-story building oriented along the northern portion of the site adjacent to Mission Bay Boulevard. A smaller single-story building would be located perpendicular to the larger building, with the outdoor play area located in the southern portion of the site.
- Option C—This option would occupy the entire site with a three-story building adjacent to a one-story building. The outdoor play areas would be located on the roofs of the two buildings.
- Option D—This option would orient the building so that there would be a north wing along Mission Bay Boulevard, and a west wing along Owens Street. The north wing of the building would be four stories tall, and the west wing of the building would be tiered with a portion of the wing being three stories, and the other portion being two stories. The outdoor play area would be located in the southeastern portion of the site.
- Option E—This option would address the Office of Community Investment and Infrastructure's (OCII) requirement for a "street wall" on Mission Bay Boulevard and Owens Street. The building would be comprised of two levels on the northern portion of the site: a two-story portion adjacent to a single-story portion, with part of the outdoor play area located on the roof of the single-story part of the building. The remaining outdoor play area space would be provided in the southeastern portion of the site.

The alternative site designs were considered based on their potential to reduce the project's significant air quality impact (Impact AQ-3). The alternative site designs would result in similar or greater demolition or construction activities and similar new operational sources of air pollutants as the proposed project. Existing stationary sources of air pollution on and near the project site and major roadways contributing to air pollution in the project vicinity would remain the same as those under the proposed project because the building(s) would be constructed at the same project site. Although the alternative site designs would involve similar or greater construction and operational activities compared to the proposed project, they would likely still result in less-than-significant impacts related to conflicts with the applicable air quality plan and other emissions, such as those leading to odors. In addition, the alternative site designs would result in less-than-significant impacts with implementation of MM AQ-1, *Use Clean Diesel-Powered Equipment during Construction to Control Construction-Related Emissions*, and MM AQ-2, *Implement*

Dust Control Measures and BAAQMD Construction-Related Mitigation Measures, for impacts related to net increase in criteria pollutants.

Additionally, each of the alternative site designs were rejected based on their limited ability to satisfy project objectives. The building orientation for the alternative site designs would not allow for optimal passive heating and cooling, glare control, solar heat gain, and photovoltaics, likely resulting in a less energy efficient building compared to the proposed project. All of the alternative site designs would require deep foundation systems resulting in more ground disturbance than the proposed project. Thus, the alternative site designs would not meet the objective of building a school campus that reflects the efficient use of limited land and public resources, as they would require a greater financial investment to build and operate the proposed school compared to the proposed project. The majority of the alternative site designs would result in reduced amounts of landscaping and outdoor play areas. Thus, the alternative site design options would not be able to accommodate the amount of outdoor areas under the project due to the variations in site design, and would thus not meet the project objective of offering and expanding recreational and extracurricular opportunities within the District.

Based on the above analysis, all of the alternative site designs were rejected because they would not substantially lessen or avoid the significant environmental effect associated with the proposed project, and would not meet many of the project objectives.

5.3 ALTERNATIVES SELECTED FOR FURTHER REVIEW

As discussed in Section 5.2, the District considered one alternative that would have the potential to reduce the project's significant and unavoidable air quality impact (Impact AQ-3) and the alternative was rejected based on its inability to reduce or avoid the significant impacts of the project. Therefore, the lead agency also considered alternatives that would substantially reduce or avoid the impacts of the project that would require mitigation to be reduced to a less-than-significant level. These impacts include:

- Impact AQ-2: The proposed project could result in a cumulatively considerable net increase in any criteria pollutant for which the project region is classified as a nonattainment area under an applicable federal or state ambient air quality standard during construction.
- Impact C-AQ-1: The proposed project in combination with past, present, and reasonably foreseeable future projects could result in a significant cumulative impact on air quality.
- The proposed project could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- The proposed project could cause a substantial adverse change in the significance of an archaeological resource, as defined in Section 15064.5.
- The proposed project could disturb any human remains, including those interred outside of formal cemeteries.
- The proposed project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

- The proposed project could create a significant hazard for the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- The proposed project could 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 plans or noise ordinance or applicable standards of other agencies.
- The proposed project could cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe and that is listed in, or eligible for listing in, the CRHR or a local register of historical resources, as defined in PRC Section 5020.1 (k)
- The proposed project could cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC section 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe.

The project impacts requiring mitigation to reduce impacts to less-than-significant levels are largely related to construction impacts, including ground disturbance. Therefore, the alternatives selected for evaluation focus on reducing ground disturbance associated with the project, which would in turn reduce construction-related impacts.

The two alternatives are evaluated in this chapter as listed below.

- Alternative A—No Project Alternative
- Alternative B—Reduced Building Footprint Alternative

Under Alternative A—No Project Alternative, existing land uses and site conditions at the project site would not change, and the 251 surface parking spaces would remain. Under Alternative B—Reduced Building Footprint Alternative, a proposed school with a reduced building footprint of approximately 25 percent less square footage than the proposed project would be constructed.

Table 5-1 compares the main features of the project to those of the alternatives.

TABLE 5-1. COMPARISON OF MAIN FEATURES OF THE PROJECT TO THE ALTERNATIVES

Feature	Proposed Project	Alternative A— No Project Alternative	Alternative B— Reduced Building Footprint Alternative
Total proposed new uses	Up to 105,700 square feet	None	Up to 79,300 square feet
Building Height	63 feet (76 feet with mechanical features)	None (existing 251 surface parking spaces to remain)	63 feet (76 feet with mechanical features)

Feature	Proposed Project	Alternative A—No Project Alternative	Alternative B—Reduced Building Footprint Alternative
Vehicle Parking	9 spaces	None (existing 251 spaces to remain)	9 spaces
Existing Trees to be Removed	4 trees	None	4 trees
Employees, Teachers, and Students	70 employees 60 teachers 770 students	None (No existing employees, teachers or students)	52 employees 45 teachers 578 students

Source: Gould Evans 2020; ICF 2021.

5.4 ALTERNATIVE A—NO PROJECT ALTERNATIVE

Per CEQA Guidelines section 15126.6(e), the No Project Alternative must discuss existing conditions at the time of the notice of preparation "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 consistent with available infrastructure and community services." This could include a proposal of another project to the extent that it would be a predictable action resulting from the proposed project being disapproved.

5.4.1 Description

Under Alternative A—No Project Alternative, the existing land uses and site conditions at the project site would not change. The existing surface parking lot would remain which has approximately 251 parking spaces. Existing vehicle ingress and egress at the site would remain via the two driveways along Nelson Rising Lane and along Sixth Street. In addition, existing pedestrian access to the project site provided by the sidewalks that surround the site would remain. There would be no site remediation nor tree removal. Alternative A would not preclude potential future development of the project site with a range of land uses that are permitted at the project site.

5.4.2 Ability to Meet Project Objectives

Under Alternative A—No Project Alternative, the physical environment of the project site would remain generally unchanged. Therefore, Alternative A would fail to meet all the project objectives (refer to Section 3.1.1, *Project Objectives*, in Chapter 3, *Project Description*, of this draft EIR for a list of the project objectives the project sponsor has identified and Table 5-2 for a comparison of the ability of this alternative to meet the objectives of the proposed project).

5.4.3 Impacts

The impact analysis below focuses on those impacts that were determined to be significant and unavoidable and less than significant with mitigation under the proposed project. Less-than-significant impacts are generally discussed at the end of the impact analysis.

This environmental analysis assumes that the existing surface parking lot and uses on the project site would not change and that the existing physical conditions, as described in detail in Chapter 4, *Environmental Setting, Impacts, and Mitigation*, would remain the same. If Alternative A were implemented, none of the impacts associated with the proposed project as described in Chapter 4 would occur. However, development and growth would continue within the vicinity of the project site as reasonably foreseeable future projects are approved, constructed, and occupied. These projects could

contribute to cumulative impacts in the vicinity, but, under Alternative A, land use activity on the project site would not contribute to these cumulative impacts beyond existing levels.

5.4.3.1 Air Quality

Under Alternative A, there would be no demolition or construction activities and no new operational sources of air pollutants on the project site. The project site would remain in its current condition. Existing stationary sources of air pollution on and near the project site and major roadways contributing to air pollution in the project vicinity would remain. Alternative A would not include any future students or teachers and would not expose onsite receptors to $PM_{2.5}$ concentrations at Block 15 from roadway, rail, and stationary sources in the area. Alternative A would have no impact related to air quality compared to the proposed project, which would result in a significant and unavoidable air quality impact (Impact AQ-3) and a less-than-cumulatively considerable contribution to significant cumulative air quality impacts with mitigation. Potential construction and operation air quality impacts that would occur under the project would not occur under Alternative A; thus, implementation of MM AQ-1, *Use Clean Diesel-Powered Equipment during Construction to Control Construction-Related Emissions*, MM AQ-2, *Implement Dust Control Measures and BAAQMD Construction-Related Mitigation Measures*, MM AQ-3, *Advanced MERV Filtration*, and MM AQ-4, *Outdoor Play Area Siting and Vegetative Barriers*, would not be required for this alternative.

5.4.3.2 Biological Resources

Under Alternative A, there would be no demolition activities, construction activities, or removal of trees or vegetation at the project site. The site would remain in its current condition. The project site would remain in its current condition. Alternative A would have no impact related to biological resources compared to the proposed project, which would result in less-than-significant with mitigation project-level biological resources impacts and a less than cumulatively considerable contribution to significant cumulative biological resources impacts. Potential biological resources impacts that would occur under the proposed project would not occur under Alternative A; thus, implementation of MM BIO-1, *Nesting Bird Surveys*, would not be required for this alternative.

5.4.3.3 Cultural Resources and Tribal Cultural Resources

Under Alternative A, there would be no demolition activities or construction activities at the project site. The site would remain in its current condition. Alternative A would have no impact related to cultural resources or tribal cultural resources compared to the proposed project, which would result in less-than-significant with mitigation project-level cultural resources and tribal cultural resources impacts and a less than cumulatively considerable contribution to significant cumulative cultural resources and tribal cultural resources impacts. Potential cultural resources and tribal cultural resources impacts that would occur under the proposed project would not occur under Alternative A; thus, implementation of MM CUL-1, *Stop Work If Archaeological Deposits Are Encountered During Ground-disturbing Activities*, MM CUL-2, *Comply with State Laws Relating to Human Remains*, and MM TCR-1, *Stop Work if Precontact or Historic-period Cultural Materials are Encountered During Ground-disturbing Activities*, would not be required for this alternative.

5.4.3.4 Greenhouse Gas Emissions

Under Alternative A, there would be no demolition activities or construction activities at the project site. The site would remain in its current condition. Alternative A would have no impact related to greenhouse gas emissions compared to the proposed project, which would result in less-than-significant with

mitigation project-level greenhouse gas impacts and a less than cumulatively considerable contribution to significant cumulative greenhouse gas emissions impacts. Potential greenhouse gas emissions impacts that would occur under the proposed project would not occur under Alternative A; thus, implementation of MM GHG-1, *Require Implementation of BAAQMD-recommended Construction BMPs*, would not be required for this alternative.

5.4.3.5 Hazards and Hazardous Materials

Under Alternative A, there would be no demolition activities, construction activities, or remediation at the project site. The site would remain in its current condition. Alternative A would have no impact related to hazards and hazardous materials compared to the proposed project, which would result in less-than-significant with mitigation project-level hazards impacts and a less than cumulatively considerable contribution to significant cumulative hazards impacts. Potential hazards and hazardous materials impacts that would occur under the proposed project would not occur under Alternative A; thus, implementation of MM HAZ-1, *Implementation of a Health and Safety Plan and Soils Management Plan during Construction*, would not be required for this alternative.

5.4.3.6 Noise

Under Alternative A, there would be no demolition activities or construction activities at the project site. The site would remain in its current condition. Alternative A would have no impact related to noise compared to the proposed project, which would result in less-than-significant with mitigation project-level noise impacts and a less than cumulatively considerable contribution to significant cumulative noise impacts. Potential noise impacts that would occur under the proposed project would not occur under Alternative A; thus, implementation of MM NOI-1, *Measures to Reduce Noise Outside Standard Construction Hours in San Francisco*, MM NOI-2, *Measures to Reduce Noise from Heating, Cooling, and Ventilation Equipment*, MM NOI-3, *Measures to Reduce Interior Noise at the Project Site*, would not be required for this alternative.

5.4.3.7 Less-than-Significant Impacts

This draft EIR and initial study (see **Appendix 1.2**) concludes that the proposed project would have no impact or less-than-significant impacts in all topics of the following analysis areas.

- Aesthetics
- Agricultural and Forest Resources
- Energy
- Geology and Soils
- Hydrology and Water Quality
- Land Use
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Transportation and Circulation

- Utilities and Service Systems
- Wildfire

Alternative A would result in no impact related to any of the above-listed environmental topics because this alternative would result in no changes to existing site conditions.

5.5 ALTERNATIVE B—REDUCED BUILDING FOOTPRINT ALTERNATIVE

5.5.1 Description

Alternative B—Reduced Building Footprint Alternative, would construct a building that is approximately the same height as the proposed project with the same uses, but with a reduced building footprint and approximately 25 percent less square footage. Alternative B includes up to 79,300 square feet compared to up to 105,700 under the proposed project, as shown in Table 5-1. Similarly, Alternative B would serve approximately 25 percent fewer employees, teachers, and students. The site plan for this alternative would otherwise be similar to the proposed project. Site access and circulation would be similar to the proposed project. Alternative B would include the same overall pedestrian and landscape improvements to the site as the proposed project. Thus, it is anticipated that the amount of pervious surface under this alternative would be similar to the proposed project. Overall, Alternative B would involve a similarly sized development area compared to the project even though the building footprint would be reduced because it is anticipated that additional site improvements (e.g., landscaping and hardscaped areas) would be constructed around the perimeter of the building. In addition, Alternative B would require the removal of four existing trees, as with the proposed project.

The construction activities for Alternative B would be similar to the proposed project. The construction schedule for Alternative B may be shorter than the proposed project. In addition, Alternative B would require substantially less ground disturbance near the building footprint and slightly less ground disturbance overall compared to the proposed project. Overall, Alternative B would result in a substantially reduced construction program.

Alternative B would require the same approvals anticipated to be required for the proposed project.

5.5.2 Ability to Meet Project Objectives

Alternative B—Reduced Building Footprint Alternative, would only partially meet the project objectives of constructing a new school to serve new housing development in Mission Bay, alleviating classroom overcrowding and accommodating an increasing school student population, offering and expanding recreational and extracurricular opportunities within the District, and providing a location for professional development opportunities because it would include approximately 25 percent less square footage compared to the proposed project. Thus, this alternative would not maximize the potential to meet those objectives. Alternative B would only partially meet the objective of building and maintaining a state-of-the-art elementary school campus that reflects the efficient use of limited land and public resources because it would not maximize the opportunity to build out the project site with school-related uses. Alternative B would meet the project objective to provide safe, efficient, and adequate school site access, circulation, and parking areas because site access and circulation would be similar to the proposed project. Therefore, Alternative B would only partially meet most of the project objectives (refer to Section 3.1.1, *Project Objectives*, in Chapter 3, *Project Description*, of this draft EIR for a list of the project objectives the project sponsor has identified and Table 5-2 for a comparison of the ability of this alternative to meet the objectives of the proposed project).

5.5.3 Impacts

The impact analysis below focuses on those impacts that were determined to be significant and unavoidable and less than significant with mitigation under the proposed project. Less-than-significant impacts are generally discussed at the end of the impact analysis.

5.5.3.1 Air Quality

Under the substantially reduced construction program of Alternative B, less construction activities would be required for the reduced building footprint, which would reduce construction emissions. This would reduce construction-related emissions impacts, but would not eliminate the impacts. Thus, implementation of MM AQ-1, *Use Clean Diesel-Powered Equipment during Construction to Control Construction-Related Emissions*, MM AQ-2, *Implement Dust Control Measures and BAAQMD Construction-Related Mitigation Measures*, would continue to apply to Alternative B. Impacts associated with construction criteria air pollutant emissions under this alternative would be less than significant with mitigation, although slightly reduced compared to the proposed project. In addition, with implementation of MM AQ-1 and AQ-2, Alternative B's contribution to a cumulative criteria pollutant emissions impact would be less than cumulatively considerable, although slightly reduced compared to the proposed project.

During operations, the area and building energy sources of emissions under Alternative B would be less than the proposed project because the proposed building would be approximately 25 percent smaller. In addition, Alternative B would generate a fewer vehicle trips than the proposed project because there would be fewer employees at the project site. Consequently, Alternative B would generate fewer operational air quality emissions. Impacts associated with operational criteria air pollutant emissions under this alternative would be less than significant, although slightly reduced compared to the proposed project. In addition, similar to the proposed project, the alternative's contribution to cumulative operational air quality impacts would be less than cumulatively considerable under Alternative B.

Similar to the proposed project, construction and operation of Alternative B would generate toxic air contaminants (TACs), including diesel particulate matter and particulate matter ($PM_{2.5}$), within the same proximity from the same sensitive receptors that would be affected by the proposed project. Under the slightly limited construction program of Alternative B and with implementation of MM AQ-1 and AQ-2, health-risks from construction-related DPM and $PM_{2.5}$ concentrations during construction would be less than significant with mitigation, although slightly reduced compared to the proposed project. Alternative B would include the same fire pump and testing activity as the proposed project. As with the proposed project, all new stationary sources under Alternative B would be subject to the permit authority of BAAQMD. Thus, operational TAC impacts under Alternative B would be less than significant, similar to the proposed project. In addition, the alternative's contribution to cumulative health risks and substantial $PM_{2.5}$ concentrations would be less than cumulatively considerable under Alternative B, although slightly reduced compared to the proposed project.

Similar to the project, the $PM_{2.5}$ concentrations at the project site under Alternative B from roadway, rail, and stationary sources in the area would exceed the BAAQMD threshold applicable to new sensitive receptors. To reduce the effects of $PM_{2.5}$ on future students, this alternative would incorporate the same mitigation measures as the proposed project (MM AQ-3, *Advanced MERV Filtration*, and MM AQ-4, *Outdoor Play Area Siting and Vegetative Barriers)*. In addition, similar to the project, the proposed 63-foot-tall building would separate the outdoor play area from I-280 and the Caltrain tracks, further reducing outdoor $PM_{2.5}$ concentrations at the outdoor play area. Nevertheless, the BAAQMD threshold for evaluating the incremental $PM_{2.5}$ 5 concentration from modeled sources would still be exceeded, and,

like the project, a significant and unavoidable impact (Impact AQ-3) would occur under this alternative. Therefore, this alternative was rejected because it would not substantially lessen or avoid the significant environmental effect associated of the proposed project.

5.5.3.2 Biological Resources

Alternative B would involve a similarly sized development area, which would require the removal of four existing trees, as with the proposed project. Impacts to wildlife species such as migratory birds and roosting bats under this alternative would be similar to the proposed project. Thus, implementation of MM BIO-1, *Nesting Bird Surveys*, would be required for this alternative. With implementation of MM BIO-1, project-level and cumulative biological resources impacts under Alternative B would be less than significant with mitigation and slightly reduced compared to the proposed project.

5.5.3.3 Cultural Resources and Tribal Cultural Resources

Alternative B would involve a reduced building footprint, which would require substantially less ground disturbance near the building footprint and slightly less ground disturbance overall compared to the proposed project. This would reduce the potential for ground-disturbing activities could unearth previously unknown archaeological deposits, human remains, or precontact or historic-period cultural materials, but would not eliminate the impacts. Thus, implementation of MM CUL-1, *Stop Work If Archaeological Deposits Are Encountered During Ground-disturbing Activities*, MM CUL-2, *Comply with State Laws Relating to Human Remains*, and MM TCR-1, *Stop Work if Precontact or Historic-period Cultural Materials are Encountered During Ground-disturbing Activities*, would be required for this alternative. With implementation of MM CUL-1, MM CUL-2, and MM TCR-1, project-level and cumulative cultural resources and tribal cultural resources impacts under Alternative B would be less than significant with mitigation and slightly reduced compared to the proposed project.

5.5.3.4 Greenhouse Gas Emissions

Under the substantially reduced construction program of Alternative B, less construction activities would be required for the reduced building footprint, which would reduce construction emissions. This would reduce construction-related greenhouse gas impacts, but would not eliminate the impacts. Thus, implementation of MM GHG-1, *Require Implementation of BAAQMD-recommended Construction BMPs*, would be required for this alternative. With implementation of MM GHG-1, project-level and cumulative greenhouse gas impacts under Alternative B would be less than significant with mitigation and slightly reduced compared to the proposed project.

5.5.3.5 Hazards and Hazardous Materials

Alternative B would involve a reduced building footprint, which would require substantially less ground disturbance near the building footprint and slightly less ground disturbance overall compared to the proposed project. This would reduce the potential for ground-disturbing activities that could expose construction personnel, the public, or the environment to contaminated soils, but would not eliminate the impacts. Thus, implementation of MM HAZ-1, *Implementation of a Health and Safety Plan and Soils Management Plan during Construction*, would be required for this alternative. With implementation of MM HAZ-1, project-level and cumulative hazards impacts under Alternative B would be less than significant with mitigation and slightly reduced compared to the proposed project.

5.5.3.6 Noise

Under the substantially reduced construction program of Alternative B, less construction activities would be required for the reduced building footprint, which would reduce construction emissions. This would reduce construction-related noise impacts, but would not eliminate the impacts. Thus, implementation of MM NOI-1, *Measures to Reduce Noise Outside Standard Construction Hours in San Francisco*, would be required for this alternative. During operations, Alternative B would generate fewer vehicle trips than the proposed project because there would be fewer employees, teachers, and students at the project site, which would reduce traffic noise. Noise from the proposed HVAC systems, mechanical equipment, and fire pump under Alternative B would be similar to the proposed project. Thus, implementation of MM NOI-2, *Measures to Reduce Noise from Heating, Cooling, and Ventilation Equipment*, and MM NOI-3, *Measures to Reduce Interior Noise at the Project Site*, would be required for this alternative. With implementation of MM NOI-1, MM NOI-2, and MM NOI-3, project-level and cumulative noise impacts under Alternative B would be less than significant with mitigation and slightly reduced compared to the proposed project.

5.5.3.7 Less-than-Significant Impacts

This draft EIR and initial study (see **Appendix 1.2**) concludes that the proposed project would have no impact or less-than-significant impacts in all topics of the following analysis areas.

- Aesthetics
- Agricultural and Forest Resources
- Energy
- Geology and Soils
- Hydrology and Water Quality
- Land Use
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Transportation and Circulation
- Utilities and Service Systems
- Wildfire

Alternative B would occupy the same project site but with a smaller building footprint and reduced building square footage than the proposed project and would otherwise have a similar development program and site plan overall. As a result, the construction and operational impacts of Alternative B—Reduced Building Footprint Alternative, for each of the environmental topics noted above would be similar or reduced compared to those of the proposed project.

5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines Section 15126.6(e)(2) requires identification of an environmentally superior alternative (i.e., the alternative that has the fewest significant environmental impacts) from among the other

alternatives evaluated if the proposed project has significant impacts that cannot be mitigated to a less-than-significant level. If the No Project Alternative (i.e., Alternative A) is found to be the environmentally superior alternative, the EIR must identify an environmentally superior alternative among the other alternatives.

Table 5-2 compares the ability of the alternatives to meet the objectives of the proposed project. Table 5-3 compares the significant and less-than-significant with mitigation impacts of the proposed project to those of the alternatives.

As with the project, Alternative B would result in significant and unavoidable impact with mitigation related to air quality because the $PM_{2.5}$ concentrations at the project site under Alternative B from roadway, rail, and stationary sources in the area would exceed the BAAQMD threshold applicable to new sensitive receptors (Impact AQ-3). Alternative B would offer a lower level of impact by reducing the site-specific impacts that would be less than significant with mitigation. Specifically, Alternative B would require less ground disturbance, which would reduce impacts to biological resources, cultural resources and tribal resources, greenhouse gas emissions, hazards and hazardous materials, and noise compared to the project. Alternative B is the environmentally superior alternative. However, Alternative B would not meet all of the project objectives, as shown in Table 5 3.

TABLE 5-2. ABILITY OF ALTERNATIVES TO MEET PROJECT OBJECTIVES

Objective	Proposed Project	Alternative A: No Project	Alternative B: Reduced Building Footprint Alternative
Construct a new school to serve the new housing development that has occurred in Mission Bay	Yes	No	Partial: does not maximize potential to serve new housing development
Alleviate classroom overcrowding and accommodate an increasing school student population across the District	Yes	No	Partial: does not maximize potential to alleviate overcrowding and accommodate increasing school student population
Build and maintain a state-of-the-art elementary school campus that reflects the efficient use of limited land and public resources s	Yes	No	Partial: does not maximize efficient use of limited land and public resources
Provide safe, efficient, and adequate school site access, circulation, and parking areas for students and District staff	Yes	No	Yes
Offer and expand recreational and extracurricular opportunities to supplement education opportunities within the District	Yes	No	Partial: does not maximize potential for expansion of recreational and extracurricular opportunities
Provide a location for professional development opportunities for District faculty and staff	Yes	No	Partial: does not maximize potential for professional development opportunities

TABLE 5-3. COMPARISON OF PROPOSED PROJECT SIGNIFICANT IMPACTS AND LESS-THAN-SIGNIFICANT IMPACTS WITH MITIGATION TO IMPACTS OF ALTERNATIVES

Environmental Impacts	Proposed Project	Alternative A: No Project Alternative	Alternative B: Reduced Building Footprint Alternative
Significant Impacts			
Impact AQ-3: The project could expose sensitive receptors to substantial pollutant concentrations.	Significant and Unavoidable with Mitigation	No Impact	Significant and Unavoidable with Mitigation (similar to the project)
Less-than-Significant Impacts with Mitigation			
Impact AQ-2: The proposed project could result in a cumulatively considerable net increase in any criteria pollutant for which the project region is classified as a nonattainment area under an applicable federal or state ambient air quality standard during construction.	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation (slightly reduced compared to the project)
Impact C-AQ-1: The proposed project in combination with past, present, and reasonably foreseeable future projects could result in a significant cumulative impact on air quality.	Less than Significant with Mitigation	No Impact	Less than Cumulatively Considerable Contributor with Mitigation (slightly reduced compared to the project)
The proposed project could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation (slightly reduced compared to the project)
The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation (slightly reduced compared to the project)
The proposed project could cause a substantial adverse change in the significance of an archaeological resource, as defined in Section 15064.5.	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation (slightly reduced compared to the project)

Environmental Impacts	Proposed Project	Alternative A: No Project Alternative	Alternative B: Reduced Building Footprint Alternative
The proposed project could disturb any human remains, including those interred outside of formal cemeteries.	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation (slightly reduced compared to the project)
The proposed project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation (slightly reduced compared to the project)
The proposed project could create a significant hazard for the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation (slightly reduced compared to the project)
The proposed project could 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 plans or noise ordinance or applicable standards of other agencies.	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation (slightly reduced compared to the project)
The proposed project could cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC section 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe.	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation (slightly reduced compared to the project)

CHAPTER 6.0 OTHER CEQA CONSIDERATIONS

CEQA Guidelines section 15126 requires that all aspects of a project must be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. As part of this analysis, the EIR must also identify (1) significant environmental effects of the proposed project, (2) significant environmental effects that cannot be avoided if the proposed project is implemented, (3) significant irreversible environmental changes that would result from implementation of the proposed project, (4) growth-inducing impacts of the proposed project, (5) mitigation measures proposed to minimize the significant effects, and (6) alternatives to the proposed project.[1]

6.1 MANDATORY FINDINGS OF SIGNIFICANCE

CEQA Guidelines section 15065(a) requires a lead agency to find that a project may have a significant effect on the environment and thereby require an EIR if that project has the potential to have particular impacts, as described below.

6.1.1 Quality of the Environment

CEQA Guidelines section 15065(a)(1) requires a lead agency to find that a project may have a signficant effect on the environrment and thereby require an EIR if that project "has the potential to substantially degrade the quality of the environment."

This draft EIR, and initial study (see **Appendix 1.2**), in its entirety, addresses and discloses all potential environmental impacts associated with construction and operation of the proposed project, including direct, indirect, and cumulative impacts. As described in Chapter 4, *Introduction to Environmental Analysis*, the proposed project would have no impact, less-than-significant impact, or a less-than-significant with mitigation impact associated with aesthetics, agriculture and forestry resources, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use, mineral resources, noise, population and housing, public services, recreation, transportation and circulation, tribal cultural resources, utilities and service systems, and wildfire. As evaluated in this draft EIR, the proposed project would have a significant and unavoidable impact associated with air quality. Air quality impacts related to the exposure of sensitive receptors to substantial pollutant concentrations are considered significant and unavoidable, as discussed in Section 6.3, *Significant Environmental Effects that Cannot Be Avoided*. Based on the potential impacts of the project related to air quality, the proposed project would have the potential to degrade the quality of the environment.

6.1.2 Impacts on Species

CEQA Guidelines section 15065(a)(1) states that a lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR where there is substantial evidence that the project has the potential to (1) substantially reduce the habitat of a fish or wildlife species;,(2) cause a fish or wildlife population to drop below self-sustaining levels, or (3) substantially reduce the number or restrict the range of an endangered, rare, or threatened species. Section 4.4, *Biological Resources*, of the initial study (see **Appendix 1.2**) addresses any impacts that might relate to the reduction of fish or wildlife habitat, the reduction of fish or wildlife populations, and the reduction or restriction of the range of special-status species as a result of project implementation. The proposed

[1] Mitigation measures proposed to minimize significant effects are discussed in each topical section of the initial study and Chapter 4 of this EIR; alternatives to the proposed project are discussed in Chapter 5, *Alternatives*.

project would have no impact, a less-than-significant impact, or a less-than-significant impact with mitigation with respect to biological imapcts and, therefore, would not have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal.

6.1.3 Impacts on Historical Resources

CEQA Guidelines section 15065(a)(1) states that a lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR where there is substantial evidence that the project has the potential to eliminate important examples of a major period of California history or prehistory. CEQA Guidelines section 15065(a)(1) amplifies Public Resources Code Section 21001(c) by requiring preservation of major periods of California history for the benefit of future generations. It also reflects the provisions of Public Resource Code Section 21084.1 in requiring a finding of significance for substantial adverse changes to historical resources. CEQA Guidelines section 15064.5 establishes standards for determining the significance of impacts on historical resources and archaeological sites that are an historical resource. Section 4.5, *Cultural Resources*, section 4.7, *Geology and Soils*, and section 4.18, *Tribal Cultural Resources*, of the initial study (see **Appendix 1.2**) addresses impacts related to California history and prehistory, historic resources, archaeological resources, paleontological resources, and tribal cultural resources. The proposed project would have either no impact or a less-than-significant impact with mitigation with respect to cultural resources, tribal and cultural resources, and paleontological resources and, therefore, would not have the potential to eliminate important examples of the major periods of California history or prehistory.

6.1.4 Long-Term Impacts

CEQA Guidelines section 15065(a)(2) states that a lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR where there is substantial evidence that the project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals. Section 6.3, *Significant Environmental Effects that Cannot Be Avoided*, below, identifies all significant and unavoidable impacts that could occur, thereby creating a long-term impact on the environment. Section 6.4, *Significant Irreversible Environmental Changes*, below, addresses the short-term and irretrievable commitment of natural resources to ensure that the consumption is justified on a long-term basis. Lastly, Section 6.5, *Growth-Inducing Impacts*, identifies any long-term environmental impacts caused by the proposed project with respect to economic or population growth.

6.1.5 Impacts on Human Beings

CEQA Guidelines section 15065(a)(4) states that a lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR where there is substantial evidence that the environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly. As described in Chapter 4, *Introduction to Environmental Analysis*, the proposed project would have no impact, less-than-significant impact, or a less-than-significant with mitigation impact associated with aesthetics, agriculture and forestry resources, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use, mineral resources, noise, population and housing, public services, recreation, transportation and circulation, tribal cultural resources, utilities and service systems, and wildfire. As evaluated in this draft EIR, the proposed project would have a significant and unavoidable impact associated with air quality. Air quality impacts related to the exposure of sensitive receptors to

substantial pollutant concentrations are considered significant and unavoidable, as discussed in Section 6.3, *Significant Environmental Effects that Cannot Be Avoided*.

6.2 CUMULATIVE IMPACTS

An EIR is required to examine cumulative impacts. California Code of Regulations section 15130(a)(1), defines a cumulative impact as consisting "of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." The analysis of cumulative impacts need not provide the same level of detail as that for project-specific impacts, but it "shall reflect the severity of the impacts and their likelihood of occurrence" (per California Code of Regulations Section 15130(b)). CEQA Guidelines section 15065 states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has potential environmental effects that are individually limited, but cumulatively considerable. As defined in CEQA Guidelines section 15065(a)(3), cumulatively considerable means "that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." The cumulative impacts analysis in an EIR must analyze either a list of past, present, and probable future projects or a summary of projections contained in an adopted general plan or related planning document.

The cumulative impact analysis in this draft EIR generally employs either a list-based approach or a projections approach, depending on which approach best suits the individual resource topic being analyzed. A list of the reasonably foreseeable future projects used to analyze cumulative impacts under most topics is provided in Section 4.1.5, *Approach to Cumulative Impact Analysis*, and shown in Figure 4-1. The cumulative impact analysis for the topics analyzed in the initial study is included in the Mandatory Findings of Significance section. The cumulative impact analysis for air quality is included in Section 4.2, *Air Quality*, immediately after the description of the project impacts and identified mitigation measures. As described in the initial study, either there would be no cumulative impacts, cumulative impacts would be less than significant, or the project would have a less-than-cumulatively considerable contribution (either with or without mitigation) to significant cumulative impacts in the areas of aesthetics, agriculture and forestry resources, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use, mineral resources, noise, population and housing, public services, recreation, transportation and circulation, tribal cultural resources, utilities and service systems, and wildfire. As described in Chapter 4.2, the project would have a less-than-cumulatively considerable contribution with mitigation to a significant cumulative impact on air quality.

6.3 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

Chapter 2, *Executive Summary*, and Section 4.2, *Air Quality*, of this draft EIR, as well as the initial study (see Appendix 1.2) provide a comprehensive summary of the environmental effects of the proposed project, including the levels of significance both before and after mitigation. Chapter 2 provides an overview of the impacts identified in the EIR and the initial study, respectively.

CEQA Guidelines section 15126.2(b) requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. Development of the proposed project would result in the significant and unavoidable project-related impacts discussed below and further discussed in Section 4.2, *Air Quality*.

6.3.1 Air Quality

Based on the analysis provided in Chapter 4 of this draft EIR, the project would have the following significant and unavoidable impact.

Impact AQ-3: The project could expose sensitive receptors to substantial pollutant concentrations. On-site receptors (e.g., students and teachers) would be exposed to a maximum onsite cancer risk of 7.2 per 1 million, which is below the BAAQMD threshold of 100 per 1 million for new receptors. In addition, future students would not be exposed to a chronic hazard risk that would exceed BAAQMD thresholds. However, the $PM_{2.5}$ concentrations at the project site from roadway, rail, and stationary sources in the project area would exceed the BAAQMD threshold applicable to new sensitive receptors. To reduce the effects of $PM_{2.5}$ on future students, the project would incorporate MM AQ-3, *Advanced MERV Filtration*, and MM AQ-4, *Outdoor Play Area Siting and Vegetative Barriers*. In addition, the proposed 63-foot-tall building would separate the outdoor play area from I-280 and the Caltrain tracks[2], further reducing outdoor $PM_{2.5}$ concentrations at the outdoor play area. However, Mitigation Measure AQ-4 would not mitigate outdoor $PM_{2.5}$ concentrations at the outdoor play area to a less-than-significant level, and there are no other feasible mitigation measures that could be implemented to reduce outdoor $PM_{2.5}$ concentrations below the BAAQMD threshold. As noted in the analysis, it should be stressed that this exceedance does not imply that health risks would be significant, as the nearest monitoring station shows that ambient $PM_{2.5}$ concentrations are in attainment with the NAAQS. Nevertheless, the BAAQMD threshold for evaluating the incremental $PM_{2.5}$ concentration from modeled sources would be exceeded, and no additional feasible mitigation is available to further reduce this impact. Therefore, a significant and unavoidable impact would occur.

6.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

In accordance with CEQA section 21100(b)(2)(B) of the CEQA Statute and CEQA Guidelines section 15126.2(c), an EIR must identify any significant irreversible environmental changes that could result from implementation of a proposed project. This may include current or future uses of non-renewable resources, secondary or growth-inducing impacts that commit future uses of nonrenewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. According to the CEQA Guidelines, irretrievable commitments of resources should be evaluated to ensure that such consumption is justified. In general, *irreversible commitments* include energy consumed and materials used during construction of a proposed project, as well as the energy and natural resources (notably, water) required to sustain the project and its inhabitants or occupants over the usable life of the project.

The consumption of nonrenewable resources includes conversion of agricultural lands and lost access to mining reserves. As discussed in the initial study, the project site is urbanized and in an area of San Francisco that is identified by the California Department of Conservation as "Urban and Built-up Land" that does not fall under any of the "Farmland" classifications. Therefore, no existing agricultural lands would be converted to nonagricultural uses. In addition, the project site does not contain known mineral resources and does not serve as a mining reserve; therefore, development of the proposed project would not result in the loss of access to mining reserves.

No significant environmental damage, such as accidental spills or explosions of hazardous materials, is anticipated with construction or operation of the proposed project with implementation of MM HAZ-1,

[2] As discussed in the AQTR, Caltrain has plans to electrify 75 percent of its train fleet. Partial-electrification of Caltrain's train fleet would help reduce on-site $PM_{2.5}$ concentrations. However, as shown in the AQTR, the on-site $PM_{2.5}$ concentrations would still exceed the BAAQMD threshold even with this partial-electrification of the train fleet.

Implementation of a Health and Safety Plan and Soils Management Plan during Construction. Compliance with federal, state, and local regulations would ensure that other potential impacts related to hazards and hazardous materials would be less than significant. As such, no irreversible changes related to hazardous substances would result from implementation of the proposed project.

However, implementation of the proposed project would commit future generations to an irreversible commitment of energy during construction and operations, including energy produced from nonrenewable resources. Such resources would include energy for lighting, heating and cooling the proposed building, operating automobiles, and operating computers, appliances, and other equipment in the proposed school. Implementation of the proposed project would also require an ongoing commitment of potable water for building occupants and landscaping. The proposed project would be required to incorporate green building features to reduce GHG emissions. No significant environmental damage, such as an increase in GHG emissions or conflict with measures adopted for the purpose of reducing such emissions, is anticipated with construction or operation of the proposed project with implementation of MM GHG-1, *Require Implementation of BAAQMD-recommended Construction BMPs*. In addition, the proposed project would not require the construction of major utility lines to deliver energy or natural gas because these services are already provided in the area.

The proposed project would comply with all applicable City and state green building measures, including Title 24, which is commonly referred to as CALGreen (CCR, Part 11). The proposed project would comply with the project sponsor's design standards that guide sustainability, which identify the following performance targets: zero-net ready energy; solar-ready with the ability to add battery storage in the future; energy use intensity of 20 kilo-British thermal unit per square foot per year; 50 percent water conservation, with recycled water to be used for irrigation and toilet flushing; and 75 percent construction waste diverted from the landfill. In addition, the outdoor play area would include design components and stormwater design best practices from the project sponsor's Green Schoolyards program. The proposed project would also be required to include a Transportation Demand Management Program, which would reduce the amount of energy used for transportation in the project area, and incorporate sustainability features, such as bicycle parking spaces and shuttle services. The proposed project would also comply with the Metropolitan Transportation Commission's Climate Initiatives Program. The goal of the program is to reduce the transportation sector's carbon footprint.

Demolition and construction of the proposed project would also require the consumption of other nonrenewable or slowly renewable resources, such as steel, aluminum, other metals, concrete, masonry materials, lumber, sand and gravel, asphalt, other building materials, and water. Additionally, the proposed project would irreversibly use water and solid waste landfill resources. Because the proposed project would be required to comply with California Code of Regulations title 24, and the California Green Building Standards Code, and incorporate energy efficient features, such as all-electric design, bioretention areas, ultra-low-flow toilets, and no natural gas usage, the proposed project would use less energy and water over its lifetime than comparable buildings that were not built to the standards. Therefore, the proposed project would not use nonrenewable resources in an inefficient manner.

6.5 GROWTH-INDUCING IMPACTS

The CEQA Guidelines require that an EIR evaluate the growth-inducing impacts of a proposed action (section 15126.2(d)). A growth-inducing impact is defined in CEQA Guidelines section 15126.2(d) as:

> [T]he ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are

> projects which would remove obstacles to population growth … It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth-inducement potential. Direct growth inducement would result if a project involved construction of new housing that would result in new residents moving to the area. A project can have indirect growth-inducement potential if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial, governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, under CEQA, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service (e.g., a wastewater treatment facility). Increases in population could strain existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. The CEQA Guidelines also require analysis of the characteristics of projects that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

Section 4.14, *Population and Housing*, of the initial study (see **Appendix 1.2**) discussed population and employment growth as a result of the proposed project and found that the proposed project does not include any new housing units and would not directly induce population growth. The proposed project would redevelop an existing parking lot on an infill site in an urbanized area.

Development of infrastructure could remove obstacles to population growth if it would allow for development in an area that was not previously considered feasible for development because of infrastructure limitations. The proposed project would not include the extension of area roadways or expansion of infrastructure to areas lacking existing development. No indirect impacts related to population growth as a result of expansion of infrastructure would occur.

As of January 1, 2020, San Francisco had a population of approximately 897,806.[3] The Association of Bay Area Governments (ABAG) projects that the city's population will increase to 1,034,175 by 2030.[4] In addition, the city has approximately the same number of jobs as employed residents, approximately one job per employed resident.[5] ABAG is projecting that the number of jobs in San Francisco will increase to 840,270 by 2030.[6]

Population and employment growth in San Francisco has been anticipated by the city, based on projections contained within and consistent with ABAG's Plan Bay Area. Plan Bay Area is a long-range (i.e., through 2040), integrated transportation and land use/housing strategy for the San Francisco Bay Area. Plan Bay Area provides a strategy for meeting 80 percent of the region's future housing needs in Priority Development Areas. These are locally identified infill development opportunity areas within existing communities that are primed for an environment that is friendly to people walking and people bicycling and served by transit. Plan Bay Area grew out of the California Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375), which requires each of the state's 18 metropolitan areas, including the Bay Area, to reduce GHG emissions from vehicles, including light trucks. Thus, the

[3] State of California Department of Finance. 2020. *E-1 Population Estimates for Cities, Counties, and the State—2017 and 2018.* May. Available: https://www.dof.ca.gov/Forecasting/Demographics/Estimates//E-1/. Accessed: February 12, 2021.

[4] Association of Bay Area Governments. 2019. *Projections 2040.* December. Available: http://projections.planbayarea.org/. Accessed: February 12, 2021.

[5] Based on the ABAG-projected 785,530 jobs in 2020 and 959,405 residents in 2020.

[6] Association of Bay Area Governments. 2019. *Projections 2040.* December.

proposed project seeks to accommodate future growth in a part of San Francisco that is accessible to regional transit and adjacent to existing job centers in Mission Bay.

The proposed project would demolish an existing surface parking lot and construct a school, which would include a preschool, transitional kindergarten, kindergarten-through-fifth-grade elementary school, linked learning hub, professional learning space, outdoor learning area, outdoor play area, and a paved surface parking lot with ten parking spaces. Project operations would not induce direct population or housing growth on the project site because the primary function of the proposed building would be for educational purposes. The proposed project would employ up to 70 employees (including instruction, administration, and maintenance personnel) and will also serve as a professional development space for up to 60 teachers per day during operation. The professional development space would be used by teachers who are employed elsewhere within the District and not at the project site. The proposed project would have a daily enrollment capacity of 500 students at the elementary school and up to 270 students at the linked learning hub (including approximately 135 students in the morning cohort and 135 students in the afternoon cohort).

It is assumed that the 770 students who would enroll at the proposed school already live in the city and therefore would commute from their permanent residences, rather than relocate from elsewhere in the Bay Area; this is typical for students in various levels of education. Similarly, it is assumed that the 70 employees and 60 teachers who would work at the site once the project is fully operational have living accommodations elsewhere and would not permanently relocate to the city. However, in a worst-case scenario, if teachers and employees were both to relocate to the city, they would represent approximately 0.007 percent and 0.006 percent, respectively, of the city's total projected population in 2030 and 0.008 percent and 0.007 percent, respectively, of the city's projected number of jobs in 2030. Therefore, the number of project-generated teachers and employees would have a negligible effect on population and housing growth in the city. Further, since this growth is already planned for, the proposed project would help to accommodate population growth in a more sustainable way (i.e., near transit) compared with the possibility of diverting employment growth to outlying portions of the Bay Area with lower density and less access to local and regional transit.

Plan Bay Area declares that to meet the Bay Area's GHG emissions reduction and housing targets and make progress toward meeting other adopted performance targets, future job and population growth should occur in established communities with access to existing or planned transportation investments. The proposed project would be in a transit-rich area, and therefore would be consistent with Plan Bay Area objectives, which will reduce GHG emissions from otherwise-expected growth.

The physical environmental effects from implementing the objectives of the proposed project are described in the initial study (see **Appendix 1.2**) and Chapter 4, *Introduction to Environmental Analysis*, of this draft EIR.

CHAPTER 7.0 LIST OF REPORT PREPARERS

7.1 LEAD AGENCY

San Francisco Unified School District
Sarah Price, Project Manager
Kristen Raymond

7.2 EIR CONSULTING TEAM

ICF
Greta Brownlow, Project Director
Jessica Viramontes, Project Manager
Devan Atteberry, Project Coordinator
Cory Matsui, Air Quality and Climate Change Specialist
Pierre Glaize, Air Quality and Climate Change Specialist
John Conley, Graphic Artist
Alan Barnard, Graphic Artist
Jesika Allen, GIS Specialist
John Mathias, Editor
Tamar Grande, Editor
Anthony Ha, Publications Specialist