Proposition A 2016 Bond Program
San Francisco Unified School District
135 Van Ness Avenue, Room 207
San Francisco, CA 94102

NOTICE OF EXEMPTION

Submitted to:

San Francisco Office of the County Clerk
City Hall, Room 160
One Dr Carlton B Goodlett Place
San Francisco, CA 94102

Office of Planning and Research
Submitted electronically via CEQASubmit

From: San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

PROJECT TITLE: *San Francisco Unified School District (SFUSD) Buena Vista Horace Mann K-8 Community School (BVHM School) Modernization Project*

Project Address:
Buena Vista Horace Mann K-8 Community School
3351 23rd Street and 1241 Valencia Street
San Francisco, CA 94110

Assessor's Parcel Number:
3643/034

County of:
San Francisco

Project Description: *The SFUSD proposes to seismically strengthen and modernize all existing BVHM School Building interiors and exteriors and reconstruct/reprogram the north and south courtyards. The SFUSD would:*

- *demolish a part of Building C2—a 6,225-square-foot cafeteria,*
- *construct new Building C4 in its place—a 5,574-square-foot two-story classroom building,*
- *replace natural gas infrastructure with electric and reroute/replace above- and below-ground utilities,*
- *widen the vehicle driveway off Bartlett Street for fire department accessibility, and*
- *increase student capacity and number of classrooms but by less than 25 percent or ten classrooms.*

The SFUSD would upgrade heating, ventilation, and air conditioning systems and plumbing, electrical, telecommunications, alarm, and security systems. The SFUSD Project design accounts for the 2017 Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Secretary's Standards). See Attachments: (A) Project Description, (B) Historical Resource Evaluation (HRE), (C) HRE Peer Review, (D) Secretary's Standards Project Review and Impacts Screening Memorandum, and (E) Air Quality and Health Risk Assessments.

This project has been **approved by** and **will be carried out by** the San Francisco Unified School District.

Lead Agency Contact Person: *Licinia Iberri, Bond Program Manager, (415) 439-9271*

Signature: ______________ **Date:** 5/7/24

EXEMPT STATUS

	Ministerial Project (Section 21080(b)(1); 15268)	
	Categorically Exempt	**Classes:** *Class 1 Existing Facilities; Class 2 Replacement or Reconstruction; Class 3 New Construction or Conversion of Small Structures; Class 14 Minor Additions to Schools; Class 31 Historical Resource Restoration/Rehabilitation*
	Declared Emergency (Section 21080(b)(3); 15269(a))	
	Emergency Project (Section 21080(b)(4); 15269(b)(c))	
	Statutory Exemption (Code/Section________________________)	
	The project clearly will not have a significant effect on the environment (15061(b)(3))	

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NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

ENVIRONMENTAL ANALYSIS

Reason Project is Exempt: This project consists of the *seismic strengthening of all BVHM School Buildings, demolition of a portion of Building C2, construction of Building C4 in its place, and exterior and interior updates to all BVHM School Buildings (e.g., exterior window and exterior and interior finish repair, rehabilitation, and/or replacement; improvements to classrooms and staff/student support spaces and resource areas [e.g., library, wellness center]; accessibility upgrades to restrooms), and updates to interior courtyards for expanded/improved programming, accessibility (e.g., install new ramps and stairs), and permeability (e.g., regrade and replace existing asphalt pavement) in accordance with the San Francisco Public Utility Commission's stormwater management requirements. All BVHM School Building systems and utilities would also be modernized per SFUSD's Carbon Reduction Plan and Zero Net Energy guidelines. There would a negligible change in the building area for BVHM School Buildings and a minor increase in classrooms and student capacity but not above cited thresholds in the various exempt categories discussed below*. The project is exempt under CEQA Guidelines Section *15301--Existing Facilities; Section 15302--Replacement or Reconstruction; Section 15303--New Construction or Conversion of Small Structures; Section 15314--Minor Additions to Schools; and Section 15331--Historical Resource Restoration/Rehabilitation.*

The project meets the conditions for these exemptions as explained below.

Existing Facilities (Class 1). This consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use. The types of "existing facilities" itemized below are not intended to be all-inclusive of the types of projects which might fall within Class 1. The key consideration is whether the project involves negligible or no expansion of use.

The BVHM School Buildings would all be seismically improved. The demolition of a part of Building C2 and the construction of new Building C4 in its place would result in a relocated cafeteria (Building B) and space for four added classrooms, i.e., substantially the same purpose. The demolition and new construction would reduce the overall building area by 651 square feet (from 106,179 to 105,528); thus, the Project would not expand the school use. Therefore, the Project meets the criteria for an exemption under CEQA Guidelines Section 15301. Further, the total increase in student capacity and number of classrooms would not be substantial, i.e., less than 50 percent increase in student capacity (Class 2) and less than ten classrooms and a 25 percent increase in student capacity, whichever is less (Class 14).

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

Replacement or Reconstruction (Class 2). This consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced, including but not limited to replacement or reconstruction of existing schools to provide earthquake resistant structures which do not increase capacity more than 50 percent.

The BVHM School Buildings would all be seismically improved. The demolition of a part of Building C2 and the construction of new Building C4 in its place would result in a relocated cafeteria (Building B) and space for four added classrooms. The demolition and new construction would result in an increase in the number of classrooms, but the increase would not be substantial, i.e., increase the capacity of the BVHM School by 50 percent. Therefore, the Project meets the criteria for an exemption under CEQA Guidelines Section 15302.

New Construction or Conversion of Small Structures (Class 3). This consists of construction and location of limited numbers of new small facilities or structures, installation of small new equipment and facilities in small structures, and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure.

The BVHM School is in an urbanized area where all necessary public services and facilities are available, and the surrounding area is not environmentally sensitive. Demolition of a part of Building C2 and the construction of new Building C4 in its place would result in an approximately 650-square-foot reduction in overall floor area. Thus, it would not exceed the 2,500 to 10,000 square feet allowed for new construction. Demolition and construction would also not involve the use of significant amounts of hazardous substances. Therefore, the Project meets the criteria for an exemption under CEQA Guidelines Section 15303.

Minor Additions to Schools (Class 14). This consists of minor additions to existing schools within existing school grounds where the addition does not increase original student capacity by more than 25% or ten classrooms, whichever is less. The addition of portable classrooms is included in this exemption.

BVHM School enrollment is approximately 652 K-8 students. The BVHM School Buildings would all be seismically improved. The demolition of a part of Building C2 and the construction of new Building C4 in its place would result in a relocated cafeteria (Building B) and space for four added classrooms. The demolition and new construction would reduce the overall building area by 651 square feet but would not increase the number of classrooms or student capacity above thresholds, i.e., less than 10 classrooms and a 25 percent increase in student capacity. Therefore, the Project meets the criteria for an exemption under CEQA Guidelines Section 15314.

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

Historical Resource Restoration/Rehabilitation (Class 31). Under CEQA Guidelines Section 15331, projects limited to maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of historical resources in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (2017), are categorically exempt from CEQA. A review of the Project in relation to this categorical exemption class is provided below.

Historic Resource Status*: The project is located on an existing school site. Based on the Historical Resource Evaluation (HRE) for the Horace Mann School (May 2022) prepared for the SFUSD by Knapp Architects (see Attachment B), the BVHM School site was developed with various land uses, including residences, prior to site consolidation and construction of the BVHM School in 1924 with a 1939 expansion (Building C2—the gym and cafeteria addition) and a long history of site and building interior and exterior alterations/renovations/additions. The HRE concluded that the BVHM School, a Classical Revival-styled campus, is a historical resource individually eligible for the California Register of Historical Resources (California Register or CRHR) under Criterion A/1 (Event) due to its association with the local history of education, and under Criterion C/3 (Design/Construction) as a representative of the Classical Revival architectural style. The period of significance for the BVHM School is 1924, the date of establishment of the BVHM School at this location (see Attachment C [SWCA Peer Review—January 2023]). The HRE found that BVHM School qualifies as an individually eligible historical resource qualified for listing on the California Register and for the purposes of CEQA as defined at Public Resources Code Section 21084.1.*

Historical Resource Restoration/Rehabilitation*: Based on the evidence that the BVHM School is a historical resource for the purposes of CEQA, the SFUSD developed a design program for the proposed improvements and alterations to the BVHM School Buildings and interior courtyards informed by not only site and building conditions and SFUSD needs, but also by the Secretary's Standards. As required by the Class 31 categorical exemption, the SFUSD's design program is consistent with the Secretary's Standards (see Attachment D—Secretary's Standards Project Review and Impacts Screening Memorandum for Buena Vista/Horace Mann K-8 School). For the purposes of CEQA, the design program functions as an avoidance and minimization measure focused on limiting the potential range of effects on the historical resource's character-defining features to ensure the Project would not materially impair the physical characteristics that convey the resource's historical significance (see Attachment D, Table 1). Although the BVHM School is considered a historical resource under CEQA, as shown in Table 2 and Table 3 in the Secretary's Standards Project Review and Impacts Screening Memorandum (see Attachment D), the scope of changes to the BVHM School Buildings would follow the applicable Secretary's Standards.*

The Project would involve seismic improvements to all BVHM School Buildings; demolition of a part of Building C2; construction of new Building C4 in its place, i.e., replacement of the 1939 single-story cafeteria wing addition; exterior and interior updates to all BVHM School Buildings, e.g., exterior window and exterior and interior finish repair, rehabilitation, and/or *replacement; improvements to classrooms and staff/student support spaces and resource areas, e.g., library, wellness center; accessibility upgrades to restrooms; and updates to interior courtyards for expanded/improved programming, accessibility (e.g., install new ramps and stairs), and permeability (e.g., regrade and replace existing asphalt pavement). Demolition and new construction (limited to a shorter two-story structure [new Building C4] in place of the longer single-story 1939 cafeteria wing addition off Building C2 [see Figure 2 and Figure 3]) would remove a non-contributing element built outside of the period of significance. As further noted in Table 2, all work involving the character-defining features of the BVHM School would be conducted in a manner consistent with the Secretary's Standards ensuring the existing character-defining features of the historical resource are not damaged. The Secretary's Standards Project Review and Impacts Screening Memorandum concludes that the Project, which will rehabilitate the BVHM School Buildings for continued educational use, would comply with the applicable Secretary's Standards. Following proposed BVHM School modifications, the property would still retain enough of its historic integrity and character-defining features to be able to convey its significance under Criterion A/1 and Criterion C/3. Because the Project would not demolish, destroy, relocate, or alter physical characteristics of the contributing elements of the BVHM School which convey the resource's historical significance, and which justify its inclusion in the California Register, a substantial adverse change is not expected; thus, historical resource impacts would be less than significant. Under CEQA Guidelines Section 15064.5(b)(3), a project that follows the Secretary's Standards shall be considered as mitigated to a level of less than a significant impact on the historical resource. Thus, implementation of the Project would not result in adverse effects to the BVHH School. Therefore, the Project meets the criteria for an exemption under CEQA Guidelines Section 15331.*

Exceptions to Use of a Categorical Exemption: The project does not have the potential to trigger any of the exceptions identified in CEQA Guidelines Section 15300.2 prohibiting the use of a categorical exemption.

a. <u>Location.</u> Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located - a project that is ordinarily insignificant in its impact on the environment may, in a particularly sensitive environment, be significant. Therefore, these classes are considered to apply in all instances, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

   Although the location exception does not apply to a Class 14 Categorical Exemption, the environmental sensitivity of the project site was assessed as part of preparation of this Notice of Exemption.

   The Project site is in an urbanized environment on the established BVHM School campus. The total project site is 2.56 acres and is mostly paved/built with approximately 106,179 square feet *of building area in one-, two- and three-story connected buildings arranged along the site perimeter and surrounding two central courtyards (44,000 square feet). The Project site is surrounded by commercial and residential development to the west, north, and east, and south. Thus, the Project site has already been disturbed and developed, does not contain sensitive environmental resources of hazardous or critical concern, and would not undergo a significant change in use. While not considered sensitive, six landscape trees on the Project site and 30 street trees on the site perimeter would be retained and protected in place with additional landscaping. Therefore, the Project site is not in a sensitive environment and this exception does not apply to the Project.*

b. Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

The proposed improvements are the only known and planned improvements at the BVHM School during the planned construction. Although the SFUSD plans to improve other school sites within SFUSD boundaries, the closest SFUSD school site to the BVHM School is the Zaida T. Rodriguez Early Education School and is not proposed for improvements. Based on review of the San Francisco Planning Department's website, projects within approximately 1,000 feet of the BVHM School completed, under construction, or under review include, but are not limited to:

- *300 Bartlett Street: Modernization efforts on the Mission Branch Public Library southeast of the BVHM School are in progress and include limited demolition, interior remodels, and an addition/alteration in accordance with the Secretary's Standards. The project would comply with San Francisco's Clean Construction Ordinance and Public Works' standard construction measures for archaeological monitoring due to location in a high sensitivity zone for archaeological resources (Zone 2) (San Francisco Planning Department 2024).*
- *1298 Valencia Street: Demolition of existing garage and gasoline station and construction of a new six-story mixed-use building with ground floor commercial space and 35 residential units southwest of the BVHM School (San Francisco Planning Department 2024).*
- *350-352 San Jose Avenue: Residential renovation, addition, and lot line adjustments to create 12 residential units and an accessory dwelling unit in a three-story residential building southwest of the BVHM School (San Francisco Planning Department 2024).*
- *3537 23rd Street: Residential addition (vertical and horizontal) west of the BVHM School within the eligible Horner's Addition East Historic District (San Francisco Planning Department 2024).*
- *27 Alvarado Street: Garage demolition and construction of a four-story residential building with two residential units northwest of the BVHM School (San Francisco Planning Department 2024).*
- *1146 Valencia Street: Demolition of an existing one-story commercial building and construction of a new five-story mixed-use building with ground floor commercial space and eight residential units northwest of the BVHM School (San Francisco Planning Department 2024).*

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

- *3363 22nd Street: Basement excavation for residential addition and building remodel to a National Register of Historic Places–listed property northwest of the BVHM School (San Francisco Planning Department 2024).*
- *2588 Mission Street: Construction of a ten-story, 182-unit residential project with 3,871 gross square feet of ground floor retail space northeast of BVHM School (San Francisco Planning Department 2024).*
- *45 Bartlett Street: Interior renovation and change in use of the vacant ground floor commercial space of nine-story residential building for use as an Alta Vista middle school for grades 5 through 8 northeast of BVHM School (San Francisco Planning Department 2024).*
- *1312 South Van Ness Avenue: Construct of a five-story residential building (including penthouse) with three units southeast of the BVHM School (San Francisco Planning Department 2024).*

There are no other known successive projects—planned, approved, or under construction—of the same type at and/or near the project site that when combined with the proposed Project would result in a cumulative environmental impact. All projects would go through separate Planning Department environmental review processes to identify project-specific measures that would limit the potential for cumulatively considerable contributions to any cumulative impacts, i.e., San Francisco Planning Department's Eastern Neighborhoods Programmatic Environmental Impact Report, archaeological monitoring, and air quality mitigation measures during construction. This exception does not apply to the proposed Project.

c. Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

The determination whether this exception applies involves two distinct questions: (1) whether the Project presents unusual circumstances, and (2) whether there is a reasonable possibility that a significant environmental impact will result from those unusual circumstances. The Project site is already developed with a school and possesses no unusual environmental characteristics, is relatively level, is surrounded by a built-out residential neighborhood in the middle of San Francisco, and would not result in any substantial change of use of the site. The proposed Project would be a typical construction project with site improvements and building exterior and interior seismic and modernization improvements. Such improvements would include rehabilitation, renovation, and restoration of the BVHM School's character-defining features in compliance with the Secretary's Standards as a historical resource eligible for listing on the California Register. The Project would not cause a substantial adverse change in the significance of a historical resource, as discussed above under the Class 31 (Historical Resource Restoration/Rehabilitation) categorical exemption, nor would it remove any on-site trees or street trees; all would be retained and protected in place, as needed. These efforts are typical for SFUSD building portfolio maintenance and modernization efforts as SFUSD student and staff needs change and building technologies advance. Thus, there is no reasonable possibility that *the proposed Project would have a significant effect on the environment as planned or under "unusual circumstances."*

Accordingly, impacts to sensitive biological receptors, cultural resources, or scenic views would not occur. Similarly, because the Project would not substantially change school capacity or alter transportation routes or drop-off zones, there would be no impacts on population, public services, recreation, utilities, and transportation systems. As the existing and proposed uses of the Project site are similar, the Project would also not generate substantial net new increase in vehicle trips or vehicle miles traveled. Due to the Project scale, air, noise, and transportation impacts during construction would be temporary and less than significant and would be governed by local, regional, and state rules, regulations, and ordinances for construction projects. Additionally, the Project would be subject to Basic Construction Mitigation Measures recommended by the Bay Area Air Quality Management District to minimize construction impacts related to dust, erosion, and exhaust and has committed to use of the California Air Resource Board's latest verified diesel emissions control strategies and, to the extent feasible, use of U.S. Environmental Protection Agency Tier-4 compliant off-road construction equipment (see Attachment E). Compliance with these requirements would ensure that construction impacts related to exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.

Since there are no unusual circumstances on or surrounding the Project site that would suggest a reasonable possibility of a significant effect on the environment due to such circumstances, this exception does not apply to the proposed Project.

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d. Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources including, but not limited to, trees, historic buildings, rock outcroppings or similar resources, within a highway officially designated as a state scenic highway.

The BVHM School and surrounding area are generally developed. The site does not contain any scenic resources such as rock outcroppings or trees of biological or exceptional aesthetic significance but is considered a historical resource. The nearest eligible state scenic highway is the segment of Interstate 280 that passes through San Francisco approximately 1.5 miles east of the Project site (California Department of Transportation 2024). The Project would not intensify land uses, as it would not increase the building area or building heights over existing conditions and work would occur primarily within existing buildings. Considering the distance, intervening urban development, and topography between the Project site and this scenic highway, the Project site would not be recognizable. The Project would not substantially alter or adversely affect scenic views available from public vantage points or result in damage to scenic resources within a state scenic highway. Therefore, this exception does not apply to the proposed Project.

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

e. Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site that is included on any list compiled pursuant to Section 65962.5 of the Government Code.

Hazardous materials sites pursuant to Section 65962.5 of the Government Code (i.e., the Cortese List) include all hazardous waste facilities subject to corrective action pursuant to Health and Safety Code (HSC) Section 25187.5, all land designated as hazardous waste property or border zone property pursuant to former Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the HSC, all information received by the Department of Toxic Substances Control (DTSC) pursuant to HSC Section 25242 on hazardous waste disposals on public land, and all sites listed pursuant to HSC Section 25356. The Project site, and the limits of construction disturbance, are not on a list of hazardous waste sites compiled pursuant to the Cortese List. The following Cortese List online data resources were reviewed during the preparation of this document: (1) the list of hazardous waste and substances sites from the DTSC's EnviroStor database (DTSC 2024); (2) the list of leaking underground storage tank sites from the State Water Resources Control Board's (SWRCB's) GeoTracker database (SWRCB 2024); (3) the list of solid waste disposal sites identified by the SWRCB; (4) the list of active Cease and Desist Orders and Cleanup and Abatement Orders from the SWRCB; (5) the list of hazardous waste facilities subject to corrective action pursuant to HSC Section 25187.5 identified by the DTSC; and (6) the database of environmentally regulated sites and facilities combined in the California Environmental Protection Agency (CalEPA) Regulated Site Portal (CalEPA 2024).

Based on the database review, the Project site is not listed on any of the dozens of federal, state, and local agency databases searched including those compiled pursuant to Government Code Section 65962.5 (Cortese List). Therefore, the proposed Project would not create hazards related to the disturbance of, or exposure to, a hazardous waste site and this exception does not apply to the Project.

f. Historical Resources. A categorical exemption shall not be used for a project that may cause a substantial adverse change in the significance of a historical resource.

Under Public Resources Code Section 21084.1, a historical resource is a resource listed in or determined to be eligible for listing in the California Register. Additionally, historical resources included in a local register of historical resources are presumed to be historically or culturally significant, and a lead agency can determine whether the resource may be a historical resource. As described above under the Class 31 (Historical Resource Restoration/Rehabilitation) categorical exemption discussion, although the BVHM School is a designated historic resource under CEQA, the Project would comply with the applicable Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, as required by the Class 31 categorical exemption for which the Project has been determined to qualify. As a result, Project implementation would not cause a substantial adverse change in the significance of a historical resource, and this exception does not apply to the Project.

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

CONCLUSION

As substantiated in this document, the Project would not meet the conditions specified in CEQA Guidelines Section 15300.2, Exceptions, and the Project is categorically exempt under Class 1, Class 2, Class 3, Class 14, and Class 31.

FIGURES ***(also see Attachment A)***

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

Figure 1. Regional location and local vicinity .

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

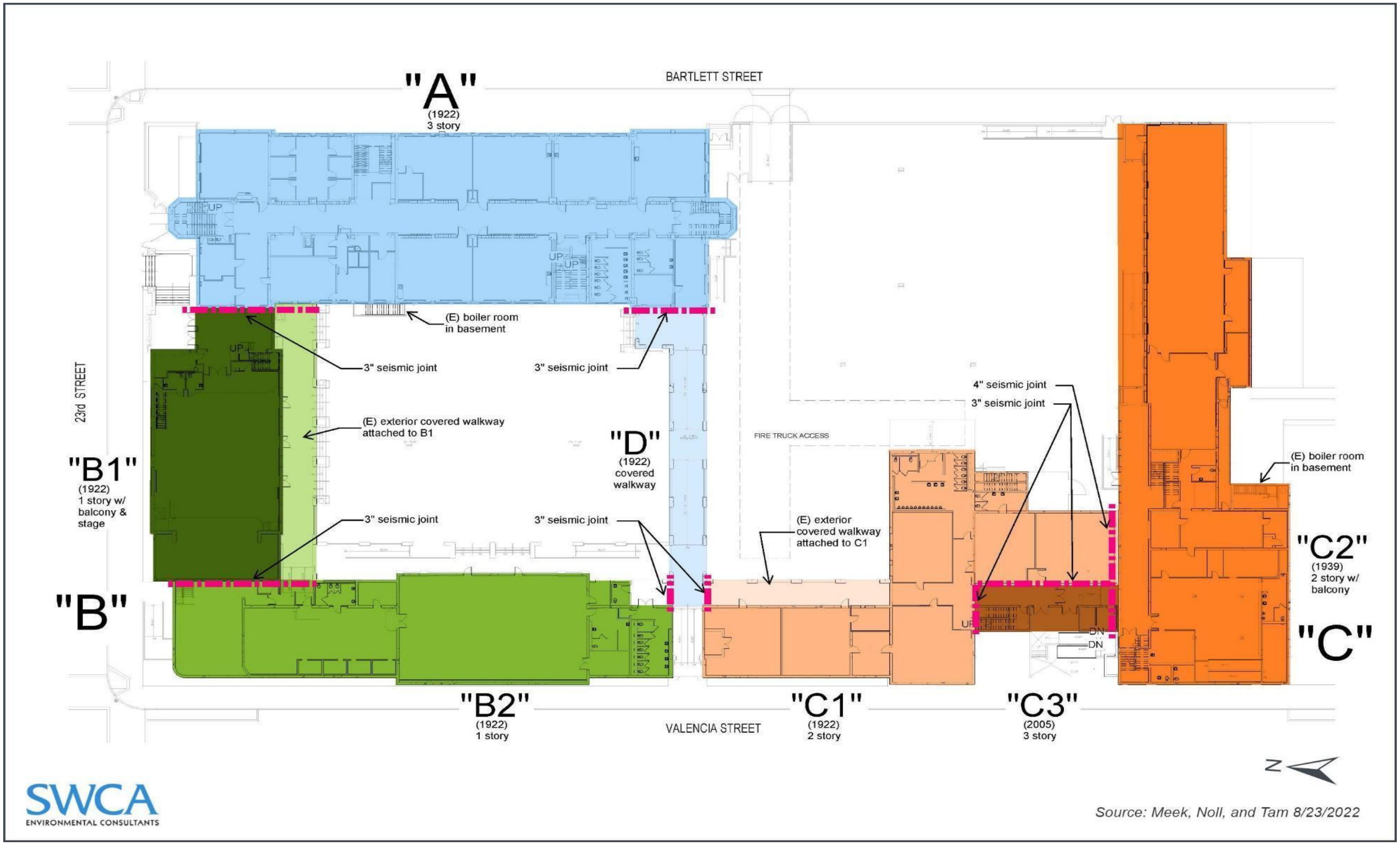

Figure 2. Existing site plan.

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

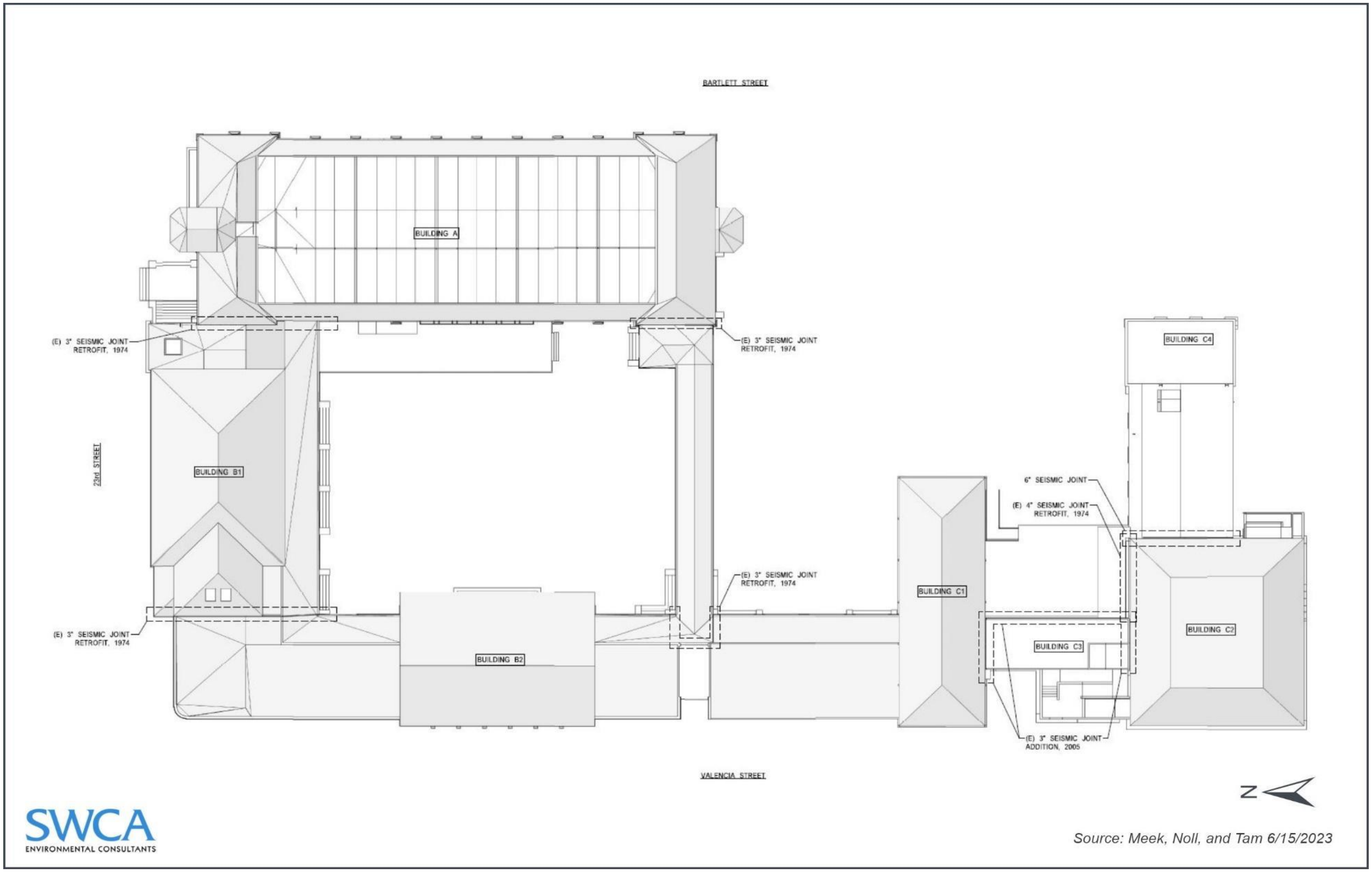

Figure 3. Proposed project site plan.

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

REFERENCES

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ATTACHMENT A

PROJECT DESCRIPTION – March 2024

Buena Vista Horace Mann K-8 Community School Modernization Project

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PROJECT DESCRIPTION (FINAL)

San Francisco Unified School District (SFUSD) Buena Vista Horace Mann K-8 Community School Modernization Project

3351 23rd Street and 1241 Valencia Street, San Francisco, California

PREPARED FOR:
San Francisco Unified School District
135 Van Ness Avenue, Room 207
San Francisco, CA 94102
Contact: Licinia Iberri, SFUSD Bond Program Director
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San Francisco, CA 94103
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March 2024

1 Project Location

The San Francisco Unified School District's Buena Vista Horace Mann K-8 Community School (BVHM School or project site) is in the Mission District in the east central part of San Francisco, California (Figure 1). The project site addresses are 3351 23rd Street and 1241 Valencia Street, and the school is located on Assessor's Block 3643, Lot #034. It is directly bounded by 23rd Street to the north, Bartlett Street to the east, and Valencia Street to the west. Intervening mixed-use buildings lie to the south between the project site and 24th Street. The total project site is 2.56 acres and is mostly paved/built having approximately 106,179 square feet of building area. The site is level with a downward slope to Bartlett Street to the east. The immediate neighborhood consists of residential, commercial, and institutional uses with a gasoline station at northwest corner of 24th and Valencia streets.

2 Existing Conditions

The BVHM School was constructed in 1924 and 1939. Structural seismic improvements were completed in 1976 and 2007, which included asbestos abatement.

The project site consists of a series of one-, two- and three-story connected buildings arranged along the site perimeter and surrounding two central courtyards (Figures 2 and 3). The north courtyard is approximately 14,000 square feet and the south courtyard is approximately 30,000 square feet. Covered walkways stretch from east to west in the north courtyard. The courtyards have a garden, asphalt pavement, a turf field, lunch tables, and a playground. Although various buildings are located along the property line, typically there is a narrow band of shrubs, pavement, and dirt, between the face of the building and the sidewalk on all three streets. There are approximately 30 street trees on all three frontages of the BVHM School.

The project site currently has 48,830 square feet of impervious surface area and 4,345 square feet of pervious surface area. Vehicle access into the site is provided via a 15-foot-wide curb cut on the southern half of the Bartlett Street frontage, the only street frontage not enclosed by a building. There is another access point for the existing kitchen from the south (Orange Alley), but it is too narrow for current use.

The BVHM School currently serves kindergarten through 8th grade with a capacity of 652 students. As shown in Figure 2, the buildings described below are seismically separated and named as follows:

- Building A (built 1924) is a 50,466-square-foot three-story building over a basement and crawl space. Building A contains the Library and Wellness center, 24 classrooms, and administration offices.
- Building B1 (built 1924) is a 7,436-square-foot two-story building over a partial basement. Buildings B1 and B2 are internally connected by the music room. The auditorium is within B1.
- Building B2 (built 1924) is an 8,269-square-foot one-story building with a gym and girls locker rooms which are now being used as an art classroom and extracurricular programming.
- Building C1 (built 1924) is a 9,426-square-foot one- and two-story building and Building C3 (built 2005) is a 4,070-square-foot three-story building. Buildings C1 and C3 contain a total of nine classrooms, restrooms, and an activity room.
- Building C2 (built 1939) is a 12,102-square-foot two-story building over a basement and crawl space. Building C2 contains custodial, locker, and office support rooms on the ground floor and an approximately 4,100-square-foot gymnasium on the second floor with a balcony. Building C2 also contains the cafeteria wing.

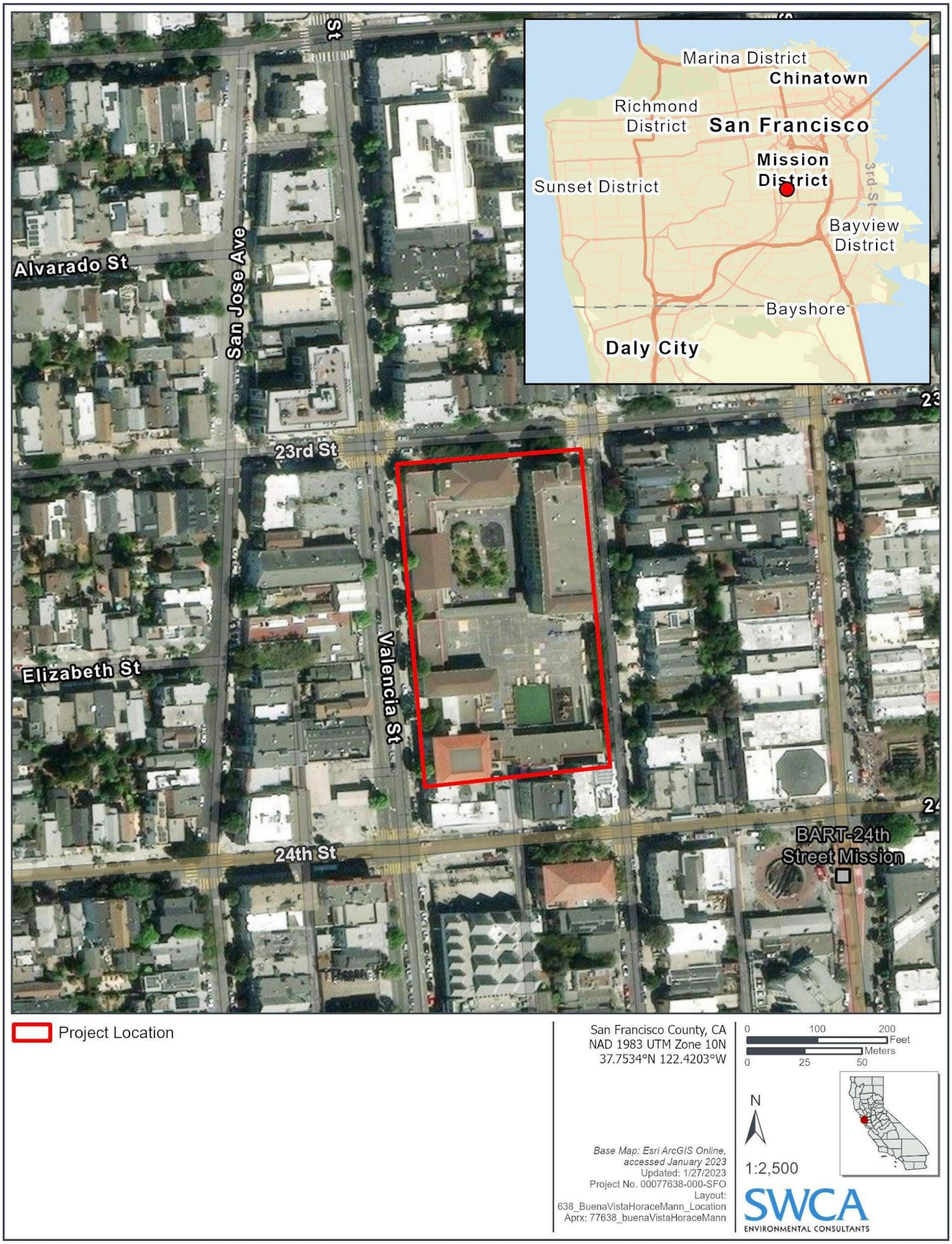

Figure 1. Project Location

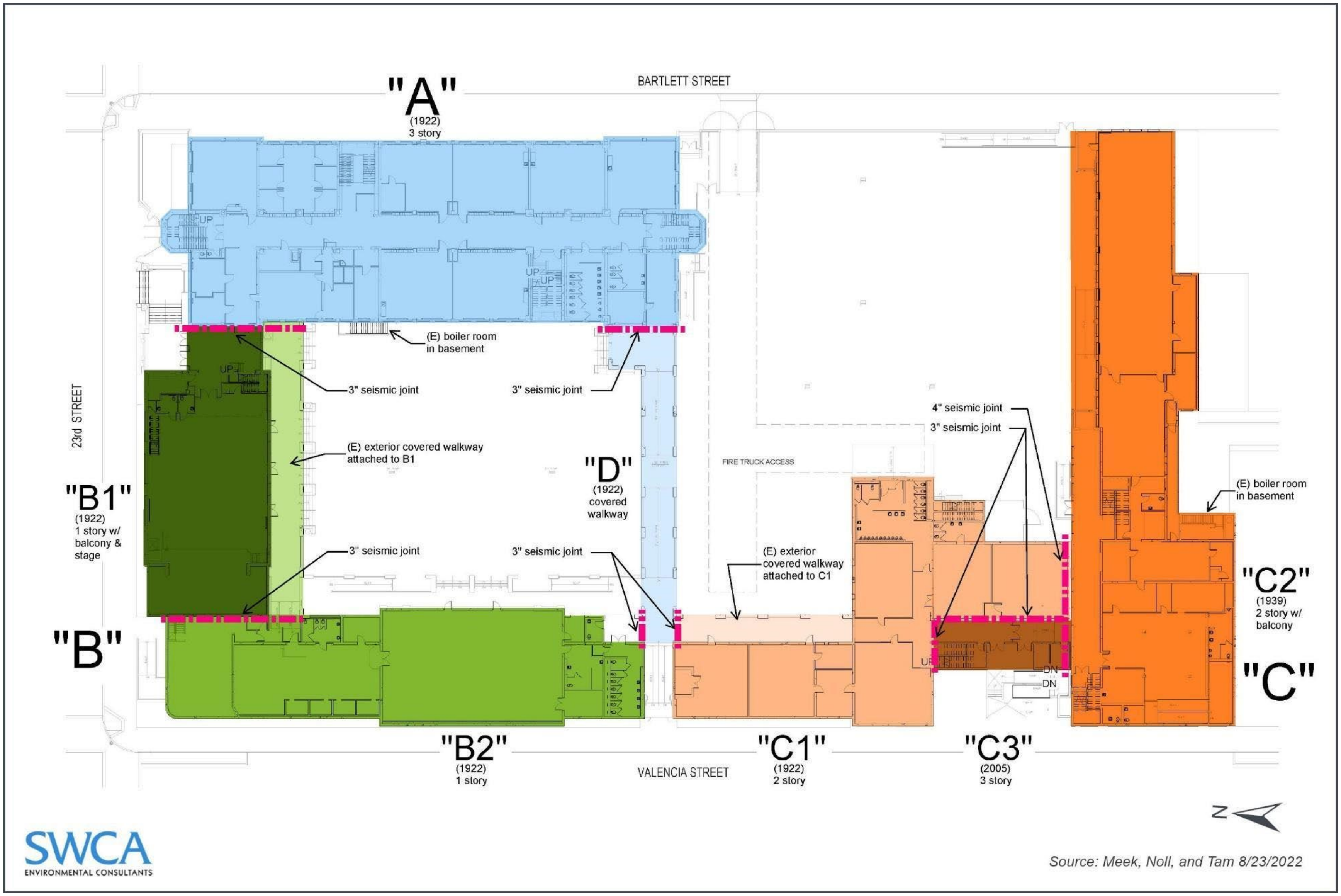

Figure 2. Existing Project Site Plan

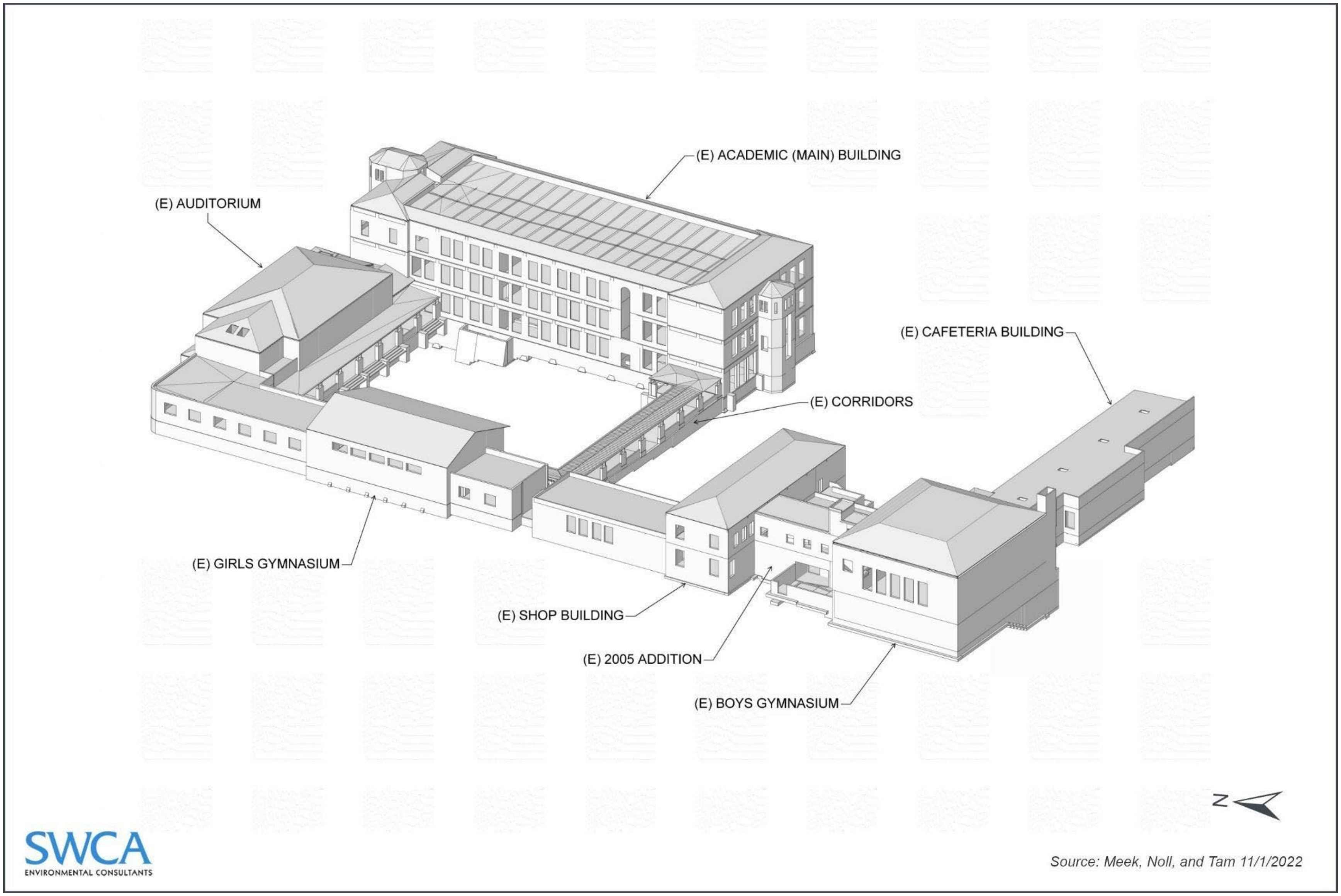

Figure 3. Existing Project Site Rendering.

3 Project Description

The SFUSD would conduct a full structural seismic renovation of Buildings A, B2, C1, C2, and C3, demolish a portion of Building C2, and construct new Building C4 (see Figures 4 and 5). A portion of Building C2, the one-story 6,225 square foot cafeteria, would be demolished. Building C4, a new 5,574-square-foot two-story classroom building, would be constructed in place of the demolished portion of existing Building C2. The Project would not substantially increase student capacity, i.e., by more than 50 percent (California Environmental Quality [CEQA] Guidelines Section 15301 [Class 1]) or 25 percent and/or ten classrooms, whichever is less, (CEQA Guidelines Section 15314 [Class 14]); rather, it would meet existing needs. The school has no on-site parking, and none is proposed.

The new Building C4 would house two classrooms on the ground floor and two classrooms on the floor above, and would include a new exit stair for the existing gym. The building would be composed in a contemporary style and have a stepped-back massing at the second floor to create outdoor walkways along the classroom spaces. The building would feature a mixture of materials, including large-format ceramic tile cladding, plaster veneer, metal panel sun and rain screens, and metal guardrails on the second floor. The building would also feature a large metal framed glazing system at the ground-floor classroom serving as the art room, elongated glazing systems at the second-story classrooms, and semiregularly spaced windows throughout (refer to Appendix A for the project drawing set).

The SFUSD would modernize all existing building interiors and exteriors as follows:

- Upgrading heating, ventilation, and air conditioning; plumbing, electrical lighting, telecommunications, alarms, and security systems
- Making seismic improvements to existing shear walls and structural diaphragm connections
- Rehabilitating and/or replacing exterior windows with similar pattern to the original historic appearance
- Repairing the existing exterior finish
- Rehabilitating and/or replacing interior finishes (flooring, ceiling, painting)
- Adding accessibility improvements to existing bathrooms on every floor

The SFUSD would also modernize the project site as follows:

- Installing new ramps and stairs
- Removing existing natural gas infrastructure and replace with electric utilities
- Rerouting and replacement of existing utilities, both above and below ground
- Regrading existing asphalt pavement in the school yard for accessibility and replacing asphalt in areas with permeable pavement
- Adding vegetated planters and flow thru bioretention planters
- Widening the vehicle driveway for fire department accessibility
- Reprogramming schoolyard spaces

The SFUSD would entirely reconstruct the north and south courtyards and include improvements to pavement and surfacing, play structures, shade structures, vegetation planting, and irrigation. Six existing trees within the north courtyard and adjacent to Building A would remain and be protected with fencing during construction. The SFUSD would also implement on-site stormwater management improvements, reducing peak water flow by 34 percent and total runoff from the site by 26 percent.

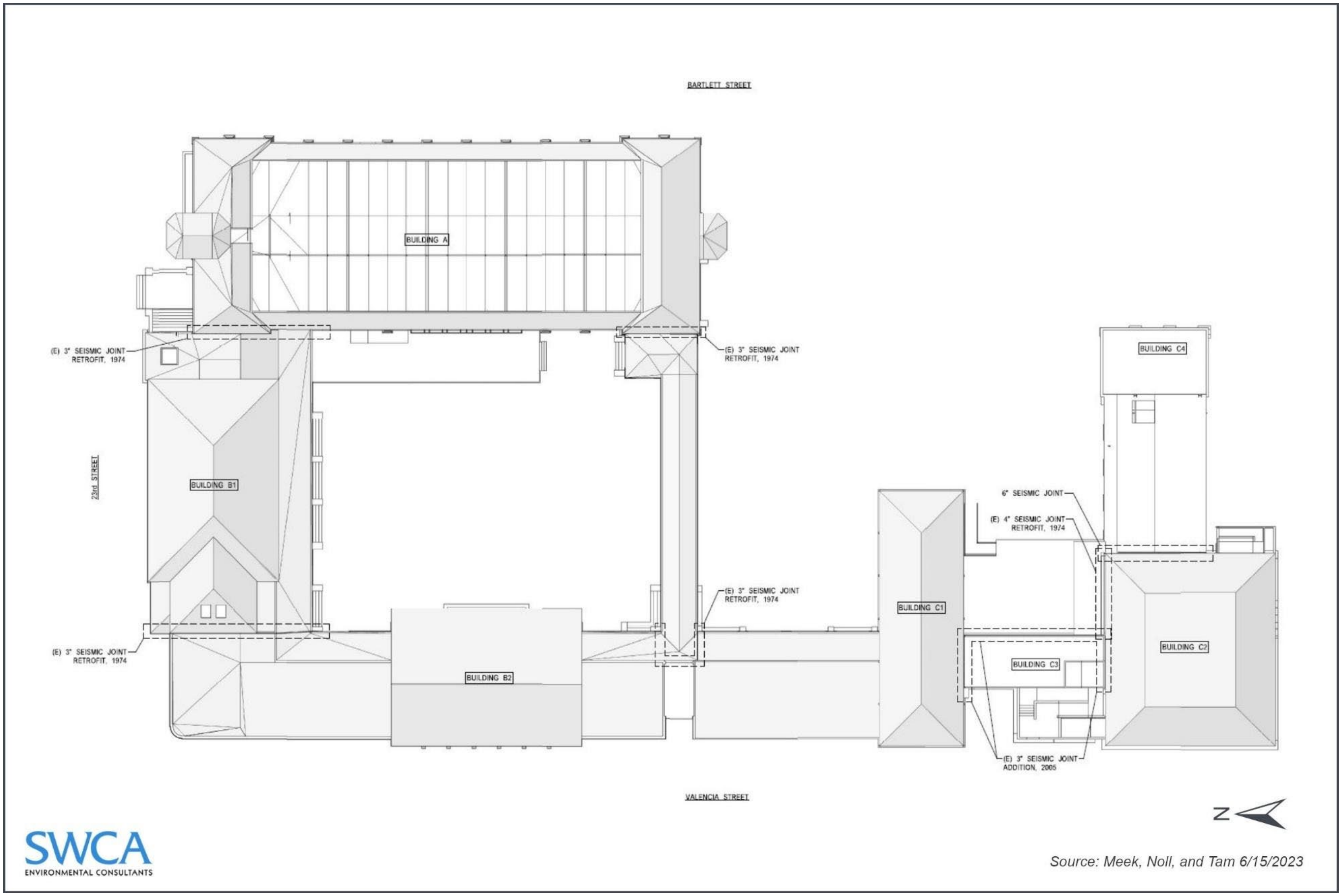

Figure 4. Proposed Project Site Plan.

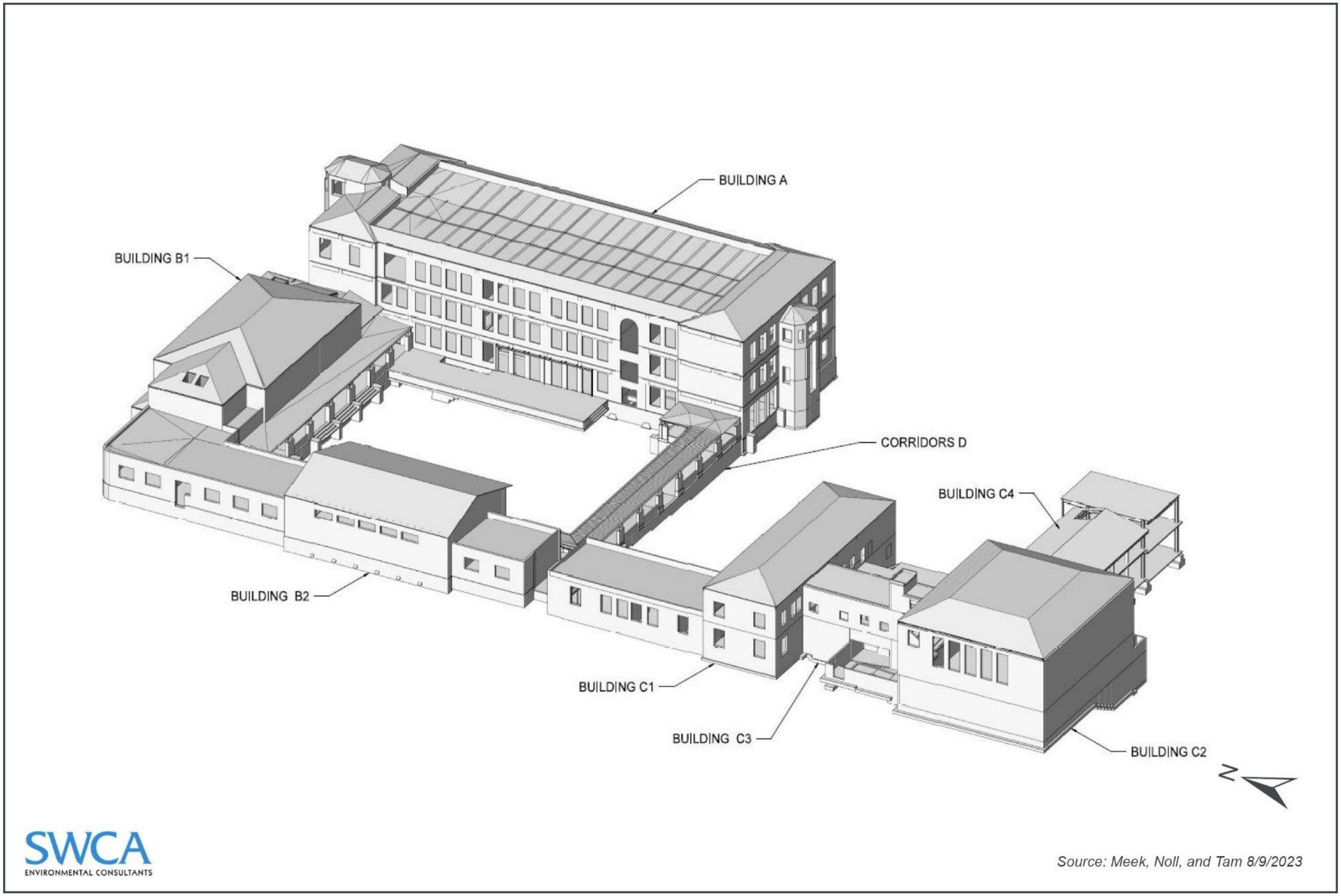

Figure 5. Proposed Project Site Rendering.

4 Construction

Construction, including interior and exterior renovations to existing buildings, is expected to start in summer 2025 and end in spring 2028. Construction would be phased such that demolition and new construction on the south side of the campus (Buildings C1, C2, C3 and C4) would occur in the first half of construction and renovations to the north side would occur in the second half of construction.

Construction phases would include selective site demolition, temporary tree and plant protection, selective building demolition, site preparation, earthwork and grading, exterior improvements, and paving and surfacing (Figure 6). The estimated maximum depth of excavation is conservatively expected to be approximately 8 feet below ground surface under proposed building C4. The project would result in 39,705 square feet of impervious area, 3,570 square feet of pervious area, and 9,900 square feet of permeable pavement and bioretention planters. Earthwork/ground disturbance would consist of 150 cubic yards of cut and 400 cubic yards of fill resulting in approximately 250 cubic yards of imported fill.

Existing building and site materials would be returned to the SFUSD or reused following demolition, when feasible. Various recycled materials would be used in construction; and durable, long-lasting exterior finish materials would be incorporated throughout the project. Project construction would include use of standard construction equipment, including excavators, graders, tractors, loaders, and pavers and follow Bay Area Air Quality Management District (BAAQMD) regulations and construction best management practices including stipulations in construction contract documents and on plans to ensure use of the California Air Resource Board’s latest verified diesel emissions control strategies (e.g., diesel oxidation catalysts and flow-through or partial diesel particulate filters for off-road construction equipment, and U.S. EPA Tier 4 compliant off-road construction equipment).

Portions of the buildings contain lead, asbestos-containing materials, and other hazardous materials. These asbestos-containing materials would be removed prior to renovation activities that may disturb them in compliance with the California Division of Occupational Safety and Health (Cal/OSHA) and BAAQMD regulations. Removal of asbestos-containing materials (> 0.1%) would be performed by a Cal/OSHA registered and C-22 licensed asbestos abatement contractor. All work involving lead-based paint (containing 5,000 parts per million of lead or 1.0 milligrams per square centimeter or greater) at Child Occupied Facilities would be conducted in accordance with 40 Code of Federal Regulations 745. All work related to hazardous materials would adhere to the requirements for handling, removal, cleanup, and disposal per Cal/OSHA, California Environmental Protection Agency, Department of Health Services, and BAAQMD regulations.

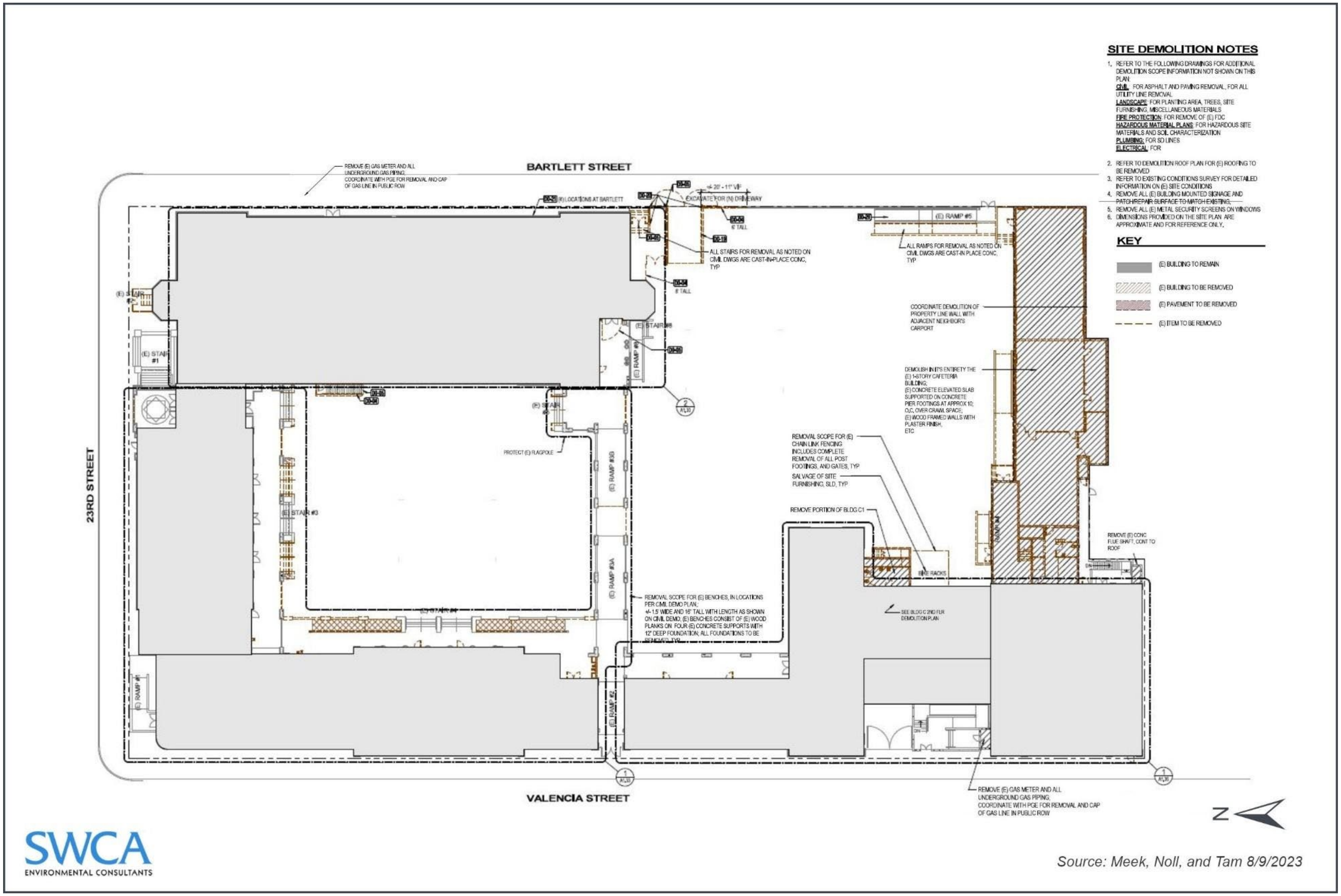

Figure 6. Proposed Demolition Plan.

Proposition A 2016 Bond Program
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

ATTACHMENT B

HISTORICAL RESOURCE EVALUATION—MAY 2022

Horace Mann School

Proposition A 2016 Bond Program
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

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Historical Resource Evaluation

Horace Mann School

20 May 2022

Knapp architects
HISTORIC PRESERVATION

Table of Contents

I. Introduction

Purpose of Report

This Historical Resource Evaluation was prepared for use in evaluating the Buena Vista Horace Mann modernization project. The San Francisco Unified School District has hired the Meek/Noll & Tam Joint Venture to design extensive improvements and alterations to this school site, which is a project which needs to be evaluated in accordance with the California Environmental Quality Act (CEQA) for the potential to affect historical resources. The purpose of this document is to present information about the property so that the District can determine whether it is a historical resource for the purposes of CEQA, to identify the character-defining features of the property if it is a historical resource, and to indicate whether the proposed project would cause a significant impact on historical resources.

Identification of Property

This report addresses the Buena Vista Horace Mann School, originally known as the Horace Mann School (the name used in this report because it is the historic name of the property). It is located on the south side of 23rd Street, between Valencia and Bartlett Streets. According to the assessor, the site is 111,574 square feet in area; occupied by buildings along all its perimeter except the southern half on Bartlett Street, the site contains a series of connected buildings enclosing two large open areas at the center of the site. For the purposes of this report, the property is classified as a building under the property types used by the Significance Criteria of the National Register of Historic Places.

The building has two primary street addresses: 3351 23rd Street and 1241 Valencia Street. It is located in assessor's block 3643 and is lot #034.

Original entrance pavilion and stair, with partial view of classroom wing, looking south from 23rd Street. San Francisco Public Library.

Current Historical Status

San Francisco Planning Department Survey

The 2010 South Mission Historic Resource Survey by the San Francisco Planning Department found that the property appears individually eligible to the California Register. The 1976

DCP Survey (Department of City Planning) rated the building 3 on a scale of 0 to 5. The survey form included the comment, "Well-scaled & handsomely renovated neighborhood institution." Overall architectural quality was rated at 2 on a scale of -2 to 5; the highest ratings in sub-categories were "unique visual feature of interest" and "example of a rare or unusual style or design," in which the property was rated 3 on a scale of 0 to 5.

Early view from 23rd Street, looking southeast, with original entry pavilion and windows in auditorium wing. San Francisco Public Library.

California Office of Historic Preservation Data

The state's historic preservation agency, the Office of Historic Preservation, has established the Built Environment Resource Directory (BERD), which lists all the properties in the state that the agency has "processed" for historical registers and preservation or environmental review laws it administers. Horace Mann is not listed in the BERD.

II. Methodology

Scope of Report

This report is focused on two questions: whether Horace Mann is eligible for listing in the California Register (the primary consideration in determining whether it is a historical resource for the purposes of CEQA), and if it is eligible, what its character-defining features are. The latter inquiry will make possible evaluation of whether a proposed design would conform to the Secretary of the Interior's Standards for Rehabilitation; under CEQA, a project which conforms to the Standards is deemed to have a less-than-significant impact on historical resources.

This document is not a conditions assessment, nor is it a nomination document for the California Register. It is not an encyclopedic history of the development, use, and alterations of the building, nor is it a treatment plan. No research was conducted about the educational history of the school; to determine whether the curriculum, teaching methods, professional staff, community involvement or similar aspects of the educational operations in the building are historically important would require research beyond the scope of this document, as well as considerable background on citywide or statewide parallels. While brief mention of the grounds is provided, the focus is almost exclusively on the building.

Observations

In cooperation with school staff, the Susannah Meek provided access and orientation to the property for observations conducted as part of this report. Representative spaces in each building were available for observation and photography, but in the case of heavily altered or recently built spaces, only minimal observations were conducted. In the classroom wing, brief visits occurred on each floor but most classrooms were not observed individually. Spaces such as boys' and girls' rooms, locker rooms, and building service rooms were not observed in most cases.

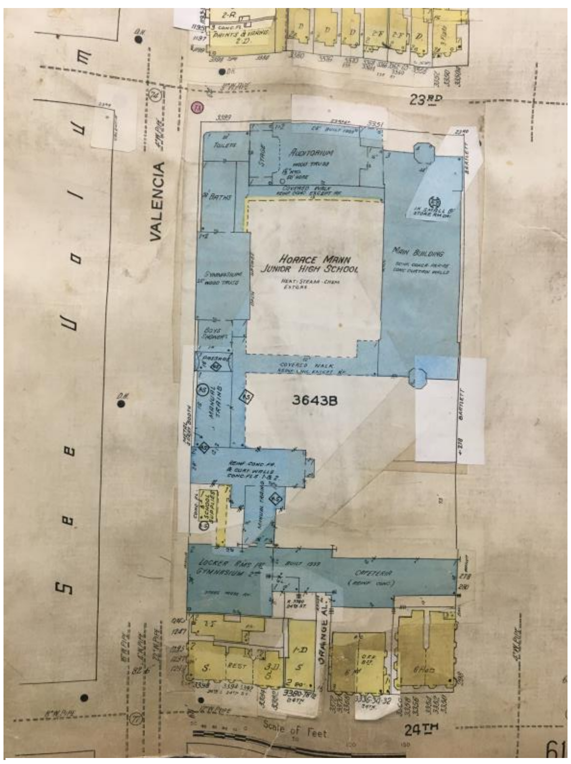
Resources Consulted

Research for this report was conducted at the San Francisco Department of Building Inspection (building permits), at the San Francisco History Center in the San Francisco Main Library, at the San Francisco Unified School District plan room at 135 Van Ness Avenue, and online. The Mission district historical context is drawn from previous reports by this firm and from a context statement on the San Francisco Planning Department website.

III. Description

Neighborhood context

Horace Mann is located in the Mission district in the northeastern part of San Francisco. The neighborhood includes residential, commercial, and industrial areas and buildings. It is bounded by the 101 Freeway on the east and north, Cesar Chavez Street on the south, Dolores Street on the west, and Market Street at the northwest corner. The subject property is on the west side of the district, in the southern half. Just north of Horace Mann, Valencia Street's commercial zone stretches north to Market Street and melds with the commercial corridor on Mission Street which forms the spine of the district. The Mission district has gentle slopes but is generally flatter than most San Francisco neighborhoods. Its buildings are predominantly one to six stories in height. The entire neighborhood is on a single street grid, though it has irregularities. The named north-south streets are wider than the numbered east-west streets. Smaller streets between the primary north-south streets make most blocks roughly twice as long north-to-south as they are east-to-west. Valencia Street, forming the west boundary of the subject property, is one of the main north-south streets in the district; 23rd Street, which



Partial view of page from Sanborn map at San Francisco Public Library showing Horace Mann.

forms the north boundary of Horace Mann, is a typical east-west street, and Bartlett Street on the east side of Horace Mann is a representative example of the district's lesser north-south streets. The grade slopes very gently down from west to east at the subject property, with almost no slope north-to-south.

Horace Mann occupies the majority of Block 3643; there are six other properties at the south end of the block, five of which front on 24th Street. A short street, Orange Alley, bisects Block 3643 from 24th Street to the south property line of Horace Mann.

Building

Horace Mann consists of a series of connected building forms arranged at the perimeter of the site, surrounding open space at the center that extends to the property line on the southern half of the Bartlett Street frontage, the only site edge not enclosed by a building. All the segments of the building are rectangular volumes; although they vary considerably in scale, façade composition, and articulation, they share a common palette of materials and architectural vocabulary, with the exception of the heavily remodeled one-story wing on the south side of the shop building. The building is composed of five primary masses or forms, all two or more stories in height with prominent sloped roofs, linked by one-story forms with flat parapets.

At the northeast corner of the site is the largest component, the classroom wing (called the "academic building" on the original drawings), a three-story-tall rectangular form with its main axis parallel to Bartlett Street and with prominent projecting stair towers centered on its north and south elevations. The north stair projects above the hip roof at the north end of the classroom wing and is the tallest part of the entire building. Three of the four elevations of the classroom wing are visible from the street (which is not the case for any other part of the building), adding to the prominence attributable to its having the greatest height and

South façade of classroom wing, looking north. Knapp Architects 2022.

footprint of any component of the building.

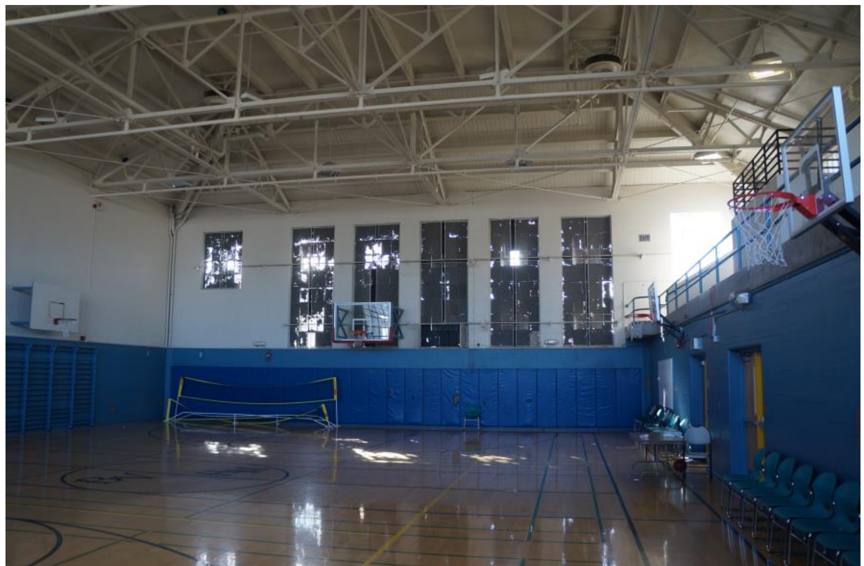
The classroom wing has a double-loaded corridor at each level running along the longitudinal centerline, with a stair at each end and additional stairs in its northeast and southwest quadrants. The school offices are located at the north end of the ground floor corridor, on the extension of the central corridor which connects to the main lobby at the east end of the auditorium wing. Some of the wide central corridors still retain the casing of clerestories which originally brought light into it from the classrooms, as well as trim around transoms over the doors. Although the classrooms vary somewhat, most are nearly square in footprint and retain varying combinations of what appear to be original features such as chair rails and picture rails which originally framed blackboards, paneled closets, and built-in casework.

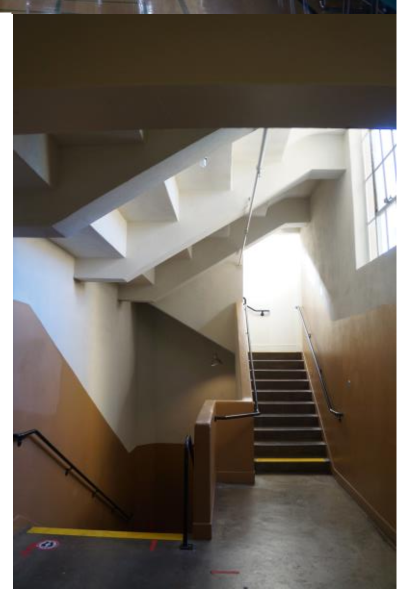
West of the classroom wing is the auditorium wing, which occupies almost half of the building's frontage on 23rd Street. A small one-story segment which links the classroom and auditorium wings terminates in the building's prominent entry pavilion on 23rd Street. The auditorium wing has a hip roof with a slightly lower hipped projection on the west side over the stage.

The one-story entry pavilion on 23rd Street opens into the main lobby at the east end of the auditorium wing. Double doors on the east elevation of the lobby lead to the corridor at the school offices in the classroom wing, while a portal on the opposite wall opens into the auditorium itself, and a pair of doors on the south side of the lobby opens into an arcade running along the south side of the wing, overlooking the north playground/garden. The auditorium space has a flat, wood floor, with a large, flat-arch proscenium on the west side and a slightly projecting stage. Three monumental arches on the side walls have large windows on the north side, but the original windows on the south side (above the exterior arcade roof) have been closed in. The tiered balcony on the south side of the space is reached by an original stair at the back to the lobby or an added stair to the main level of the auditorium.

Auditorium, looking west. Knapp Architects 2022.

There are three large building masses on the Valencia Street frontage of the building, linked by one-story, flat-parapet segments. The northernmost one, which is centered on the north interior playground/garden, is the original (or small) gym wing. It has a cross-gable roof and paired clerestory windows in the center five bays of its seven-bay façade on Valencia Street. Architecturally, its primary façade is on the east side, facing the playground/garden where it has much taller windows, separated by engaged columns which were originally freestanding, before the windows were added to enclose the interior. Lower connecting segments frame the original gym wing on the north and south; the northern one wraps the corner on 23rd Street, connecting to the west end of the auditorium segment, and houses locker rooms. The southern one contains services spaces; the two segments have regularly-spaced punched openings each of which contains a pair of windows. Next to the southern link is the open passageway from Valencia Street to the interior of the site, aligned with the covered arcade which divides the north playground/garden from the larger open play yard to the south.





Interior of 1939 gymnasium, looking west (above) and stair under bleachers (right). Knapp Architects 2022.

The gymnasium space has a wood floor, painted board-form concrete walls above a wood wainscot, and open wood roof trusses; there is an arched window on each end wall of the space. The Doric columns at the east elevation of the gym, which was originally open, run from the top of the wainscot to the spring line of the roof trusses. The doors to the playground/garden in the second and fourth bays of the five-bay composition are set in portals with molded cornices which rise above the wainscot. The original locker room occupying most of the connector north of the gym is now the family shelter; service spaces occupy the connector south of the gym.

South of the open passageway is a longer connector with a shop. Next to it is the large building mass that was originally called the shop building, a two-story, rectangular building with a hip roof; its long axis runs east-west so that the footprint projects into the open space of the south play yard. This segment, which originally terminated the building complex, has been heavily modified on the interior and altered at least twice on the exterior, where the original west stair on the south side was replaced by an addition to connector that is markedly different in exterior composition and detailing from the rest of the building.

The southernmost main building mass is the two-story 1939 gym, which flanks the altered one-story segment on the south side of the shops building. The gym, a hip-roofed building that is nearly square in plan, has a locker room and service spaces on the ground floor, with the gymnasium space on the upper level rising the full volume of the roof form. A series of single-story service spaces stretches east along the south property line, culminating in the cafeteria. The 1939 gym wing is generally similar to the original part of the building and does not exhibit major alterations.

The 1939 gym wing features a ground floor corridor running east-west and connecting to the corridor in the connector to the shop wing. This corridor serves the boys' locker room, service spaces, and the cafeteria entry. Stairs in the corridor lead to the main gymnasium on the second floor. The gymnasium has stairs and service spaces on the north side, with stepped bleachers above them. There are five tall centered windows, with shorter windows flanking them, on the east and west walls. The gymnasium has a wood floor, board-form concrete walls, and open steel roof trusses. The cafeteria has glazed ceramic tile wainscot and large windows on the north and east elevations.

A covered arcade extends west across the center of the site from the south end of the classroom wing, terminating between the one-story connectors that are on the south side of the original gym wing and on the north side of the shop wing. The arcade has six piers on each side, with a low wainscot between the piers except in the center and westernmost bays. The easternmost bay of the arcade doubles in width, projecting north into the north playground/garden. The main arcade wraps onto the east elevation of the one-story connector on the north side of the shop wing. The arcade on the south side of the auditorium is similar, but lacks the wainscot and instead has a series of steps in each bay mediating between the raised floor level in the arcade and adjacent grade in the playground/garden.

South playground, looking west to south (photo merge). Knapp Architects 2022.

Exterior Spaces

There is a narrow band, typically planted with shrubs or occupied by pavement or dirt, between the face of the building and the sidewalk on all three streets; the setback of the southernmost one-story connector on the Valencia Street frontage creates a small courtyard, part of which is enclosed by a low wall. There are street trees on all three frontages of the building.

The interior open space differs greatly north and south of the arcade that crosses it. On the north, there is a paved perimeter with an intensely planted garden at the center; a play area for young children occupies the northeast corner of the garden. South of the arcade, the playground is mostly paved in asphalt with painted striping for game courts. A small play area for young children is set in front of the east side of the cafeteria, with a larger, fenced area with artificial turf west of it.

Valencia Street, looking north from 23rd Street with old Horace Mann School in distance. San Francisco Public Library.

IV. Historical Context and Development

Mission District

To early inhabitants the area was attractive, with attributes of mild weather, abundance of water and a navigable creek which led to the bay. The earliest known inhabitants were Native Americans called the Muwekma Ohlone who named the area Chutchuii. They lived near the edge of a lagoon where they hunted and gathered. The first European settlements on the San Francisco Peninsula occurred in 1776 with the simultaneous establishment of the Presidio of San Francisco by military authorities under the leadership of Lieutenant José Moraga, and Mission Dolores by Franciscan monks under the authority of Father Junípero Serra. The neighborhood takes its name from the eponymous Franciscan mission located at the present-day intersection of 16th and Dolores streets. Founded in 1776 as *Misíon San Francisco de Asís* by two Spanish priests – Francisco Palóu and Pedro Cambón – the mission eventually took its popular name from the nearby *Laguna de los Dolores*, a seasonal lake that would appear during the rainy season within an area defined by 15th Street, South Van Ness Avenue, 20th Street, and Guerrero Street. The first mission was little more than a brush chapel when the first mass was held there on June 29, 1776. A more permanent adobe mission was completed in September 1776. Work on the third and final mission church did not begin until 1782.[1]

The era of Spanish colonial rule was short; in 1821 Mexico declared independence from Spain. After the short-lived Empire of Mexico (1822-23), Mexico became a federal republic. Among the territories the new nation inherited from Spain was the remote northern colony of Alta California. Initially Mexico was unsure of what to do with the territory, at first using it as a penal colony. Later Mexico decided to follow the Spanish strategy of settling and fortifying Alta California as a bulwark against incursions from Russia, Britain, France, and the United States.

[1] Allen G. Pastron, Ph.D. and L. Dale Beevers. *From Bullfights to Baseball: Archaeological Research Design and Treatment Plan for the Valencia Gardens Hope VI Project. U*npublished report .Oakland: December 2002. Page 32.

Following independence Mexico opened up California to trade and settlement. In 1833 Mexico passed the Secularization Act, which wrested control of the mission lands from the Catholic Church and began redistributing them to Mexican citizens – many to veterans of the Mexican War of Independence. Others were European or Anglo-American settlers who had converted to Catholicism, married local women, and became naturalized Mexican citizens.

From 1834 onward, Mission Dolores was carved up into ranchos. Although the majority of the Mission Valley (today's Mission District) remained under common ownership, much of the surrounding territory became part of several large ranchos, including *Rancho Potrero Viejo* (4,446 acres encompassing today's Bernal Heights and Bayview-Hunters Point neighborhoods), which went to José Bernal in 1839; *Rancho Potrero Nuevo* (1,000 acres of today's Potrero District), which was granted to Francisco and Ramon DeHaro in 1841; and *Rancho San Miguel* (4,443 acres comprising today's Noe Valley, Twin Peaks, Glen Park, Miraloma Park, and others), which was acquired by José de Jesus Noe in 1845. Before acquiring *Rancho San Miguel* Noe had been granted a smaller 18.5-acre tract in the Mission Valley called *Rancho Camaritas.*[2]

Interior of old Horace Mann School. San Francisco Public Library.

Cattle ranching and the production of hides and tallow were the primary economic activities of the California ranchos during the Mexican period. European and American traders came from far and wide to trade manufactured goods for California's products. During this time a small settlement of merchants began to grow up along the shores of Yerba Buena Cove to serve the needs of the traders and whalers that dropped anchor there. Called Yerba Buena, this small village (recognized as a Mexican *pueblo,* or town, in 1835) would soon become the nucleus of the city of San Francisco. In 1839, Governor Juan Bautista Alvarado hired Jean Jacques Vioget, a resident Swiss tavern keeper, to survey the pueblo. Vioget drew up a simple plan making *Calle de la Fundacíon* (Montgomery Street) the axis of the new plan. The settlement consisted of around a 25-30 buildings huddled around the *Plaza*, now Portsmouth Square.[3] During the period of Mexican rule, a small village grew up around a dusty plaza (now Portsmouth Plaza) near Yerba Buena Cove. The village, also called Yerba Buena, served as a minor trading center inhabited by a few hundred people of diverse nationalities. In 1839, a few streets were laid out around the Plaza, allowing settlement to expand partway up Nob Hill. In 1846, civic authorities hired a surveyor named Jasper O'Farrell to lay out Market Street and to divide

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[2] Carey & Company. *Revised Mission Dolores Neighborhood Survey.* San Francisco: November 11, 2009. Page 20.
[3] *The Overland Monthly.* February 1869. Pages 131-132.

the land on either side of the wide artery into blocks and lots. Blocks north of Market Street were laid out in smaller fifty-vara blocks, whereas blocks south of Market were marked out in large one hundred-vara blocks.

Beginning in 1835, the American government attempted to purchase the San Francisco Bay Region from Mexico. American leaders recognized that San Francisco Bay would be an ideal base for the young nation's growing trade with Asia and they also wished to prevent the strategic harbor from falling into the hands of England or Russia. American expansionism received a boost in 1844 with the election of James K. Polk as president. Two years later, on May 12, 1846, war broke out between the United States and Mexico. On July 9, 1846, Captain John B. Montgomery raised the American flag above the Custom House and Mexican rule came to an end in Yerba Buena without a shot.[4] After a year-and-a-half of fighting, the two nations signed the Treaty of Guadalupe-Hidalgo on February 2, 1848. Mexico ceded 525,000 square miles of its northern territory to the United States in exchange for a lump sum payment of $15 million and the assumption of $3.5 million in debt owed by Mexico to U.S. citizens.

Old Horace Mann School, looking east from Valencia Street. Bancroft Library, University of California.

On the eve of American conquest, the population of Yerba Buena numbered only around 850 people of diverse nationalities housed in approximately 200 structures.[5] Before departing for home, Captain Montgomery appointed Lieutenant Washington A. Bartlett as the first American *alcalde* of Yerba Buena. One of Bartlett's first actions was to rename the settlement San Francisco, which he did on January 30, 1847. Bartlett also extended the

[4] Oscar Lewis. *San Francisco: Mission to Metropolis.* San Diego: Howell-North Books, rev. ed. 1980. Page 41.
[5] Allen G. Pastron, Ph.D. *869 Folsom Street, San Francisco, California: Archival Cultural Resources Evaluation. U*npublished report. Albany, CA: September 1990. Page 20.

boundaries of the growing community. In 1847 he hired an Irish immigrant named Jasper O'Farrell to complete the city's first official survey under American rule. O'Farrell's plan, which expanded San Francisco to almost 800 acres, extended the boundaries of the Vioget Survey south to O'Farrell Street, west to Leavenworth Street, north to Francisco Street, and some distance eastward into Yerba Buena Cove. Anticipating the need for a direct route from San Francisco to Mission Dolores, O'Farrell laid out a 100-foot-wide thoroughfare running southwest from Yerba Buena Cove toward Mission Dolores. Running roughly parallel to the older Mission Wagon Road, O'Farrell laid out Market Street on a diagonal alignment to avoid the marshlands that ringed Mission Bay.[6]

The discovery of Gold at Sutter's Mill in January 1848 unleashed a population explosion in San Francisco. News of the discovery moved slowly at first, taking off only after Sam Brannan, the exuberant publisher of the *California Star,* ran through the streets of San Francisco shouting "Gold! Gold! On the American River!" The news spread quickly to ports in Central and South America, and eventually to Europe and the East Coast. By the end of 1848, thousands of gold-seekers from around the world – dubbed "Forty-niners" – began making their way to San Francisco. Between 1848 and 1852, the population of San Francisco grew from less than one thousand inhabitants to almost thirty-five thousand.[7]

Detail of 1863 Map showing the Mission and Potrero Districts. Oval indicates approximate location of Horace Mann.

The development in the Mission District began around Mission Dolores. During the waning years of Mexican rule, the government made several small land grants to individuals around the decaying Mission Dolores. Different than the larger ranchos that ringed the valley, this land use pattern of smaller house lots resulted in the construction of a rural

[6] Ibid., 43. Some scholars believe that O'Farrell laid out the 100 vara blocks for agricultural use but others believe that they were intended for industrial use, for which in fact they proved to be useful.
[7] Rand Richards. *Historic San Francisco. A Concise History and Guide.* San Francisco: Heritage House Publishers, 2001. Page 77.

settlement surrounding the old mission. In contrast to the polyglot population of Yerba Buena, the village that grew up around Mission Dolores was largely inhabited by Spanish-speaking Californios and Mexicans. During the early days of San Francisco, travel between Yerba Buena Cove and Mission Dolores was challenging to say the least. In addition to large sand dunes in the South of Market Area, there was an expansive marsh around the edges of Mission Bay that blocked direct access between the two nodes of settlement. Although a crude wagon road had existed since the 1830s, year-round access required some sort of hard surface. Access improved with the completion of the Mission Plank Road, built by Charles Wilson in 1853. Wilson obtained a franchise from the city to construct and operate the road, which was paved in heavy wood planks from Kearny and Market to Mission Dolores. The construction of the Folsom Plank Road (popularly known as the "New Mission Road") two blocks east, in 1854, further improved access.[8]

A critical in the development of outlying parts of San Francisco was the passage of the Van Ness Ordinance in 1855. Designed to cleave the "Gordian Knot" of cloudy land titles in the "Outside Lands," the ordinance provided for the platting of streets and lots within the 1851 Charter Line and reserved tracts for parkland, hospitals, fire and police stations.[9] Despite its abundant level land and proximity to the growing city, the Mission Valley was not surveyed and subdivided for at least another decade after the passage of the Van Ness Ordinance. Nevertheless, in the intervening decade most of the Mexican landholdings in the area were snapped up by Anglo-American investors like George Treat and John Center. Center prospered by farming the rich bottom lands of Mission Valley and during the 1850s he

Arcade at west elevation of classroom wing, looking west. Note that original wood windows are still present. San Francisco Public Library.

[8] Theodore H. Hittell. *History of California, Volume III.* San Francisco: N.J. Stone & Company, 1897. Page 343.
[9] Ibid. Page 19.

expanded his holdings throughout the Mission District. Realizing that real estate development would be more profitable long-term than farming, Center organized the North Beach & Mission Railroad, a horse-drawn street railway linking Mission Dolores to downtown. Center also organized his own water company to sell water to the new residents that he anticipated would be lured to the area by the provision of transit. [10]

Many early maps, including the 1863 Humphreys Map of San Francisco, show the heart of Mission unplatted–in great contrast to the tight street grids of the neighboring Potrero, Horner's Addition, and Mission Dolores tracts (see map above). By the late 1860s, the neighborhood had become increasingly urbanized. Over a relatively short period of time the wide-open spaces devoted to farmland, beer gardens, and natural creeks and undeveloped land were urbanized. Between 1860 and 1870, the population of the 11th Ward grew from 3,000 to 23,000 people. The rapid growth of residential and commercial development was aided in part by the extension of graded streets into the neighborhood, as well as the construction of transit lines along Mission and Valencia Streets.

In terms of its demographics, the Mission District had evolved over the 35 years between 1850 and 1885 from a semirural Spanish-speaking enclave into an urban polyglot housing people of many nationalities, including Irish, Germans, French, and Scandinavians. Although many were working-class, others were more affluent. The Mission District, separated from the rest of the city by topographical and manmade boundaries, had become a "city within a city." The Willows Park resort, sited on Dolores Lagoon, was located here in the later half of the 19th Century and Woodward's Gardens, consisting of gardens, restaurants and a zoo, was a popular place for entertainment in the 1870s and 1880s.

On April 21, 1906, a massive earthquake killed more than 3,000 San Franciscans and destroyed most of the Victorian city, including a large section of the Mission Dolores neighborhood. Massive firestorms caused by broken gas mains swept across the South of Market Area and into the northern part of the Mission District, destroying nearly everything north of 20th Street and east of Dolores Street. The rest of the neighborhood was only saved because of John Center's water cisterns and a handful of operational fire hydrants.

Old Horace Mann School, looking southeast from Valencia Street. San Francisco Public Library.

In the aftermath of the disaster nearly half of San Francisco's 410,000 residents were made homeless. Many earthquake and fire refugees took up residence in local parks and open spaces, including the newly developed Mission Park (now Dolores Park). The park, which had only just been planted prior to the disaster, was destroyed as campers tore up the sod and saplings.

[10] Horatio F. Stoll. "Growth and Development of the Mission: Wonderful Record of Sixty Years." *San Francisco Call.* San Francisco: July 18, 1908.

Within a few months the makeshift camp was dispersed to make way for an official camp consisting of hundreds of identical wood-frame refugee cottages. This camp remained in the park until 1907.

Although reconstruction in the city center made huge progress in the first several years, devastated outlying districts such as the Mission rebuilt more slowly.[11] Reconstruction also changed the patterns of development and many people changed neighborhoods—or cities—permanently after the earthquake and fire. But areas like the Mission blocks south of 20th Street which did not burn saw intensive activity, and without the burden of debris and damaged local infrastructure, they also developed quickly.[12] Along with election of a promoter of the neighborhood, James Rolph, as mayor in 1911, this stimulated a period of intensive growth in the district. Another stimulus to development city-wide and throughout the Bay Area was the 1914-1915 Panama Pacific International Exposition in what is now the Marina. By the end of 1909, 70 percent of the reconstruction in the Mission was complete.[13] After the Exposition closed, building tapered off, but it grew again in the 1920s, though not to the same level.[14] During this period, Mission Street became one of the nation's "miracle mile" shopping districts with department stores Sherman Clay and Hale Brothers and a major entertainment hub with the El Capitan, Tower, Grand, New Lyceum, Rialto, and New Mission theaters.[15]

During the 1940s through the 1960s, more newcomers from Mexico moved into the district as residents of European descent departed. During the 1980 and 1990s refugees fleeing from civil wars in Central and South America also populated the area. Today the neighborhood is occupied by a varied population with the influx of young newcomers to San Francisco associated with the boom in technology employment. In late May of each year the Carnaval festival and parade is held.

Shop wing from Valencia Street, looking northeast. Several original windows and the shed-roofed extension on the right seen here have been removed, along with the hedge at the street. San Francisco Public Library.

Subject Lot

The oldest available Sanborn map for the subject block shows buildings occupying all or all but one lot on 23rd Street between Bartlett and Valencia Streets in the subject block where Horace Mann now stands. An additional seven lots on Valencia Street contiguous to the

[11] San Francisco Planning Department. *City within a City: Historic Context Statement for San Francisco's Mission District.* San Francisco: 2007. Page 62.
[12] Ibid. Page 63.
[13] Ibid. Page 64.
[14] Ibid. Page 65.
[15] Ibid. Page 76.

developed lots on 23rd Street are built out. Most of the buildings are two stories, and the ones on Valencia Street have identical footprints, with identical outbuildings at the back of the lots. These lots occupy about one-third of the width of the subject lot between Valencia and Bartlett Streets; east of them are two unoccupied lots—the one immediately to their east is landlocked. The center of the block, from Valencia Street to Bartlett Street, is a large unoccupied lot, with access to Orange Alley as well on the south end. At the south end of the subject block, there are two freestanding houses on Bartlett Street two on 24th Street, and one on Valencia Street.

The 1900 Sanborn map shows the same buildings as the 1889 map, with three buildings occupying four lots on Bartlett Street east of the seven narrower lots on Valencia Street that occupy the same portion of the block. The landlocked lot between the two groups on the street frontages now has a small building in its southwest corner. The 1914 Sanborn map shows that at the north end of the block, the one vacant lot on Bartlett Street has been built out with three flats, while the first lot on Valencia Street south of the corner lot at 23rd Street, which had a house in 1900, now has a public library. The two lots between Orange Alley and Bartlett Street, which had two houses in 1900, have been subdivided into four lots. Two of the lots, fronting on 24th Street, have 6 flats each and appear to be the same buildings that exist today. Two lots which front on Bartlett Street each have two flats; these lots are now part of Horace Mann and the cafeteria wing occupies the same space. The 1914 map shows the northeast quarter of the large, previously unoccupied lot in the center of the block has been subdivided into a separate lot marked “G. W. Peeks. Lumber Yard,” with a small building on its south property line near Bartlett Street and what appear to be three much larger stacks of “lumber” occupying much of the lot. The remainder of the center of the block remains unbuilt.

There are a few building permit records at the San Francisco Department of Building Inspection which appear to reflect some of the buildings that occupied parts of the site before Horace Mann was built.

Application #11580 dated 19 August 1907 for a one-story frame building says the site was on the southeast corner of 23rd Street, 40 feet east of Valencia Street. The cost was stated at $350, with the building described as 15’ X 40’ and 16’ high, in 2X4 frame construction. The application was withdrawn on August 24, 1907; permit records sometimes include only applications that are marked withdrawn or expired, even though the buildings corresponding to the application still exist.

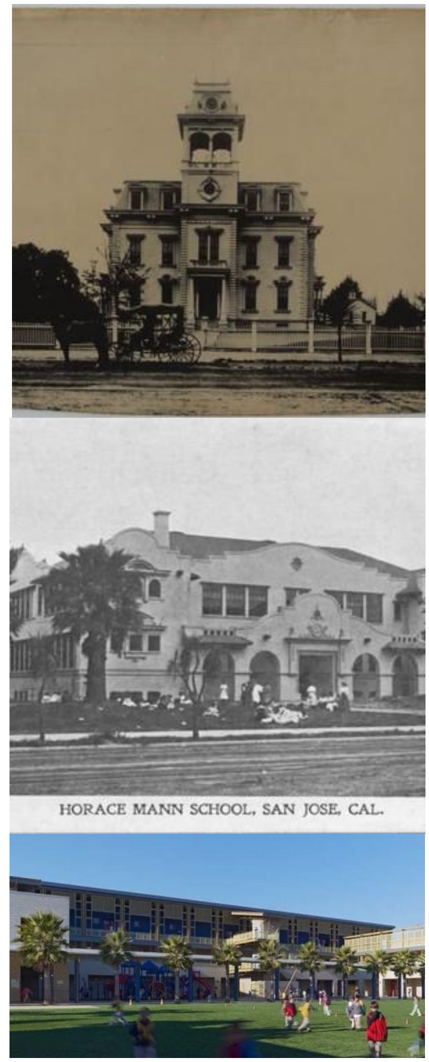
View from Bartlett Street, looking northwest. Single-story building in foreground is not documented in records obtained for this report. San Francisco Public Library.

Application #63901 in 1915 for three-story, frame-construction flats listed the partially illegible location as the south side of 23rd Street 155’ east of Valencia, and the application form sketch map showed a similar placement, which would be roughly the east end of the auditorium wing. It listed the lot as 30 X 80 feet; the building was 30 X 59 feet, 40’ high, with a $6,000 cost. The owner was listed as Margaret Wallace, the architect as Ernest Essmann with offices at 244 Church Street, and the builder was A K Stalt, located at 3877 26th St.

On 30 January 1922, the Board of Supervisors appropriated funds from the Special School Tax to pay the following property owners for acquisition of land and “improvements” (presumably buildings) for the subject site:[16]

- Elizabeth Coit, $45,000
- Mary A. Baker, $7,500
- Antonio Mezzacappa, $10,000
- Louise Patterson, $12,000
- S.W. Dick Co., $12,500
- Margaret Wallace, $16,000

The 1935 Assessor’s Block Book shows that lots 20 to 33 of Assessor’s Block 3643 (formerly Mission Block 155) were merged in 1935 to form lot 34. Subsequent block books show no change.



First (top), second (center), and third (bottom) Horace Mann School, San Jose. Calisphere, and Moore Ruble Yudell.

Horace Mann School

There was a different school building near the site of the subject property, apparently named for Horace Mann after its completion and opening. In 1875, the Valencia Street Grammar School, located one block north of the Horace Mann site, had 1,016 registered pupils. No entry for a Horace Mann School was included in a complete list of public schools for that year.[17] The Sanborn Map for 1889 (Volume 3, page 80) shows it had a Roman-cross footprint and shared a lot just south of 22nd Street with the Bartlett School, which was built tight to the property line on Bartlett Street, with an open yard between the two buildings. The 1920 directory lists Horace Mann School as “Valencia near 22nd.”[18] The 1914 Sanborn map shows the same two buildings, but the building on Valencia Street is now named “Horace Mann Intermediate School;” it is three stories with “light, gas, heat stoves.” The other building is now called the Agassiz School. Today, the former site of the previous Valencia Grammar/Horace Mann School is the

[16] Public Notice Advertisement. *San Francisco Chronicle.* San Francisco: 4 February 1922. Page 18.
[17] Langley, Henry G. *The San Francisco Directory for the Year 1875.* San Francisco: S.D. Valentine & Sons, 1875. https://archive.org/details/sanfranciscodire1875lang/page/44/mode/2up. Page 44. Accessed 20 May 2022.
[18] Polk, R.L. & Co. *Crocker-Langley San Francisco City Directory 1920.* San Francisco: H.S. Crocker Co., 1920. Page 200.

Mission campus of San Francisco City College; the Bartlett Street side is now occupied by what was originally Samuel Gompers High School, a streamline moderne building which replaced the Bartlett/Agassiz building and has been incorporated into the community college campus.

San Francisco Department of Building Inspection (DBI) permit records do not include any record of construction of the subject building (no records for parcel 3643/034, 1241 Valencia Street, or 3351 23rd Street), nor do they include demolition of the previous buildings on the lot. The Department of State Architect did not regulate and permit school construction when the building was built, and the San Francisco Unified School District does not have construction records other than the drawings available in its plan room.

As San Francisco's population grew and a wave of rebuilding and development followed the earthquake and fire of 1906, the city undertook construction programs for new schools. "The schools of the city are entirely inadequate for present needs," a newspaper article reported. There were 13 school buildings 25-40 years old "that must be rebuilt" and 13 new

Many Features in New Junior High

The Board of Education will today formally accept the new Horace Mann Junior High School, Twenty-third and Valencia streets, which will be opened in August for the fall school term. The structure will care for 1000 pupils, and was erected at a cost of $445,000 on a site valued at $196,000.

Illustration for the article announcing completion of the building, *San Francisco Chronicle*, 17 June 1924, page 7.

elementary schools were needed. The Board of Supervisors made "initial proceedings" for a bond issue in response to the need.[19]

Five years before Horace Mann was built, the school appeared on a 1917 list of projects contemplated under a proposed bond. The anticipated cost for projects totaled $6.5 million. The work included additions to 25 schools—in some cases the money was to buy land to make larger playgrounds. It also listed 13 schools to be rebuilt, including Horace Mann at a cost of $270,000, 13 new schools including a corporation yard; and expansion or new construction for three high schools.[20] In 1918, the Board of Supervisors finance committee recommended a tax increase to pay for new schools, with a $750,000 appropriation for building Horace Mann first on the list because it had been "crowded out of the plans last year." The site of the old Horace Mann between 23rd and 22nd Streets was "too small to accommodate a building large enough for the present requirements," so "additional land to the present site" or "two or three suitable sites under consideration" for a new location would be acquired.[21]

By August 1921, the site of the subject building had been selected and City Architect John Reid, Jr. had submitted plans to the Board of Education for a building with 23 classrooms, an auditorium seating 550, a gym, science lecture room, music room, sewing room, "cooking laboratory, model dining room," two freehand drawing rooms, a vocational department with four shops and two mechanical drawing rooms, and "moving picture and stereopticon booths." The building, which the newspaper said "will be one of the finest

Rendering of John Reid, Jr.'s design for Horace Mann. *San Francisco Chronicle* 6 March 1922, page 5.

[19] "Steps Taken for $7,500,000 School Bonds." *San Francisco Examiner.* 6 March 1917. Page 8, column 1.
[20] "Estimate for School Bonds Nearly Ready." *San Francisco Examiner.* 7 March 1917. Page 7, column 1.
[21] "15-Cent School Tax Proposed for New Budget." *San Francisco Chronicle.* 27 April 1921. Page 13.

structures of its class in the United States," was to be complete in 12 months.[22] On 10 October 1921, the Board of Supervisors voted unanimously to authorize the Board of Public Works to contract for construction of the building.[23] Final drawings were approved by the Board of Education and the Board of Public Works was to call for bids in mid-March 1922; the revised cost estimate was $400,000.[24]

In April 1922, the Board of Supervisors authorized $413,386 from the Special School Tax for construction of the building, allocated to contractors and costs as follows:[25]

- Anderson & Ringrose, general construction, $302,382
- J. Greenback, lathing and plastering, $46,267
- P. J. Enright, heating and ventilating, $21,910.
- A. Lettich, plumbing work, $19,902
- Butte Electrical Equipment Co., electrical work, $12,922.
- Inspection, $6,000
- Additional architect's fees, $4,003.

The building was complete by June 1924, and the Board of Education accepted it from the Board of Public Works after an inspection by the schools' Building Committee. Coverage of completion—like some of the coverage during the design phase—explained that the building was "divided into four groups—first, the main or academic building; second, the auditorium; third, the gymnasium; and fourth, the shop group." Reid stated "the plan being the logical result of the adaptation of the educational program to the site." The newspaper

The east façade of the original gym wing had an open colonnade, and the smaller openings flanking it had unglazed wood grilles. San Francisco Public Library.

[22] "City Architect Submits Plans for New School." *San Francisco Chronicle.* 24 August 1921. Page 7.
[23] Public Notice Advertisement. *San Francisco Chronicle.* 14 October 1921. Page 18.
[24] "Design for New School Detailed." *San Francisco Chronicle.* 6 March 1922. Page 5.
[25] Public Notice Advertisement. *San Francisco Chronicle.* 20 April 1922. Page 21.

noted that the gymnasium was "of the open-air type and is roofed over for protection in *rainy weather."*[26]

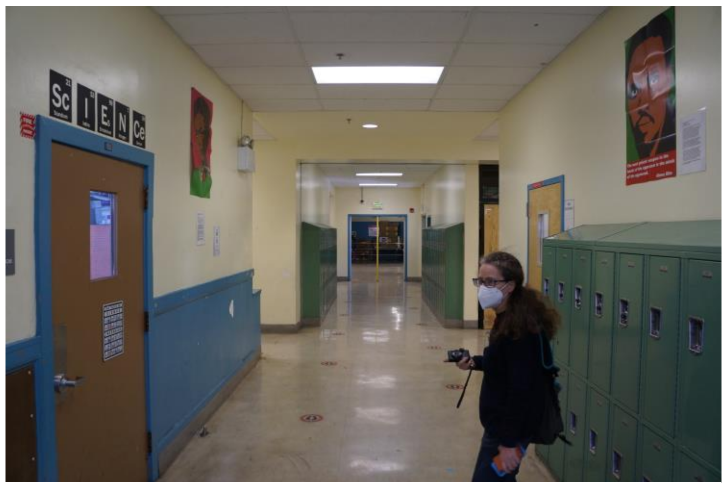
When windows were installed, the columns were left intact and are visible on the interior and exterior. Knapp Architects 2022.

Another round of school construction occurred in the 1930s, linked to public spending on construction to create jobs during the Depression. As early as 1930, the School Board proposed spending $1.25 million on four schools, including James Lick; a building on Connecticut St. between 19th & 20th Streets, to replace Daniel Webster elementary which had been converted into a junior high; an addition to Longfellow School; and a new school on land just acquired Hollywood Circle, Bernal Junior High School. The newspaper article on the proposal reported that free employment bureaus where unemployed could register for work had attracted 1,032 applicants. Plans were announced to hire 1,000 within two weeks at $5 per day.[27] *In 1932, the School Board mulled a program to spend $3.5 million in two years or $5 million in three years; originally, it had proposed projects for 16 school buildings at a cost of $6 million, but deflation in the price of construction materials brought the figure down. George* Washington High School was to be the first project.[28] The Board of Supervisors placed a $3.5 million bond on the 4 Nov. 1931 ballot.[29] The $3.5 million version appears to have gone forward, with $500,000 remaining from a previous bond and a new $3 million bond proposed for a December 1933 vote to fund projects at Glen Park, Agassiz, Sunshine, Buena Vista, Visitacion Valley, partial reconstruction of Starr King, I. M. Scott, Patrick Henry, and Francis Scott Key.[30] A year later, architects were named for projects on four schools, including two of the sites listed in the $3.5 million proposal. For four schools in a $3 million program the following prominent firms were announced: Marina Jr. High: George Kelham, William Day and John Bakewell Jr.; Glen Park Elementary: Louis Hobart, Bliss & Fairweather; Lawton Elementary: Dodge A. Reding & Charles E. J. Rogers; Visitacion Valley Elementary: Hyman & Appleton, G. Albert Lansberg.[31] The projects constructed, expanded, and modernized schools while providing jobs—but they also entailed problems

[26] "New School to Be Accepted by Educators." *San Francisco Chronicle.* 17 June 1924. Page 7.
[27] "School Board $1,250,000 Projects to Aid Jobless." *San Francisco Chronicle.* 5 November 1930. Page 18, column 2.
[28] "Plans Ordered For Building of 16 New Schools." *San Francisco Chronicle.* 3 September 1931. Page 13, column 2.
[29] "School Bonds Election Will Be Held Nov. 4." *San Francisco Chronicle.* 6 October 1931. Page 6.
[30] "Bush Outlines $3,500,000 in School Needs." *San Francisco Chronicle.* 26 September 1933. Page 6, column 8.
[31] "Architects named for four schools." *San Francisco Chronicle.* 14 June 1934. Page 19, column 4.

and controversy. “Faults in S.F. Schools Laid to Builders,” the State Division of Architecture claimed in 1937, calling the architects and contractors for the Glen Park School, Girls’ High School, and Sunshine Buena Vista School to testify before the San Francisco district attorney over construction issues. The front-page story said the state agency found the School Department was not to blame because the San Francisco Board of Public Works was in charge of the projects.[32]

Drawings from 1939 by the architecture firm Bakewell & Weihe show the design for the gym and cafeteria addition. The existing building is largely the same as shown in the drawings, though later modifications of the adjacent link in the shop wing has created an interior connection to the 1939 gym, which was originally reached from the existing school by a covered, open-air walkway. The exterior of the large gym mass shares a slightly pared-down use of the classical architectural devices that characterize the original part of the building; on the interior, the concrete form of soaring stair below the gymnasium and the exposed steel trusses of the gymnasium roof convey the change in architectural trends under way at the end of the 1930s. The cafe Like the original building, this segment is of concrete construction. A substantial expansion, the new construction has its own boiler room.



Some building interiors have been remodeled repeatedly. In the shop wing, doors, T-bar ceilings and lighting, flooring, and lockers have been replaced. Knapp Architects 2022.

Alterations

Drawings document a series of alterations after the 1939 addition, all but one of them exclusively or primarily focused on the interior:

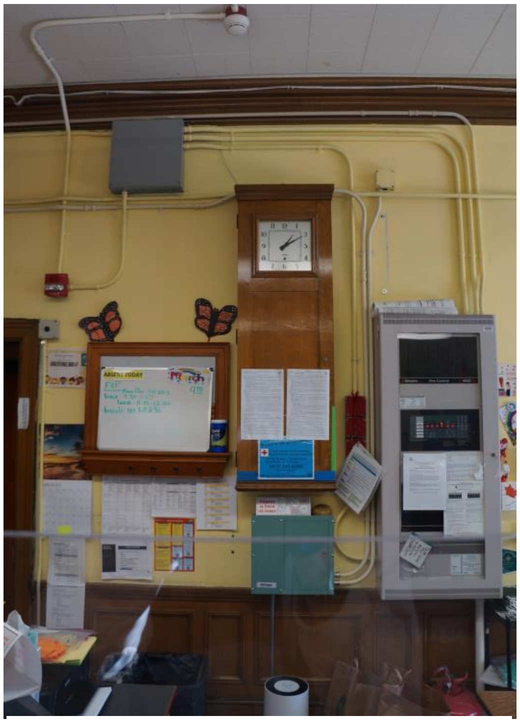
- Installation of windows in the previously open-air colonnade on the east elevation of the gymnasium. The drawing by the San Francisco Department of Public Works Bureau of Architecture dated 31 January 1951 also shows that the windows on the west side of the gymnasium are original—though this project made them operable instead of fixed.
- Alterations to the original gym wing, consisting primarily of conversion of the original boys’ dressing room in the link south of the gymnasium into a second girls’ locker room. The drawings by the Bureau of Architecture, dated 18 April 1958, do not show where boys would change—but it appears this project may indicate that the 1939 gymnasium was effectively for the boys’ gym and the original one became the girls’ facility after 1939.

[32] “Faults in S.F. Schools Laid to Builders.” *San Francisco Chronicle.* 2 February 1937. Page 1, column 5.

- Alterations of several interior spaces in the classroom wing (expansion of the library into an adjacent classroom south of it, conversion of first floor classrooms into a counseling office and a nurse's office and "adjustment class," and alterations to the home economics room). Drawings by the Bureau of Architecture dated 23 April 1959 also show construction of a small storage building between Valencia Street and the link from the shop wing to the 1959 gym which no longer exists but appears on many subsequent plans of the site.
- Remodeling of the shop wing, consisting mostly of changes to doors, casework, plumbing, and lighting—but not wholesale partition changes. Drawings by the San Francisco Department of Public Works Bureau of Architecture dated 24 February 1959 appear to indicate that the link south of the building to the 1939 gym wing was not altered as part of this project.
- A boys' toilet room alteration in the shop wing. A drawing dated 10 June 1959, also by the Bureau of Architecture, indicates this was likely part of the preceding project.
- Modernization of the science room; drawings by the Bureau of Architecture dated 29 April 1960 indicate this affected three rooms at the north end of the third floor.
- Construction of a stair from the auditorium balcony to the main level of the space (one sheet, Bureau of Architecture, dated 15 January 1960).

When the cafeteria was completed in 1939, food was stored and prepared from scratch on site, dishes were washed—and students took their meals in this room. Food service and meals have changed, and the space, which also has physical changes such as its added T-bar ceiling, is no longer used for lunches. Knapp Architects 2022.

- Reroofing. Drawings by the Bureau of Architecture dated 17 March 1960 indicate all five of the original large building elements had clay tile roofs, but this project removed the clay tile at the shop wing replaced it with asphalt shingles. The salvaged tile was used to replace broken or missing tiles on the classroom wing, auditorium, and original gym wing. The 1939 gym roof was not part of this project.
- Exterior repainting. Four sheets by Bureau of Architecture dated 4 March 1960 indicate the link between the shop wing and the 1939 gym had not yet been modified.
- Installation of doors and smoke barriers at the stairs in the classroom wing. The drawings by the Bureau of Architecture dated 10 April 1962 also show additional light fixtures in the corridors.
- Alterations to the boys' locker room (1939 gym), one sheet drawn by Bureau of Architecture, 21 April 1965.
- Installation of acoustical tile on existing ceiling surfaces in the classroom wing; drawings by the Bureau of Architecture dated 20 January 1966 indicate this affected only selected rooms.
- "Reconstruction" of the classroom wing, including a seismic upgrade with new shear walls and addition of an elevator Architectural drawings by the Bureau of Architecture are dated 26 April 1974 and structural drawings are by J. Albert Paquette & Associates.
- "Reconstruction" of the auditorium, original gym, and adjacent links. The scope included removal of "all terra cotta and non-structural elements" at the entry pavilion on Valencia Street and construction of the existing, simplified version; alteration of the monumental arched windows in the auditorium; demolition of the entry portal on Valencia Street; structural upgrades (concrete shear walls and alterations to steel roof trusses); and reroofing the auditorium in composition shingles. Drawings by the Bureau of Architecture are dated 27 August 1974 and structural drawings are by J. Albert Paquette & Associates.
- "Reconstruction" of the shop wing, the adjacent links, and the arcade which separates the north playground/garden from the south playground. The project includes closing in numerous windows, structural work, and renovation of the boys' toilet room in the shop wing. This set indicates the original configuration of the link between the shop wing and the 1939 gym still existed in 1975. Drawings by the Bureau of Architecture are dated 25 June 1975 and structural drawings are by J. Albert Paquette & Associates.

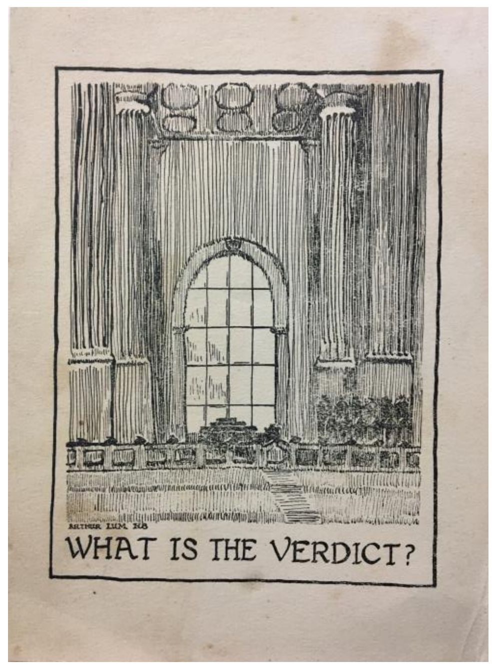


This view in the school office shows how character-defining features such as the central clock system, wainscot, and notice board survive alongside new items like the fire alarm panel, electrical boxes, and surface conduit. Knapp Architects 2022.

- Consent-decree alterations to computer rooms. Drawings 20 May 1986 by J. Wood Co. do not indicate changes relevant to historical integrity.
- Re-striping playgrounds (before installation of garden at north), 1987. (From a drawing at the plan room at 135 Van Ness Avenue; only partial information noted.)
- Asbestos abatement; drawings by Glason Corporation dated 17 February 1992.
- Window replacement, 1995. Drawings by Ratcliff Architects. (From a drawing at the plan room at 135 Van Ness Avenue; only partial information noted.)
- Fire Alarm System, Electrical Improvements, Auditorium and Miscellaneous Improvements Phase 2, 1996. Scope: drinking fountain in halls, boys' restroom in boys' locker room 124C, auditorium acoustic and windows, paint and window shades, electrical and Fire Alarm, chain link at boiler exterior entry. (This record is from DSA.)
- Auditorium remodel, 1997. Drawings by Ratcliff Architects. (From a drawing at the plan room at 135 Van Ness Avenue; only partial information noted.)
- Elevator added at shop wing, 2005. (This record is from DSA.)
- Miscellaneous alterations for adding grades K-5 to the school, 2012. (This record is from DSA.)
- Modification of the auditorium wing to incorporate a lift from 23rd Street providing wheelchair access to the main lobby (date and project to be identified)

The DBI records do include two permits in 1959 for alterations:

- Application #223199 filed 5 May 1959 for a project to "Remove existing wood floors and replace with concrete and hardwood. Replace & elect. Facilities Install sprinkler system. Repaint" at a cost of $73,000. This may be part of the 1959 alteration of the shop wing.
- Application #225350 dated 6/26/1959 for "Alterations to library & storage bldg." at a cost of $40,000.



Debate announcement, 1928. San Francisco Public Library.

School Operation

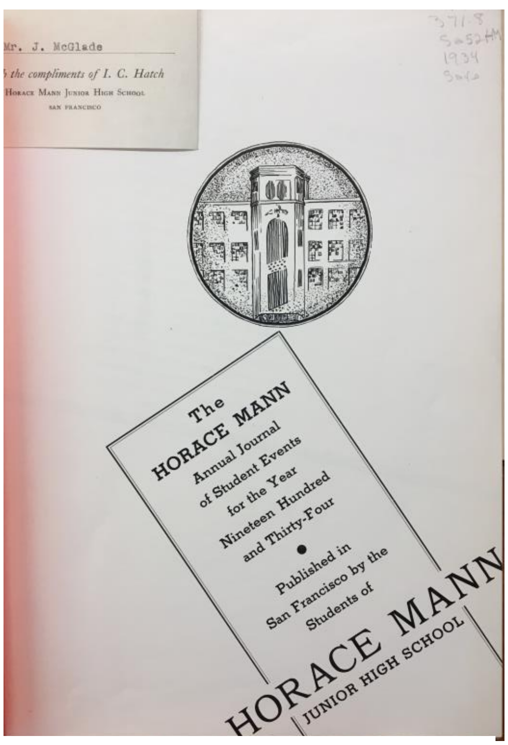
It was not possible within the scope of this report to research the educational program, sports, community activities, staff, and students at Horace Mann for the past century. The San Francisco History Center at the Main Library has a small collection of documents from the school's early years, including a card from the Inter-Scholastic Debate Fall Term 1928, *The Horace Mann Annual Journal of Student Events for the Year Nineteen Hundred and Thirty-Four* and a similar year book from the previous year. The 1933 edition says (p 27) the Poster Club was all boys in the high nine elective drawing class, and they made posters, designed art for the Journal, and made place cards for school events. The 1933 year book also lists a Rally Committee, Piano Classes, Sea Scouts, and basketball among other activities and sports.[33]

The foreword of the 1934 edition of this year book reflects on the 10th anniversary of the opening of the new school building:

> "August, 1934 will be the tenth anniversary of The Horace Mann Junior High School. Although perhaps surpassed in the last ten years by newer and modern school buildings, Horace Mann has never been surpassed in its educational achievements and the fire spirit of loyalty that has always existed throughout the student body and amongst the faculty."

A listing of staff shows the principal, two vice-principals/deans of boys/girls, two secretaries, a librarian, and teachers: six for English, five for Mathematics, four for Language, three for Home Economics, four for Physical Education, six for Social Science, three for General Science, three for Music, five for Industrial Arts, two for "Commercial" (both women), and two for Drawing (both women). Each class had about 38 students, one class was all-girls, one all-boys, and the others co-ed.

The school had student body officers, class presidents, committees for assembly programs, journals (literary, business, and art), a newspaper *The Horace Mann*, a poster club, drama class, orchestra, glee club (two levels, the one which auditioned performed at outside meetings of the PTA, DAR, and the faculty of all junior high teachers at James Lick), a dance band, Boys Traffic Unit, Circle Club (which made crafts and "delivered these articles to the old people in one of San Francisco's homes for the aged"), a Pep Unit (boys with harmonicas, providing music for City Junior High Track Meet), crew, a stamp club, Girls' Day ("The girls ran everything for one whole day."), and a Girls' Traffic Unit. Sports included Girls' Athletic Committee, girls' baseball/volley ball, girls' athletic association, track, baseball, and tumbling.[34]



The Horace Mann, 1934. San Francisco Public Library.

The year book included a look back to the old school, even though the oldest students in 1934 would have been unlikely to remember it well:

"In the Spring 1924 Term all pupils at the old Horace Mann were looking forward to beginning the Fall Term in the new building—the one we occupy now. Miss Maie Toland's L7 class in the old building wrote the following poem as a farewell to the old school." Poem says old school has "had your day, your course is run. In grandma's time you

[33] *The Horace Mann June, 1933/Published by the students of the Horace Mann Junior High School San Francisco, California.* San Francisco: Mercury Press, 1933. Page 27.

[34] *The Horace Mann Annual Journal of Student Events for the Year Nineteen Hundred and Thirty-Four.*

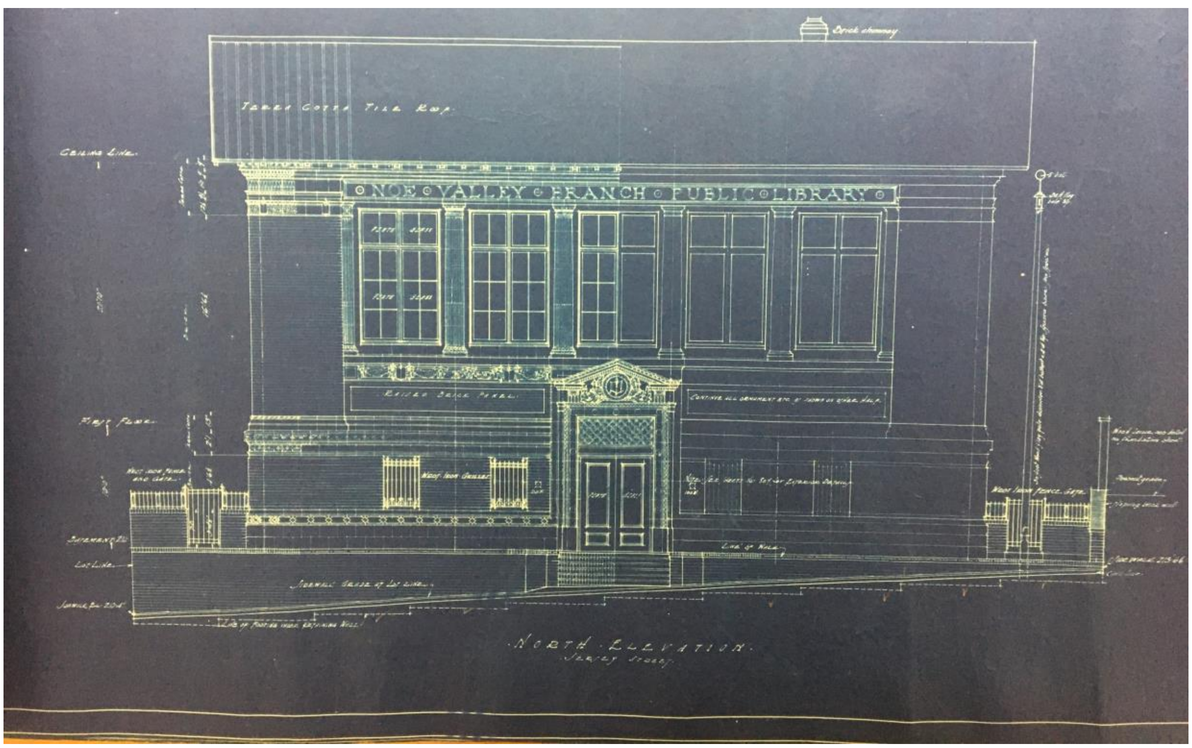
> were fine and new…two score and fourteen years you've stood…your walls are weak your stairways squeak, your ceilings are warped, your old floors creak, the halls are battered, the stoves are done…While outside the Valencia street traffic rip roars."[35]

Architect: John Reid, Jr.

John Reid, Jr. was born in San Francisco 26 December 1880 and died here 15 December 1968. He was the brother-in-law of Mayor James Rolph.[36] Reid served as San Francisco City Architect from 1918 to 1930 and as the consulting architect for City Hall from 1912 to 1917.[37]

Reid's father, John Sr., and his mother, Anne Cunningham Reid, were born in Scotland. Reid attended San Francisco schools and then the University of California before studying for 5 years at the Ecole des Beaux-Arts in Paris, after which he pursued "studies in various European art centers" and then returned to San Francisco to practice architecture. He worked as a drafter for Willis Polk and Daniel Burnham[38] before establishing his own practice in 1911.[39]

With the inauguration of the Rolph administration, the City created a Board of Consulting Architects "particularly to evolve a comprehensive Civic Center scheme" and supervise its execution, and Reid was appointed to the board. He and the board "laid out the general



South elevation, Noe Valley Public Library. San Francisco Public Library.

[35] Ibid. Page 29.
[36] "Architect John Reid Dies at 85." *San Francisco Chronicle.* 16 December 1968. Page 42.
[37] Biographical index card. San Francisco History Center. San Francisco Main Library.
[38] NoeHill: *Architects/John Reid, Jr. 1879/1968.* https://noehill.com/default.asp. Accessed 4 May 2022.
[39] John W. Reid Jr. (Architect). PCAD. https://pcad.lib.washington.edu/. Accessed 4 May 2022.

plan" of the Civic Center, as shown in City Hall and Auditorium buildings. He also supervised the design and construction "of many smaller public buildings, including a number of schools and Fire Department structures."[40]

Reid's work includes the Noe Valley Branch of the San Francisco Public Library;[41] the clubhouse at the Lakeside Golf Club;[42] the Civic Center Auditorium (with John Galen Howard and Frederick H. Meyer);[43] 45 Saint Francis Blvd.; the San Francisco Fire Chief's Headquarters on Nob Hill; the San Francisco Police Department Southern Station; the Anza Branch public library; Balboa High School, Grant School, and Mission High School in San Francisco; the Phi Delta Theta fraternity house in Berkeley;[44] the High School of Commerce, Commodore Sloat Elementary School, Everett Middle School, Pacific Heights Elementary School, and Sherman Elementary School in San Francisco; San Francisco Fire Department Engine Cos. No. 8, 24, and 47; Laguna Honda Hospital; the North End Police Station, the Union Iron Works Turbine Machine Shop (demolished 1984), and San Francisco General Hospital.[45]

Reid was a member of the University Club, Press Club, Bohemian Club, University of California Club, la Societe des Architectes Diplomes par le Gouvernement Francais, San Francisco AIA, San Francisco Society of Architects, and Phi Delta Theta Fraternity.[46] Reid never married. He lived at 1090 Chestnut Street at the time of his death. He is buried in Woodlawn Memorial Park in Colma.[47]

Architect: John Bakewell

John Bakewell practiced most of his career with Arthur Brown, Jr. and then went into partnership with Ernest E. Weihe from 1928 to 1941. Bakewell and Brown is renowned in the Bay Area, but Bakewell and Weihe, architects of the French Indo-Chinese Pavilion at the Golden Gate International Exposition (1937-9) and the Hoover Tower at Stanford (1940-1)[48] are much less well known. Bakewell and Brown was founded in 1905. John R. Bakewell Jr. (1872-1963) and partner Arthur Brown Jr. (1874-1957) both studied at UC Berkeley and continued their studies at the Ècole des Beaux-Arts in Paris. Their work includes the now lost City of Paris in 1908 (with Louis Bourgeois), Berkeley City Hall (1909), Pasadena City Hall (1913), and the Santa Fe Depot in San Diego (1915). Stanford University hired them in 1913 as the university's chief architects after they had designed

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[40] Meyer, George Homer, 1858-1926; Taylor, David Wooster; Johnson, Arthur M. *Municipal Blue Book of San Francisco, 1915.* San Francisco: California Press. Page 69.
[41] The San Francisco History Center has 10 sheets of white line blueprints dated 1915, approximately 24 by 36 inches, in its collection. The title block on the drawings lists his office as First National Bank Building.
[42] The San Francisco History Center has two sheets of white line blueprints dated 1917, approximately 24 by 36 inches, for this project.
[43] Bogart, Sewell. *Lauriston An Architectural Biography of Herbert Edward Law.* Portola Valley: Alpine House Publications, 1976. Page 49.
[44] PCAD.
[45] NoeHill.
[46] *Municipal Blue Book of San Francisco, 1915.* Page 69.
[47] Most of the biographical data not attributed to other sources is from Ancestry.com. Documents there—and the other references cited here—provide conflicting details that are not relevant to Reid's role as the architect of Horace Mann, for example a death certificate and draft card that disagree about whether he was born in 1879 or 1880.
[48] *PCAD.* "Bakewell and Weihe, Architects (Partnership)." Accessed 20 May 2022.

some housing for Stanford during 1908-1909 and the Beta Chi Chapter House in 1911. They were hired along with Bernard Maybeck as exposition architects for the 1915 Pan Pacific International Exposition and designed the exposition's Horticultural Palace as well as the Ghirardelli display building. They won a competition to design San Francisco's City Hall, on which construction was completed in 1915.

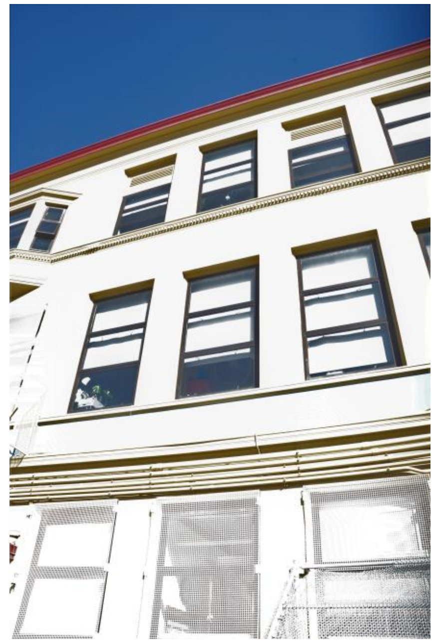
Classical Revival Style

The Classical Revival style enjoyed popularity in the United States from the late 19th century until the 1930s. The style is part of a trend of period-revival styles that began to emerge during the last third of the 19th Century as a reaction grew against the Stick, Italianate, Second Empire, and Queen Anne styles. Period-revival styles dominated American architecture until the rise of the succession of styles that originated in the 20th century, including moderne, Art Deco, and International. Period-revival styles include Mediterranean-revival (with subcategories Spanish Colonial Revival, Mission Revival, etc.), Colonial Revival, Greek Revival, Dutch Colonial Revival, and others, as well as the Classical Revival style. While most period-revival styles can be traced to earlier or continuous American antecedents such as the Federal Style, Colonial Style, and Georgian Style, the period-revival styles as a group represent a discrete development in architectural styles in the United States in the beginning of the 20th century.

Like the Georgian Revival style, Classical Revival looked back to Greek and Roman sources, but unlike Georgian Revival, it was broader in drawing on them and it also evolved less of its own conventions, so it is less cohesive and includes a broader range of forms, materials, and ornamental devices. Unlike the Greek Revival style, Classical Revival drew heavily on Roman sources, forms, and imagery—although it freely incorporated Greek sources as well. Classical Revival style was also influenced heavily by European architectural influences dating back to the Renaissance which looked to classical precedents.

Despite the loss of the original entry pavilion and the closure of the colonnade at the original gym, these paired columns on the south façade of the classroom wing continue to convey the classical style which marks the building's significance. Knapp Architects 2022.

In a sense, Classical Revival can be seen as part of a continuum beginning in the Renaissance, with American architects influenced by English predecessors who in turn followed Continental developments. Architectural leaders such as Inigo Jones in the first third of the 17th century and Christopher Wren had previously brought renaissance architecture from the European Continent to England, the Georgian movement of the 18th century was notable for its refocusing on the classical sources of that turning point in European design and stabilizing their influence. Architects such as John Vanbrugh and Nicholas Hawksmoor followed Wren and gave rise to the careers of James Gibbs and Colin Campbell, the author of the influential *Vitruvius Britannicus,* bringing the Georgian movement into its own.[49] Architecture in England explored a series of variations on the Italian Renaissance themes Jones introduced, with baroque, Greek, and other emphases.



Metal windows replaced the original wood units on the south façade of the classroom wing and heavy security screens were added.

The Classical Revival style was one of the period-revival themes exemplified in the work of the nationally-prominent firm McKim, Mead & White, who began to substitute 18th Century American Federal and Georgian elements in place of the purely Queen Anne detailing used by English architects such as Richard Norman Shaw. The full-blown Classical Revival style had arrived by 1900, nurtured in part by the popularity of the 1893 Columbian Exposition in Chicago. The reconstruction after the 1906 earthquake and fire vaulted use of Classical Revival style in San Francisco when ornate Italianate, Second Empire, Eastlake, and Queen Anne buildings were rebuilt in this new style..

The characteristics of the Classical Revival style include rectangular building mass, strong axiality in plan development, regular façade composition (more often symmetrical than not), tripartite vertical composition akin to classical columns (base-shaft-capital), colonnades and classical orders, masonry exterior materials (or detailing of wood exterior finishes to resemble masonry), use of classical notions of proportion, and extensive articulation and ornament employing classical forms and imagery with meticulous fidelity to original sources. Site layout, extensive or complex building footprints, and interior spaces are rationally organized, often symmetrically. Hierarchy is carefully employed in site development, massing, façade composition, layout of interior spaces, sequences, and use of classical orders and ornament.

VI. Eligibility for the California Register

The California Register of Historical Resources is the state's main listing of sites, buildings, objects and structures that have been evaluated to be historically important. The California Register is patterned closely on the much older National Register of Historic Places, which

[49] Walter H. Godfrey. *The Story of Architecture in England.* London: B.T. Batsford, Ltd., 1931. Pages 117-121.

has been used nationally for decades. Eligibility to the California Register is the primary test used by agencies in California when reviewing projects under the California Environmental Quality Act (CEQA). CEQA Guidelines section 15064.5 states that a building or district which is eligible for listing in the California Register is considered a “historical resource” even if it has not been officially designated.

Four Criteria of Significance

Like the National Register, the California Register uses a framework of Criteria to determine whether a property is eligible for listing. To be eligible, a property must have a significant association with an aspect of history that is important locally, state-wide, or nationally (called “significance” in eligibility evaluations)—and it must retain physical characteristics from the time in history which allow it to convey its significance today (called “historical integrity” or “integrity” in eligibility evaluations). The four criteria are virtually identical under the California Register (which labels them 1-4) and the National Register (which labels them A-D). They are:

Criterion 1 (Event): Resources that are associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

Criterion 2 (Person): Resources that are associated with the lives of persons important to local, California, or national history.

Criterion 3 (Design/Construction): Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possess high artistic values.

Criterion 4 (Archaeology/Information Potential): Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Period of Significance

The Period of Significance, as defined by *National Register Bulletin 16a: How to Complete the National Register Registration Form* is the time frame during which a historically significant property was associated with important events, activities, or persons, or attained the characteristics which qualify it for the National Register listing. Some periods of significance span only a single year, but others span many years and consist of opening and closing dates. The period of significance usually begins when significant activities or events began giving the property its historic significance.

Integrity

When a property is determined to be significant under at least one of the California Register criteria, it is also evaluated to determine if it retains sufficient physical integrity to convey this significance. Integrity is composed of seven aspects: location, design, setting, materials, workmanship, feeling and association. For the purposes of the California Register, integrity is defined as “the authenticity of an historical resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance” (California Code of Regulations Title 14, Chapter 11.5).

Integrity is evaluated by applying seven filters or “aspects” in considering whether a property retains the physical traits required for conveying its significance. Each of the aspects is evaluated in a nuanced way (one aspect might be “diminished” while another might be “fairly strong”) but the ultimate evaluation is binary: a property either retains integrity, or it does not retain integrity. The seven aspects are weighed according to the role each one plays in the significance of the property in question. The seven aspects are:[50]

Location: Location is the place where the historic property was constructed or the place where the historic event occurred.

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

Although many corridors have been modified more, the one outside the school office retains many character-defining features such as the wainscot and bulletin board/display case. Knapp Architects 2022.

Setting: Setting is the physical environment of a historic property.

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

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

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

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

Character-Defining Features

[50] https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf. Accessed 27 November 2021.

Character is composed of all those aspects and elements that comprise the appearance of every historic building. Character-defining features include the building shape, the materials, the craftsmanship, decorative details and interior spaces and features, as well as aspects of the building site and environment.

Property Types

The auditorium has been altered and its original windows have been removed, but the balcony appears to retain original seating, flooring, and wainscot. Knapp Architects 2022.

Under the National Register and California Register, there are four primary types of physical places that can be evaluated and listed: sites, buildings, structures, and objects. Sites are open, outdoor places like parks, gardens, and battlefields; buildings are constructed by humans for their occupancy; structures like bridges, cranes, and water towers are constructed by humans but for some other function; not occupancy; and objects are discrete things like monuments, statues, and gateposts that are not occupied and often are not function even though people value them. In addition to these types, properties fall into two categories: individual properties (such as a single building or bridge) and districts, which are made up of more than one property that share the same common history and collective significance. Any one segment of Horace Mann could be approached individually as a building, and all the buildings and the landscape in the center could be eligible together as a district.

VII. Eligibility Evaluation

Criterion 1/Event

The subject property is prominently visible from a major neighborhood artery, Valencia Street, and two other public streets and has served as a public school for almost a century. Because it replaced a smaller school by the same name one block away, the current building fills a role in education and community life that has existed for about 150 years. This makes the property important in the local history of education, and therefore eligible to the California Register at the local level under Criterion 1.

Research conducted for this report did not uncover documentation of any educational program, curriculum, sports, community events, or similar activities which demonstrate that this school is important to education beyond its role in the neighborhood and as part of the school district. To demonstrate such significance, it would be necessary to obtain fairly detailed documentation of operations at Horace Mann and then to demonstrate that they were important beyond this one school site. Such research is beyond the scope of this document.

Criterion 2/Person

The property does not appear significant for its association with persons important to local, state, or national history. Although Horace Mann was an important figure in American education, he died more than a century ago and had no association with this property. Countless schools in the United States were named for him; Los Angeles also had a Horace Mann Junior High School in South Los Angeles.[51] In addition to the two built in San Jose in the era the subject property was constructed (see photos) research indicates San Jose seems to have rebuilt again: *Architectural Record* 2004-03-01, Vol. 192, (3), page 136 published a new building designed by famed architect Richard Meier, though Moore Ruble Yudell of Los Angeles apparently designed the school which was built.[52]

Research conducted for this report did not encounter records indicating that any other person important to local, state, or national history had a significant association with the subject property. Horace Mann does not appear to be eligible to the California Register under Criterion 2.

Criterion 3 (Design/Construction): Horace Mann is a notable example of the use of the Classical Revival style for design of a school building. Its layout with separate segments (sometimes referred to as "buildings" in documents obtained for this report) demonstrates how the architect laid out the building and site in response to the school program, an approach that was ascendant at the time.

Although it is a simple space with utilitarian materials, the original gym illustrates the principles of the Classical Revival style, with roof trusses aligned to emphasize the meter of the façade colonnade and an arched window articulating the gable. Knapp Architects 2022.

The exteriors of all the main building masses exhibit many characteristics of the Classical Revival style. The classroom wing, auditorium, original gym, and 1939 gym share proportions, both in massing and facades, consonant with classical design. The classroom wing, auditorium (main mass), and original gym present symmetrical facades to the street (and in most cases, to the interior playground/garden). The ordered, symmetrical roofs of all five main building masses and

[51] https://digitallibrary.usc.edu/asset-management/2A3BF11X1NL1?FR_=1&W=1210&H=701. Accessed 28 April 2022.
[52] https://www.moorerubleyudell.com/projects/horace-mann-elementary-school#. Accessed 21 May 2022.

the original clay tile roofs fit the Classical Revival style (barrel tile roofs were typical on classical temples and are not limited to Spanish-derived sources). Both the basic use of articulation and ornament—to modulate and order facades—and the specific images and motifs, such as quoins at corners and bays, classical columns, rustication at the bottom story, and monumental arches at windows, are quintessential elements of Classical Revival style. The use of colonnades (at the recessed porch on the south façade of the classroom building and originally on the east façade of the original gym and at the entry pavilion) and arcades (dividing the two open spaces on the interior of the site and mediating some of the building edges in them) is another example. The use of hierarchy by the Classical Revival is perhaps best illustrated by the way the links are lower, smaller in footprint, and much sparser in articulation and ornament than the five main masses which have larger spaces and more important programmatic roles.

The building is also significant for the way the school program is expressed in discrete components, rather than being incorporated in a single mass (as seen as the old Horace Mann). Architect John Reid, Jr. "divided into four groups—first, the main or academic building; second, the auditorium; third, the gymnasium; and fourth, the shop group" and explicitly claimed "the plan being the logical result of the adaptation of the educational program to the site." The design could have expressed the program in separate forms without using Classical Revival devices, and it could have enveloped all the program in a single Classical Revival mass—but it is particularly significant under Criterion 3 for combining the two devices in a way that each reinforces the other.

The bay window and the balconette on the south façade of the classroom wing are not classical devices, but they exhibit the articulation used by the Classical Revival style. Knapp Architects photos.

City Architect John Reid, Jr., to whom the design of Horace Mann is attributed, qualifies as a "master" for the purposes of Criterion 3. However, it is unclear whether the property is eligible under the notion of being a "work of a master." John Reid, Jr. was prolific as San Francisco's city architect, but the place this building has in his body of work—and his specific involvement in its design—has not been demonstrated. Although John Bakewell's firm designed the 1939 addition, this work is so small compared to Bakewell's many better-known projects that it is clearly not significant under Criterion 3 as the work of a master on the basis of Bakewell's role.

As such, Horace Mann embodies the distinctive characteristics of the Classical Revival style and is significant for using it to articulate a complex building, making it eligible for the California Register under Criterion 3.

Integrity

Horace Mann retains all seven aspects of integrity. The building is so little modified that it unquestionably retains full integrity of location, setting, feeling, and association. The replacement of most of the original tile roofing with composition shingles, alterations to the link between the shop building and the 1939 addition, interior modifications in nearly the whole property (and the open spaces) have somewhat diminished integrity of design, materials, and workmanship—but enough of the original building fabric exists throughout the property to allow Horace Mann to retain integrity overall in these aspects as well. The property strongly retains integrity, and hence eligibility for listing in the California Register.

Character-Defining Features

Site, Footprint, Massing

- Rational organization of buildings and spaces, including division of open space at center into two zones
- Buildings in a string (not clusters) arrayed at perimeter of site, forming regular edge at sidewalk, with landscape buffer
- Hierarchy of layout, with 23rd Street as the head and center
- Orthogonal footprints and siting
- Proportions of footprints, proportion of height to footprint
- Program and rooms correlate with the distinct forms that make up the complex
- Original entry pavilion was in one sense the paramount architectural feature of the property, but the abstracted replacement feature is not character-defining because it is a later alteration and is barely compatible with the property
- Central courtyards, defined using classical device: arcades

Facades

- Tripartite composition
- Regular fenestration with punched windows and definition of stories
- Symmetry
- Articulation and ornament with water table, string courses/moldings, top cornice; quoins marking corners and separating bays
- Classical articulation and ornamentation: columns and pilasters, arches, rustication, quoins, urns
- Singular, distinctive features including projecting stair towers on the north and south facades of the classroom wing, balconette at second floor stair landing on west elevation of classroom wing; bay window at third floor on west elevation of classroom wing
- Basic building materials and components, where original: cementitious wall finish, tile roofs, wood and steel windows, doors, etc.

Interior

- Rational vertical circulation layout
- Hierarchy and organization of program spaces, though individual classrooms are not as important as the classrooms as a group
- Spatial definition and architectural features of primary spaces: auditorium, both gymnasia, main entrance, and principal's office
- Double-loaded corridors in classroom wing

- Proportions and layout of typical classroom
- Articulation and trim, where original
- 20th century school features: building-wide clock in principal's office, closets in classrooms

Property Type

Horace Mann is a building; as mentioned above, this report focuses almost exclusively on architecture, with only passing reference to the landscape and site. While the choice of property types that might apply based on the National Register Criteria (also used by the California Register) include identifying the entire lot as a district (and potentially a cultural landscape); treating the property as more than one building; or treating the property as some combination of buildings and sites, the simpler approach of identifying Horace Mann simply as a building is better suited to this property. All the segments of the building are contiguous, and there is only one reasonable way to view the property as more than one building (dividing it into the original and 1939 portions)—but the entire construction functions as a whole and is architecturally united, so it is much better understood as one building than as two. The landscape buffer around the perimeter is narrow and does not appear to play an important role, and the open space in the center is seen in historic aerials as simply paved and truly a school yard rather than a sophisticated athletic facility.

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Proposition A 2016 Bond Program
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

ATTACHMENT C

SWCA PEER REVIEW—JANUARY 2023

Peer Review of Knapp Architects' Draft Historic Resource Evaluation (HRE), Part 1, Report for Horace Mann School, Prepared for Meek/Noll & Tam Joint Venture, May 20, 2022

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

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January 27, 2023

Licinia Iberri
Bond Program Director
San Francisco Unified School District
555 Franklin Street
San Francisco, California 94102
Submitted via email: iberril@sfusd.edu

Re: Peer Review of Knapp Architects' Draft Historic Resource Evaluation (HRE), Part 1, Report for Horace Mann School, Prepared for Meek/Noll & Tam Joint Venture, May 20, 2022 / SWCA Project No. 77638

Dear Ms. Iberri:

SWCA Environmental Consultants (SWCA) was contracted to conduct a peer review of the Historic Resource Evaluation (HRE) report for the Buena Vista/Horace Mann (BVHM) School campus, prepared for Meek/Noll & Tam Joint Venture by Knapp Architects in May 2022. The HRE was prepared in support of the project sponsor team for the BVHM School Modernization Project.

The BVHM School campus is in San Francisco's Mission District at 3351 23rd Street/1241 Valencia Street within assessor block/lot: 3643/034. The campus is a series of buildings connected by various wings forming a sprawling complex, which encloses two large, outdoor open areas at the center of the site. The school was originally built in 1924 with a gymnasium and cafeteria addition completed at the south end of the property in 1939. The HRE notes the BVHM School campus was documented during the 1976 Department of City Planning Architectural Survey and was given a rating of "3" as a prominent neighborhood institutional building and as a rare example of a style, and a rating of "2" as building of unique visual interest. The campus was also documented during the 2010 South Mission Historic Resource Survey, prepared by the San Francisco Planning Department, and identified as eligible for listing in the California Register of Historical Resources (CRHR). At the time of the authorship of the HRE, the BVHM School campus was not listed in the California Office of Historic Preservation's (OHP's) Built Environment Resources Directory (BERD); however, the BERD is a database of previous identification efforts submitted to OHP and is not a comprehensive list of all previously surveyed properties throughout the state. Neither the 2010 survey nor the 1976 survey identified character-defining features (CDFs) of the property; thus, the HRE was prepared, in part, to produce such information.

To prepare this peer review, SWCA architectural historians, all of whom meet the Secretary of the Interior's Professional Qualification Standards in architectural history and history, reviewed Knapp Architects' HRE report. SWCA did not conduct a site visit to the property as part of this effort, but referred to the documentation provided within the HRE itself. However, SWCA did conduct limited supplemental research to support the development of recommendations outlined within this peer review. SWCA focused on the contents of the report for completeness and accuracy, primarily as it relates to the overall findings presented in the report and the report's role as supporting information related to the analysis of the BVHM School Modernization Project for potential impacts to historical resources under the California Environmental Quality Act (CEQA).

SUMMARY OF THE HRE, PART 1

The HRE report prepared by Knapp Architects is organized into seven individual sections:

1. An *Introduction* with essential background information on the BVHM School campus and its current historic status;
2. A *Methodology* section that includes subsections for scope of report, observations, and repositories/archives consulted;
3. A *Description* section that provides neighborhood context, building, and exterior spaces subsections and several images, including a historic Sanborn Fire Insurance Company (Sanborn) map, current photographs, and one historic photograph;
4. A *Historical Context and Development* section with neighborhood context on the Mission District, the history of the subject property, the development of the BVHM School campus and identified alterations compiled from San Francisco Department of Public Works Bureau of Architecture, San Francisco Department of Building Inspection, and Department of State Architect records; and context relating to the school's operations, the Classical Revival architectural style, original architect John Reid, Jr., and architect John Bakewell, designer of the school's additions in 1939. This section also includes several historic photographs, historic newspaper clippings, a map, and other images, primarily placed in the historic Mission District and Subject Lot sections, with others placed in the alterations and subsequent sections;
5. An *Eligibility for the California Register* section that includes regulatory information and explanations of the CRHR criteria for evaluation under Criteria 1 (Events), 2 (Persons), and 3 (Architecture), period of significance, aspects of historic integrity, CDFs, and defining property types;
6. An *Eligibility Evaluation* section that describes the property's significance under the CRHR and an analysis of integrity, a list of CDFs, and a brief statement about the property type. The evaluation determined the building is eligible under Criterion 1 (Events) because of its longstanding role in education and community life. The building was also found eligible under Criterion 3 (Architecture) as a notable example of the use of the Classical Revival style for design of a school building and for the way the school program is expressed in discrete components, rather than being incorporated into a single mass. The report found that the building retains all seven aspects of historic integrity, and provided a list of CDFs organized into Site, Footprint, Massing; Façades; and Interior groupings. However, a period of significance was not provided;
7. The final section includes a complete bibliography of references cited throughout.

Overall, the HRE contents, organization, and underlying methodology generally adheres with architectural history standard practices and historic preservation reporting requirements outlined under the National Park Service's (NPS's) *National Register Bulletin No. 15: How to apply the National Register Criteria for Evaluation*, OHP's *Technical Assistance Bulletin No. 7: How to Nominate a Property to the California Register of Historical Resources*, and by the City and County of San Francisco Planning Department (Planning Department).

EVALUATION AND FINDINGS

As outlined above, the HRE identifies that the property as eligible for the CRHR and significant under Criterion 1 (Events) and Criterion 3 (Architecture).

- **Criterion 1:** The HRE identifies the property as prominently visible from a major neighborhood artery, Valencia Street, and two other public streets and notes the building has served as a public school for almost a century, remarking the current building "fills a role in education and community life that has existed for 150 years. This makes the property important in the local history of education and therefore eligible to the California Register […] under Criterion 1."

  - The HRE author adds, "Research for the report did not uncover documentation of any educational program, curriculum, sports, community events, or similar activities which demonstrate that this school is important to education beyond its role in the neighborhood and as part of the school district. To demonstrate such significance, it would be necessary to obtain fairly detailed documentation of operations at Horace Mann and then to demonstrate that they were important beyond this one school site. Such research is beyond the scope of this document."[1]

- **Criterion 3 (Architecture):** The HRE finds the subject building is a significant example of the application of the Classical Revival style to a school building, with the school's component masses demonstrating an ascendant approach to school design reflecting programming through component masses rather than in one standalone building. The report identifies John Reid, Jr., as a master architect but argues it is unclear whether the property is eligible "under the notion of being a 'work of a master,'" as Reid's specific role in the design (as City Architect) has not been demonstrated.

The HRE notes on page 36 the entirety of the BVHM School campus was treated as a singular building for the purposes of this evaluation. The HRE offers that treating the campus as a historic district is another approach that could be implemented, although assessing the campus as a singular building was preferred because of its continuous connectivity through its wing-oriented plan, as well as its relatively cohesive architecture throughout. SWCA agrees with this approach and believes it will provide necessary data in an accessible way to inform the project development and future planning efforts at the BVHM School campus.

PEER REVIEW

Overall, SWCA concurs with Knapp Architects' finding that the BVHM School campus is eligible for listing in the CRHR. Specifically, SWCA agrees that the BVHM School campus qualifies for significance under Criterion 3. Throughout the body of the report, Knapp Architects makes it clear the primary focus of the HRE is the architecture by providing extensive context related to the architectural style, in addition to a thorough assessment of the building's design and composition as part of its evaluation. However, SWCA disagrees with the evaluation under Criterion 1, which states that the BVHM School campus is "important in the local history of education" in part because of the school's legacy, which is associated with an earlier iteration of the school and predates the campus's construction. While the school was undoubtedly an important institution within the neighborhood, it is SWCA's opinion that this is typical of all neighborhood schools and in and of itself does not rise to a level of historical significance under this criterion (a full review of the evaluation is provided under the "Evaluation" subsection below). Despite the disagreement on Criterion 1, the apparent significance under Criterion 3 appears to qualify the BVHM School campus as a historical resource under CEQA.

As outlined above, SWCA finds the methodology used by Knapp Architects in the preparation of the HRE is generally consistent with the standard practices of the field of architectural history and guidance outlined by the NPS, OHP, and the Planning Department. However, there are some areas within the report where supplemental data, information, and analysis could be included to develop a complete and comprehensive analysis of the property's historical significance. Additionally, the report should be reviewed for typographical and formatting errors.

The following subsections address specifics related to key sections and elements within the HRE report.

[1] Knapp Architects, "Historic Resource Evaluation – Horace Mann School" (May 20, 2022), pp. 32–33.

Research Methodology

Overall, the preparation of the HRE employs a methodology that is consistent with architectural history standard practices. The contents of the report, namely the historic contexts and property specific information, were developed using a variety of primary and secondary sources that were collected at appropriate archives and research repositories, including building permits available through the San Francisco Department of Building Inspection; periodicals, Sanborn maps, and other source material available at the San Francisco History Center; architectural drawings and other on-file records with the San Francisco Unified School District (SFUSD); relevant contexts and previous studies available through the Planning Department; and a variety of online repositories. Additionally, the authors conducted a site visit of the property to document the existing conditions of the BVHM School campus using digital photographs.

The methodology section notes, "no research was conducted about the educational history of the school; to determine whether the curriculum, teaching methods, professional staff, community involvement or similar aspects of the educational operations in the building are historically important would require research beyond the scope of this document, as well as considerable background on citywide or statewide parallels."[2] Although this avenue of research would inform a relevant historic context and subsequent CRHR evaluation, SWCA acknowledges the level of research required for developing this context in sufficient detail is likely above and beyond the scope of this effort. For Knapp Architects to identify this potential research avenue as a potential area of future study is an appropriate solution, though SWCA also believes indications of potential significance under the theme of development of education in San Francisco would likely become apparent through typical property research, primarily through the extensive review of contemporaneous periodicals and newspapers.

While the HRE appears to be well researched and developed with appropriate acknowledgement of information gaps, some historic contexts were not fully explored; these areas are addressed specifically in the historic contexts subsection below. Despite this gap, the approach and development of the HRE are generally consistent with industry standard practices.

Architectural Descriptions and Documentation

In preparing the HRE, Knapp Architects documented the school's neighborhood context, component sections that form the building, representative interior spaces in each section of the school, and site features. The architectural descriptions are prepared in narrative format, which is consistent with industry practices. Several corresponding photographs illustrate the existing conditions outlined in the narrative; however, the provided photographs do not provide a comprehensive view of the campus nor of any of the component buildings. SWCA acknowledges the campus occupies nearly an entire city block and including that level of documentation can be cumbersome to report formatting but recommends additional photography be included to support understanding of the design and setting of the BVHM School campus and its CDFs. Typically, photographs of each exterior façade, contextual street views, and detail views of CDFs would be included within the report, either integrated into the architectural description section or provided as an appendix. As many interior areas of the school are not publicly accessible and there are likely security and safety issues surrounding the building's use as a school, limited photographic documentation of the interior spaces is appropriate for a potentially public facing document. If interior photos were included, these may need to be made confidential and redacted from any public copies. Additionally, although the report includes a single Sanborn map illustrating an early campus layout, the Description section would benefit from a site plan or annotated aerial plan view of the campus that identifies each component building to aid in the reader's understanding of the campus and evaluation of its significant features.

[2] Knapp Architects, "HRE," p. 2.

Historical Contexts and Property Histories

Most of the historical contexts have been presented with a high level of information that allows the subsequent historical evaluations to take place. For the most part, all contexts are robust and stated accurately using original narrative forms with appropriate citations. Observed information gaps in the research conducted for the preparation of the HRE are identified within some contexts, namely in the SFUSD pedagogical history and specific education programs implemented at the BVHM School campus. However, other apparent information gaps related to other historic context are not addressed. Insufficient information within historic contexts identified by SWCA includes:

- Development of the Mission District post-1924. While the San Francisco and Mission District neighborhood contexts thoroughly describe the initial development and settlement of the city and neighborhood, the information provided largely predates the construction of the BVHM School campus. SWCA recommends the discussion of the Mission District's history be refined/adjusted to present a greater focus on patterns of development or trends in the Mission District between 1924 and 1939 and post–World War II decades when, "more newcomers from Mexico moved into the district as residents of European descent departed," as noted in the brief paragraph summarizing development in the Mission District between the 1940s and the more recent past.[3] This would bring the context into a more relevant time frame for the subject school's existence than is provided in the draft rather than providing extensive information for periods of time that predate the subject building.
- Works Progress Administration and Public Works Agency. Discussion of the New Deal–era programs that facilitated the construction of the 1939 gymnasium and cafeteria additions is absent from the HRE. SWCA recommends research be undertaken to place the gymnasium and cafeteria built in 1939 within the context of New Deal–era programs, focusing locally on San Francisco, where many Works Progress Administration (WPA) and Public Works Agency (PWA) projects, including schools, were completed. SWCA acknowledges the likelihood these additions were significant examples of WPA and PWA projects in San Francisco is very low, although supporting context and subsequent evaluation to reflect this would be beneficial for the overall completeness of the HRE.

Specific to the property history, the HRE provides a robust narrative on the development of the BHVM School campus property, as well as the predecessor school of the same name. This section also weaves in specific contexts, including the bonds and funding sources used for developing the BVHM School campus and other San Francisco schools during the 1920s. The HRE provides a robust construction chronology and an adequate summary of the school's operations during the early years, including a list of various programs and extracurricular student clubs that were available. The only potential information gap is related to biographies for individual administrators or other noteworthy officials associated with the early operations of the school, although the HRE does acknowledge that no noteworthy individuals became apparent during research. SWCA acknowledges that discerning specific individuals of the dozens involved with the BVHM School campus would be onerous and outside the scope of the report and that the exploration of individuals associated with the school outside of any referred to in the reviewed contemporaneous newspaper accounts is most likely unnecessary. SWCA recommends the methodology section be updated include this omission to inform any future research and study.

In terms of section organization, SWCA observed that historic photographs of the BVHM School campus are included in the historic context section, which does not align with the surrounding narrative. For clarity, reformatting the section to include the historic photographs of the BVHM School campus in the property history section would better illustrate the evolution of the campus. Similarly, the HRE references various plan sets and drawings, including the original school drawings. To further inform the reader and illustrate the physical changes to the campus, inclusion of select drawings from those plan sets (site plans, elevations, floor plans, finish schedules, etc.) in an appendix would increase the understanding of the BVHM School campus and its evolution.

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[3] Knapp Architects, "HRE," p. 14.

Significance Evaluations

Criterion 1

In general, the discussion under Criterion 1 is brief and incomplete. The evaluation states the BVHM School campus is "prominently visible" and "fills a role in education and community life that has existed for about 150 years," referring to the preceding school building of the same name. Because of this, the HRE finds the BVHM School campus is significant under Criterion 1 for its association with the local history of education. SWCA disagrees with this assessment. First and foremost, the subject campus was constructed in 1924 and has no association with the previous school beyond sharing the same name. Additionally, the school's "prominent visibility" alone does not convincingly support an argument for significance. As the campus was undoubtedly a noteworthy institution within the community of the Mission District, this is commonplace of all educational facilities and does not individually exhibit historical significance related to the neighborhood or the development of education in San Francisco. The Mission District context as written does not provide an extensive history of the neighborhood and its development during the periods coinciding with the BVHM School campus construction and subsequent school operations. While further information within that context may suggest associations with important trends related to the development and history of the neighborhood, a subsequent review suggests this is not that case. Rather, the BVHM School campus appears to be a typical neighborhood school and does not rise to a level of significance for its associations within the development of San Francisco and the Mission District.

The evaluation under Criterion 1 also does not assess examine potential significance of the BVHM School campus within the context of the funding programs implemented by San Francisco that were responsible for school construction, including a 1918 bond measure, special tax increases, and other sources of capital. However, based on the robust contexts provided in the HRE, it is clear that the BVHM School campus does not have significant associations with these programs. The HRE clearly states the bonds and other programs from this period facilitated the construction of numerous schools throughout San Francisco. As part of this effort, the BVHM School campus was one of many constructed as part of these programs and does not rise to an individual level of significance. SWCA notes the evaluation does not include a discussion of the 1939 additions at the BVHM School campus within the context of the New Deal–era programs that facilitated their development. While the additions are unlikely to be significant under this context, primarily because of the vast number of extant buildings, structures, and other aspects of the built environment that reflect the work of the WPA and PWA within the San Francisco, the evaluation under Criterion 1 would benefit from an expanded discussion as such.

To support an argument for significance under Criterion 1, SWCA recommends that the discussion include an explanation of patterns of development or trends in the Mission District between 1924 and 1939, and post–World War II decades. Such evidence may support arguments under Criterion 1, and potentially under Criterion 2, if any educators or other individuals associated with the school made significant contributions. Conversely, if exploration of this period of history does not reveal such information, it would be appropriate to note such under the evaluation section.

For example, some schools in San Francisco have been found to be significant under Criterion 1 or similar criteria, including several recently designated San Francisco Landmarks, namely George Washington High School (600 32nd Avenue), which was built in the 1930s as a PWA-subsidized project and is also architecturally significant, and The Sunshine School, another school associated with the PWA program and "the first public school designed specifically for children with physical disabilities built west of the Rockies."[4] Thus, significance under Criterion 1 considers an educational institution's role in the development of education or broader development trends and should go beyond acknowledgment of apparent operational longevity; an aspect shared by several public schools in the city of San Francisco.

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[4] San Francisco Planning Department, "Landmark Designation Case Report," Cases 2017-000965DES: 460 Arguello Blvd. (Theodore Roosevelt Middle School), 2016-013562DES: 600 32nd Avenue (George Washington High School), 2006.1465L: 2728 Bryant Street (Sunshine School), October 18, 2017. https://commissions.sfplanning.org/hpcpackets/New%20Deal%20Schools_101817.pdf.

Finally, if determined to appear significant under Criterion 1, the criterion discussion should include a period of significance that aligns with the property's association to thematic context(s).

Criterion 2

Regarding Criterion 2 (Persons), SWCA agrees with Knapp Architects' finding that the property does not appear to be significant for having an association to an individual who has made important contributions to history. Many educators, administrators, district staff, and students have occupied the campus since the 1920s, with the building representing the contributions of many, without an apparent strong association to a particular individual. This includes Horace Mann, who bears no association with building outside of memorialization and commemoration.

Criterion 3

Regarding Criterion 3 (Architecture), the report is thoroughly researched in terms of its examination of architectural context relating to the building's style, type, associated principal architects (Reid and later Bakewell) and uses an extensive mixture of appropriate primary and secondary sources, many of which have been acquired from local archival sources and online repositories. The research informs the relevant historical architectural contexts and background histories essential to preparing a complete and accurate assessment of historical significance under Criterion 3. Foremost, SWCA concurs with the HRE's evaluation that the BVHM School campus is a significant example of Classical Revival architecture, particularly its application for a school building. The HRE evaluation provides extensive analysis to illustrate this significance.

Areas where the evaluation could be improved and amended include expansion of the BVHM School campus as a potentially significant example within Reid, Jr.'s, body of work as a "master architect." This would involve consideration of Reid, Jr.'s, career as City Architect, with a focus on the schools that he is known to have designed or supervised construction. Nonetheless, without this determination, the property would still qualify under Criterion 3 as a significant example of its type and style. SWCA agrees with the HRE that the property does not represent a significant work of Bakewell, who designed the 1939 addition, which was a relatively minor project within Bakewell's extensive body of work. At the same time, the evaluation does not discuss any potential associations with New Deal–era architecture or property types. SWCA recommends the evaluation under Criterion 3 be amended to consider these associations but recognizes that further significance, particularly related to the New Deal–era design of the additions, is unlikely.

Lastly, the HRE does not provide a period of significance for the proposed areas of significance identified under Criteria 1 and 3. With SWCA's disagreement regarding the significance under Criterion 1, a recommended period of significance relevant to that criterion. Resultingly, SWCA has not provided a period of significance under Criterion 1 to supplement the analysis in the HRE. However, SWCA agrees with the HRE's evaluation of the BVHM School campus under Criterion 3 as a significant example of a Classical Revival style school. As such, SWCA recommends a period of significance associated with the building's construction, which most reflects the original Classical Revival style, in 1924.

Integrity Analysis

The integrity analysis follows standard best practices for considering the retention of integrity for resources that appear eligible for the CRHR. SWCA agrees with the integrity analysis statement and approach followed by Knapp Architects.

Character-Defining Features

With respect to identified CDFs, Knapp Architects organizes the CDFs into Site, Footprint, Massing; Façades; and Interior groupings, with select identification of specific features on individual building masses, such as the classroom wing's stair towers. Although this approach is rational given that the school has a cohesive architectural composition, the HRE does not establish a period of significance for the BVHM School campus that could inform overall understanding of the building's significance and the appropriate CDFs. Furthermore, SWCA's assessment of the CDFs identified in the HRE is clouded further by the disagreement regarding the significance under Criterion 1.

Generally, SWCA agrees with the list of identified CDFs related to the exterior of the BVHM School campus. All these elements are tied to the original design of the building and embody its historical significance. As for the interior spaces identified, this is also largely true, although the identifications of closets in classrooms as a CDF is debatable. It is the opinion that such spaces would be of a secondary or tertiary nature, if considered a CDF at all. SWCA would also clarify that the 1939 additions, while not CDFs related to the building's period of significance, are generally compatible with the original design, vocabulary, and style of the original portion of the BVHM School campus. They neither contribute to the building's historical significance, nor do they necessarily detract from that architectural significance. To clarify some of these nuances within the building, the CDF section presented in the HRE would benefit from an explanation of the additions in relation to the significant qualities of the overall campus.

CONCLUSION

SWCA architectural historians who meet the Secretary of the Interior's Professional Qualification Standards in architectural history and history reviewed the HRE report prepared by Knapp Architects for completeness and accuracy. Overall, SWCA finds the report generally meets relevant industry standards and practices, as outlined by guidance documents published by the NPS, OHP, and Planning Department.

SWCA generally concurs with the HRE evaluation of historical significance under Criteria 2 and 3 but disagrees with the recommended CRHR eligibility under Criterion 1. While information gaps were observed in the context, SWCA acknowledges expansion of these contexts, although beneficial to increase understanding of the campus's history, would be unlikely to generate information that demonstrates significance associations under that criterion. Overall, SWCA agrees with the assessment that the BVHM School campus is eligible for listing in the CRHR under Criterion 3 as an example of a Classical Revival–style school campus and recommends a period of significance of 1924, which coincides with construction of the building as originally designed. As such, SWCA concurs that the BVHM School campus qualifies as a historical resource under CEQA.

Sincerely,

Daniel Herrick
Project Manager – Architectural History
Email: dan.herrick@swca.com

SFUSD SAN FRANCISCO PUBLIC SCHOOLS

Proposition A 2016 Bond Program
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

ATTACHMENT D

SECRETARY'S STANDARDS PROJECT REVIEW AND IMPACTS SCREENING MEMORANDUM—DECEMBER 2023

Buena Vista Horace Mann K-8 School

Proposition A 2016 Bond Program
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

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December 13, 2023

Licinia Iberri, Bond Program Director
San Francisco Unified School District
135 Van Ness Avenue, Room 207
San Francisco, California 94102
Submitted via email: iberril@sfusd.edu

Re: Memorandum for the Record, *Secretary's Standards* Project Review and Impacts Screening for Buena Vista/Horace Mann K-8 School, San Francisco Unified School District / Contract No. 5635

Dear Licinia Iberri:

SWCA Environmental Consultants (SWCA) has prepared this Memorandum for the Record (memo) to present the findings of a *Secretary of the Interior's Standards for the Treatment of Historic Properties* (*Secretary's Standards*) review for a planned modernization of the Buena Vista/Horace Mann (BVHM) Middle School in San Francisco (project). This memo was prepared by SWCA Senior Architectural Historian Debi Howell-Ardila, MHP, with input and review by SWCA Lead Historic Preservation Specialist, Daniel Herrick, MHC; D. Howell-Ardila and D. Herrick exceed the Secretary of the Interior's Professional Qualifications Standards for history and architectural history.

The findings presented in this memo are based on research/literature review, a site walk with the project design team, identification of character-defining features and contributors/noncontributors, and an analysis of 50% Design Development plans. For the plan review, SWCA focused on the project components most likely to directly and/or indirectly affect character-defining features (other site improvements, minor changes, and interior remodeling that does not involve character-defining features were not examined). This review sought to determine whether the principal project elements comply with the *Secretary's Standards*. Per Section 15331 of the California Environmental Quality Act (CEQA) Guidelines, a project in conformance with the *Secretary's Standards* is generally considered a project that will not cause a significant adverse impact to historical resources.

Based on this analysis, the project components most likely to directly and/or indirectly affect character-defining features either comply or can be brought into compliance with the *Secretary's Standards*; in several instances, including window rehabilitation and restoration of historic masonry (e.g., decorative urns on Building B1, terra cotta tilework on Building D), recommendations have been made for treatment approaches that would facilitate ongoing compliance with the *Secretary's Standards*. Therefore, as the project complies with the *Secretary's Standards*, implementation of the project would result in less-than-significant impacts.

This memo includes an Executive Summary; a Historical Resource Overview, including a description of contributing components and character-defining features; a *Secretary's Standards* Project Review, including recommendations for ongoing compliance; an Impacts Screening, to gauge the potential for direct or indirect significant adverse impacts to historical resources; and a Conclusion.

Should you have any questions about the contents of this memo, please contact D. Howell-Ardila at debi.howell@swca.com or (626) 524-1917.

Sincerely,

Debi Howell-Ardila, MHP
Senior Architectural Historian/Preservation Planner

Peter A. Mye, M.U.R.P.
Principal Environmental Planner

EXECUTIVE SUMMARY

Campus Overview

Campus Name:	Buena Vista/Horace Mann K-8 School
Property Address:	3351 23rd Street and 1241 Valencia Street Assessor's Block 3643, Lot #034
Date(s) of Construction:	1924; 1939
Historic Resource Status:	Eligible for California Register of Historical Resources (CRHR); California Historic Resource Status Code, 3S3
Source of Historic Resources Evaluation:	"Historical Resource Evaluation: Horace Mann School," 5/20/2022, Knapp Architects "Peer Review of Knapp Architects Draft Historic Resource Evaluation," 1/27/2023, SWCA Environmental Consultants
Significance Criteria:	CRHR Criterion 3
Period of Significance:	1924

Secretary's Standards Project Review, Overview of Findings

Applicable treatment approach:	Rehabilitation
Principal project components comply with *Secretary's Standards*?[1]	Yes; the principal project components would comply with the *Secretary's Standards for Rehabilitation*.
Are project modifications or treatment recommendations needed to facilitate *Secretary's Standards* compliance?	Yes; see recommendations in Table 3.
Are impacts to historical resources likely due to project implementation?	No; none of the project components would be expected to result in significant direct or indirect adverse impacts.

[1] Weeks, K. D., and A. E. Grimmer. 2001. *Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. U.S. Department of the Interior, Washington, D.C. Available at: http://www.nps.gov/tps/standards/rehabilitation/rehabilitation-guidelines.pdf. Per State CEQA Guidelines Section 15331, a project shown to conform with the *Secretary's Standards* is generally considered a project that will not cause a significant adverse impact to historical resources.

1. HISTORICAL RESOURCE OVERVIEW

The BVHM K-8 School is eligible for listing in the CRHR under Criterion 3 as an example of a Classical Revival-style institutional property. The period of significance is 1924, which marks construction of the original campus.

Contributing/Noncontributing Elements

Contributing elements are Building A (Main Academic Building), Building B1 (Auditorium), Building B2 (Girl's Gymnasium), Building C1, and Building D (the covered arcade). Constructed outside of the period of significance, Buildings C2 and C3 are not contributing elements to the historical resource.

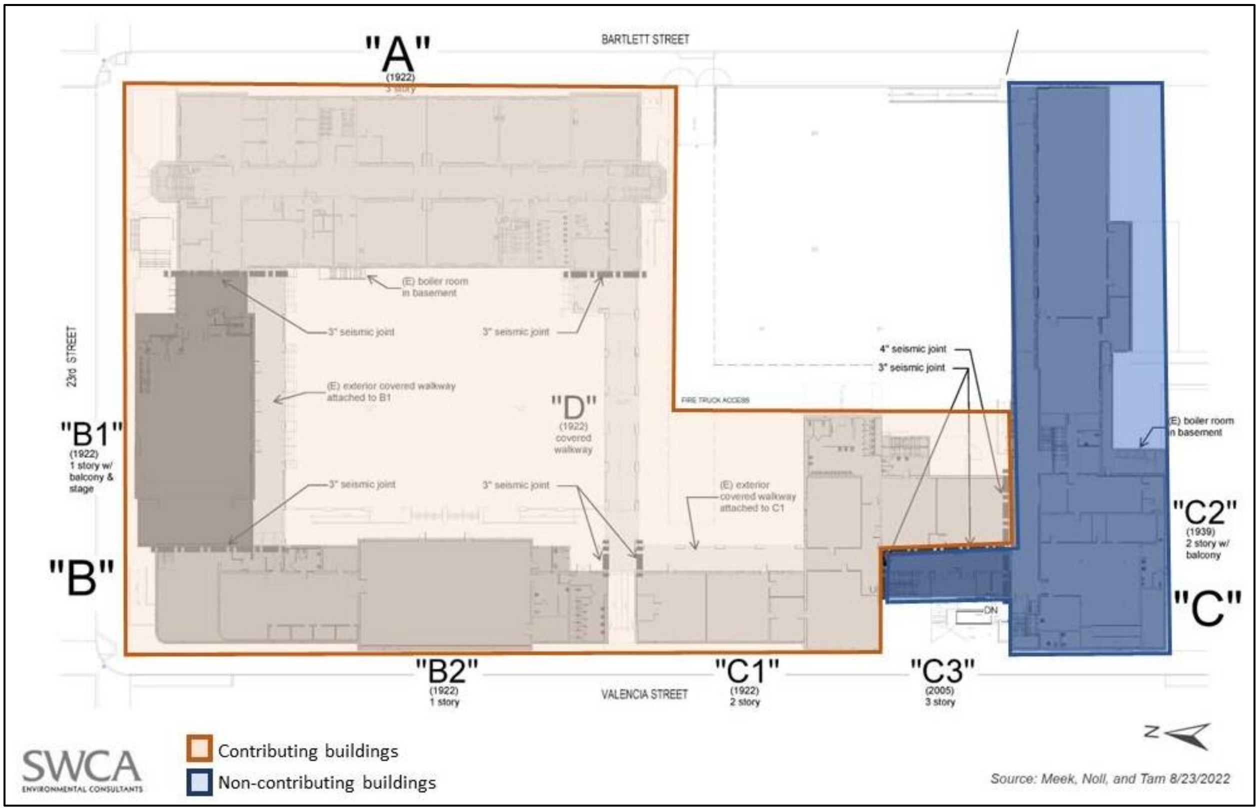


Figure 1. Contributing and noncontributing features at BVHM K-8 School.

Character-Defining Features

The starting point for effective preservation review is the identification of a historic property's "character-defining," or historically significant, features. Character-defining features refer to those physical materials and spaces that fall within the period of significance and convey the reasons for a resource's significance. Under CEQA, significant adverse impacts to historical resources include the loss of character-defining features such that the resource loses its historic integrity and is no longer eligible for federal, state, or local landmark listing. Therefore, identifying character-defining features is key to proactively avoiding impacts and planning sensitive modifications and upgrades to historic properties.

Table 1 presents the character-defining features of BVHM K-8 School, focusing on those principal project areas and assigning levels of significance (primary, secondary, and tertiary).

Table 1. Primary, Secondary, and Tertiary Character-Defining Features at BVHM K-8 School

Type	Primary	Secondary	Tertiary
Shape/Form	• Generally symmetrical design composition and uniform rhythm of roof forms, massing, and wall/window openings, reflecting location of classrooms and interior use/program • U-shaped site plan with buildings along perimeter forming a central courtyard/recreational space • Orthogonal building footprints and site plan • 1- to 3-story building heights • Use of arcades as circulation corridor and connection point for U-shaped site plan	• Curved building corner at 23rd and Valencia Streets • Secondary entrance (facing Valencia Street) • Hardscaping, landscaping, and circulation corridor features in interior courtyard • Central, articulated main entrance on 23rd Street, recessed in entrance porch and elevated on stairs	N/A
Roofs	• Variety of roof forms, including hipped, side-gable, and clipped side-gable roofs, and segments with flat roofs • Eaves terminate primarily in very minimal projecting eaves accented with stepped molding	• Original tile roofing materials where extant • Molded gable apexes	• Roof vents
Openings	• Location of main entrance, facing 23rd Street • Grouped, recessed multi-light windows on public-facing elevations • Incorporation of large-scale arches for window openings	• Symmetrical rhythm of window openings on courtyard-facing elevations; fenestration is not original or contributing but the location, size, and pattern of wall openings is original and character defining • At interior courtyard, paired secondary entrances, flush with the ground and flanked with rectangular side lights and transoms	• Secondary entrance with simple metal gate on Valencia Street (west) elevation • Single, metal personnel doors with unadorned frames
Projections	• Projecting stair towers on the north and south elevations of classroom wing • Projecting secondary entrance to Building A (classroom wing), with covered porch	• Balconette at second-story landing of classroom, west (courtyard-facing) elevation • Projecting, sheltered entrances to classroom wing (west elevation), with square post supports with molded cornices and bases, tile panels (painted over)	• Bay window, third floor of classroom wing, west (courtyard-facing) elevation

Type	Primary	Secondary	Tertiary
Trim and Architectural Details and Features	• Classical detailing, including dentil course dividing stories; two sets of urns resting post supports; string courses/molding, simulating cornice line and base; scored/grooved cementitious wall sheathing, resembling quoining; columns; pilasters with molded cornices and bases • Wood window surrounds where extant • Arcade porch supports, consisting of square posts with molded cornices and bases, and central tile panels (painted over)	• Use of color to differentiate floors and features	• Metal water pipes and drains
Materials	• Smooth cementitious wall sheathing • Wood framing and surrounds for fenestration • Steel framing for fenestration • Ornamental detailing in masonry and cementitious materials	• Tile work (assumed to be terra cotta panels, painted over) centered on arcade post supports	• Concrete pathways • Painted exterior walls
Setting	• Minimal setbacks and landscaping features along sidewalks	N/A	N/A
Interior	• Auditorium, with open, high ceiling; full-height arched windows; original wood-plank floors; proscenium/stage; decorative detailing framing stage; and at wall-ceiling juncture	• Hallways, such as near the main office, with original wainscotting, wood paneling, and bulletin board/display case, where extant • Auditorium, mezzanine stairs, and original wood seating	• Double-loaded classroom configuration

2. *SECRETARY'S STANDARDS* PROJECT REVIEW

This section assesses the proposed project for compliance with the *Secretary's Standards*. The *Secretary's Standards* offer recommendations for preserving, maintaining, repairing, and replacing historical materials and features, as well as designing new additions.

Among the four treatment approaches in the *Secretary's Standards*—reconstruction, preservation, restoration, and rehabilitation—rehabilitation is the most flexible allowing for compatible uses. Rehabilitation is the treatment approach deemed appropriate for modernization of BVHM K-8 School.

Descriptions of the 10 *Standards for Rehabilitation* are included below, and details on each principal project component, including affected character-defining features, and recommended treatment approaches to facilitate compliance, follow in Table 2.

Standard No. 1: *A property shall be used for its historic purpose or placed in a new use that requires minimal change to defining characteristics of the building and its site/environment.*

Standard No. 2: *The property's historic character shall be retained and preserved. Removal of historic materials/alteration of features/spaces that characterize a property shall be avoided.*

Standard No. 3: *Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.*

Standard No. 4: *Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.*

Standard No. 5: *Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.*

Standard No. 6: *Deteriorated historic features shall be repaired rather than replaced. Where severity of deterioration requires replacement, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.*

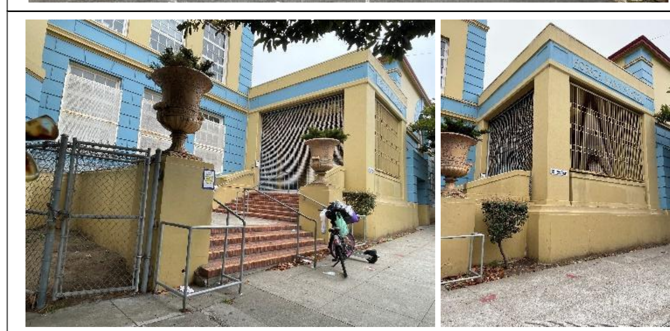
Standard No. 7: *Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures . . . shall be undertaken using the gentlest means possible.*

Standard No. 8: *Significant archeological resources affected by a project shall be protected and preserved. If resources must be disturbed, mitigation measures shall be undertaken.*

Standard No. 9: *New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.*

Standard No. 10: *New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

Table 2. *Secretary's Standards* Project Review, Overview of Principal Project Components, Character-Defining Features, and Recommended Treatment Approaches at BVHM K-8 School

	Location | Project Component	Affected and/or Adjacent Character-Defining Features	Retains Character-Defining Features?	Complies with *Secretary's Standards*?	Recommended Treatment Approaches for Ongoing *Secretary's Standards* Compliance
	**Buildings A, B1, B2, C1, C2, and C3** Window Rehabilitation and Replacement Window rehabilitation and replacement will improve energy efficiency of windows throughout campus; the project includes the retention of historic wood-windows on the primary elevation of the school; aluminum-framed windows will replace wood-framed windows in some locations with applied muntins to mimic original divided lights. The project will provide a more consistent window design throughout campus, which presently includes a mix of configurations, framing and muntin patterns, and materials. Materials currently blocking character-defining windows, including double-height arched windows in the auditorium and along the west elevation, will be removed to restore appearance and function. Solar-control glazing will be installed. The previous wholesale replacement of windows and frames throughout campus will be updated to reflect a design that is more compatible and complementary to the original features.	• Original, multi-light, wood- and steel-framed windows, including operable awning casements, transoms, and arched windows • Adjacent character-defining features include decorative pilasters marking the division of windows (such as on the east elevation of Building B); smooth, unadorned wall openings; and scored concrete (resembling masonry and quoining) along ground story and at building corners • Project would also replace nonoriginal windows, including aluminum-framed glazing facing courtyard and arched windows on north elevation	Yes	Yes, with recommended treatment approaches incorporated into project plans. See Rehabilitation Standards Nos. 2, 5, 6, and 7.	• The project component would be expected to comply with the *Secretary's Standards* through (1) the planned retention and rehabilitation of original wood-framed windows; (2) the replacement of nonoriginal, noncompatible window frames with more appropriate framing patterns, thickness, and profiles, including use of applied muntin to simulate multi-light fenestration; (3) the unblocking of character-defining windows; and (4) the use of press-on muntins to re-create the original divided lights in window replacements. • To facilitate ongoing compliance with the *Secretary's Standards*, the contractor will plan, implement, and monitor demolition activities to proactively avoid and minimize unanticipated damage to character-defining features. • See Appendix A for further guidance from the *Secretary's Standards* on the treatment approaches for historic windows and window replacements.
	**Buildings A, B2, C1, C2, and C3** Full structural seismic renovation of Buildings A, B2, C1, C2, and C3, including new bracing and shotcrete applied to existing shear walls	• No character-defining features will be directly or indirectly affected by this project component; seismic upgrades will take place above the ceiling and within walls, or at the interior, where several rooms will receive a new 6 inch shotcrete wall overlay	Yes	Yes	• Seismic stabilization will be designed for no/minimal visual impacts to historic character-defining features and this project component would be expected to comply with the *Secretary's Standards.* • To facilitate ongoing compliance with the *Secretary's Standards*, the contractor will plan, implement, and monitor demolition activities to proactively avoid and minimize unanticipated damage to character-defining features.
	**Building B1, Main Entrance Block** Alterations to the existing entrance porch at the primary 23rd Street entrance, to enhance accessibility. Remove incompatible, nonoriginal grating and porch supports on north entrance porch. Reconstruct historic decorative columns on west side of entrance porch. Reconstruct historic decorative balustrade. Remove and replace existing noncompliant sloped sidewalk with new concrete landing.	• One-story mass; decorative recessed band at roof line, aligned with that of Building A; large openings on east and north sides; smooth concrete/plaster exterior walls; connection point between Buildings A and B	Yes	Yes, with recommended treatment approaches incorporated into project plans. See Rehabilitation Standards Nos. 2, 3, 5, and 9.	• The reconstruction of historic decorative columns and historic decorative balustrade on the west side of entrance porch will be recreated on the basis of documentary or physical evidence (i.e., original drawings/plans or historic photographs) rather than conjecture. • To facilitate ongoing compliance with the *Secretary's Standards*, the contractor will plan, implement, and monitor demolition activities to proactively avoid and minimize unanticipated damage to character-defining features.

	Location | Project Component	Affected and/or Adjacent Character-Defining Features	Retains Character-Defining Features?	Complies with *Secretary's Standards*?	Recommended Treatment Approaches for Ongoing *Secretary's Standards* Compliance
 	**Building B1, North and South Elevation** Decorative historic urns (at least two, including flanking the 23rd Street entrance and the secondary entrance on the south side of Building B) will be retained and restored. Protect and strip off existing paint, clear matte seal finish.	• Historic urns, including decorative carving, detailing, and square post supports	Yes	Yes, with recommended treatment approaches incorporated into project plans. See Rehabilitation Standards Nos. 6 and 7.	• Use gentlest means possible for paint prep and removal (to next sound layer); select finish that is compatible with masonry/material and that reflects original finish. • To facilitate ongoing compliance with the *Secretary's Standards*, the contractor will plan, implement, and monitor restoration activities to proactively avoid and minimize unanticipated damage to character-defining masonry and carving/architectural detailing. • Campus construction activities will also be planned to avoid inadvertent damage to historic urns on north and south elevations of Building B1. • See Appendix A for further guidance from the *Secretary's Standards*.
	**Building C4** Demolition of 1939 Cafeteria Building. Construction of a new two-story cafeteria and classroom building in its place.	• None (the Cafeteria, constructed in 1939, is a noncontributing element of the historic campus, built after the 1924 period of significance) • Adjacent character-defining features include Building C1 and Building D (covered walkway)	Yes	Yes	• The replacement building would feature a contemporary style, stepped-back massing, and a variety of materials that are compatible and differentiated from the campus's contributing features. It would be visually subordinate to the contributing components and features of the campus. • This project component would be expected to comply with the *Secretary's Standards*
 	**Building D, Covered Walkway** Structural strengthening; remove and replace column brackets after structural work. Provide new panel at underside of soffit after structural work, to match existing. Remove existing paint from tiles; replace with compatible, new art tiles that match the shape and orthogonal pattern of extant tiles.	• Covered walkway • Square post supports, with molded base and capital detailing • Use of decorative tilework, in orthogonal pattern, on porch supports	Yes	Yes, with recommended treatment approaches incorporated into project plans. See Rehabilitation Standards Nos. 6 and 7.	• Use gentlest means possible for paint preparation and removal (to next sound layer); select finish/surface protection that is compatible with the material and that reflects original finish. • To facilitate ongoing compliance with the *Secretary's Standards*, the contractor will plan, implement, and monitor restoration activities to proactively avoid and minimize unanticipated damage to character-defining posts, molded base and capital detailing. • Campus construction activities will also be planned to avoid inadvertent damage to the features of the covered walkway. • See Appendix A for further guidance from the *Secretary's Standards*.
 	**Secondary Entrance at Juncture of Building B2 and C1, West Elevation** New entrance porch shelter with metal sign and hipped roof and clay tile to match clay tile of big gym to be added to secondary entrance facing Valencia Street, at juncture of Building B2 and C1.	• Extant gate at the Valencia Street entrance is not a contributing feature of the historical resource • Adjacent character-defining features include the posts/building corners, with molded capitals and scoring to resemble masonry	Yes	Yes	• Changes to this secondary entrance would retain the existing spatial relationships that characterize the entrance, with its opening between the buildings and articulated, molded building corners simulating columns with capitals and scoring. • The new secondary entrance shelter would be reversible such that, if removed in the future, the essential form of the historical resource and character-defining features would remain intact. • This project component would be expected to comply with the *Secretary's Standards*.

	Location | Project Component	**Affected and/or Adjacent Character-Defining Features**	**Retains Character-Defining Features?**	**Complies with *Secretary's Standards*?**	**Recommended Treatment Approaches for Ongoing *Secretary's Standards* Compliance**
   	**Campuswide** Site improvements, to include installation of new ramps and stairs, regrading asphalt pavement for accessibility and addition of permeable pavement, adding vegetation planters and bioretention areas, and reprogramming schoolyard spaces.	• Central courtyard, formed by the continuous U-shape of Buildings A, B1, B2, and D; spatial relationships between buildings, open spaces, and circulation corridors; open sight lines across campus • Concrete stairs with metal handrails	Yes	Yes	• Changes to the site plan retain the spatial relationships between buildings, open/recreational space, hardscaping, and circulation corridors. • This project component would be expected to comply with the *Secretary's Standards*.
	**Interior, Auditorium** Interior upgrades in the auditorium include repainting, in an approach that retains decorative features, as well as refinishing and repairing original wood-plank floors. Small storage room will be added to auditorium in back corner near entrance, with no impacts to adjacent character-defining features. Original historic seating at mezzanine level will be retained.	• Auditorium, with open, high ceiling; full-height arched windows; original wood-plank floors; proscenium/stage; decorative detailing framing stage and juncture of walls and ceiling	Yes	Yes	• Proposed changes would retain character-defining features and materials. • This project component would be expected to comply with the *Secretary's Standards*.

3. IMPACTS SCREENING

This section assesses the overall project for its potential to cause a potential significant adverse impact and material impairment to historical resources, based on the provisions of State CEQA Guidelines Section 15064.5. Material impairment implies that a historical resource would no longer be eligible as a landmark at the federal, state, and/or local levels.

The assessment of significant adverse impacts starts with a consideration of the historic integrity of the resource. Historic integrity is defined in National Register Bulletin 15 as the "ability of a property to convey its significance."[2] In order to assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity.

To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

1. **Location:** the place where the historic property was constructed or the place where the historic event occurred;
2. **Design:** the combination of elements that create the form, plan, space, structure, and style of a property;
3. **Setting:** the physical environment of a historic property;
4. **Materials:** the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. **Workmanship:** the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
6. **Feeling:** a property's expression of the aesthetic or historic sense of a particular period of time; and
7. **Association:** the direct link between an important historic event or person and a historic property.

Each of the seven aspects of integrity are included in Table 3, which considers the existing level of retention of integrity and the level of integrity following project completion.

[2] National Park Service (NPS). 1990. *National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation*, p. 44. U.S. Department of the Interior, National Park Service, Washington, D.C.

Table 3. Impacts Screening and Historic Integrity Assessment at BVHM K-8 School

Integrity Aspect	Current Conditions	Following Implementation of Proposed Project
Location	The current building has not been moved and retains integrity of location.	The building would be preserved in place. Therefore, it would retain integrity of location.
Design	Although diminished through the removal and replacement of original windows (including on the north elevation of Building B1 and the west elevation of Building A, which display aluminum-frame windows), the building retains integrity of design.	The contributing features to the historical resource—Buildings A, B1, B2, C1, and D—would be preserved in place. Several aspects of the design would be enhanced through the removal of non-character-defining aluminum-framed windows and blocked windows, and the historic urns on the north and south elevations of Building B1 would be restored. Other changes to the contributing buildings of the campus are expected to comply with the *Secretary's Standards*. Therefore, it would retain integrity of design.
Setting	The current building retains integrity of setting. While the physical environment of the surrounding area has changed and become more densely developed, on the whole, it appears largely as it did throughout the operation of the structure.	The visual character of the subject property and its setting and surroundings would not change. Therefore, the property would retain integrity of setting.
Materials	Although diminished through the removal and replacement of original windows (including on the north elevation of Building B1 and the west elevation of Building A, which display aluminum-frame windows), the building retains integrity of materials on the whole.	The contributing features of the historical resource would be preserved, and new construction will have limited impact on historic materials. Restoration of character-defining materials will include the historic urns and the removal of paint and retention of decorative tile panels on arcade post supports. Therefore, the property would retain integrity of materials.
Workmanship	The campus overall retains integrity of workmanship, though somewhat diminished through alterations to the principal entrance at 23rd Street and the removal and replacement of original windows facing the courtyard.	The campus would retain its integrity of workmanship. It would retain the physical aspects that convey its workmanship, and elements that were previously altered and/or replaced will be restored, including, but not limited to, the columns and balustrade on the west elevation of the principal 23rd Street entrance. Therefore, the property would retain integrity of workmanship.
Feeling	The campus overall retains integrity of feeling. It continues to express its original function and use, as a 1920s school, designed in the Classical Revival style.	The feeling of the campus is not expected to change due to project implementation. Therefore, the property would retain integrity of feeling.
Association	The campus retains integrity of association. It possesses those physical features that convey its historic character and still serves the same use it has for over a century.	The campus would still retain integrity of association following project implementation, will retain those physical features that convey its historic association, and will still serve the same use it has for over a century.

4. CONCLUSION

This memo presents the findings of a *Secretary's Standards* project review for a planned modernization of BVHM K-8 School in San Francisco. For the plan review, SWCA focused on the principal project components most likely to directly and/or indirectly affect character-defining features. This review sought to determine whether the principal project elements comply with the *Secretary's Standards*. Per State CEQA Guidelines Section 15331, a project in conformance with the *Secretary's Standards* is generally considered a project that will not cause a significant adverse impact on historical resources.

Based on this analysis, the principal project components either comply or can be brought into compliance with the *Secretary's Standards*; in several instances, including window rehabilitation and restoration of historic masonry (e.g., decorative urns on Building B1), recommendations have been made for treatment approaches that would facilitate ongoing compliance with the *Secretary's Standards*. Therefore, as the project complies with the *Secretary's Standards*, implementation of the project would not be expected to result in significant adverse impacts and this project would qualify for a Class 31 Categorical Exemption under CEQA.

APPENDIX A

Excerpt from
Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings, 2017

GUIDELINES FOR REHABILITATING HISTORIC BUILDINGS

INTRODUCTION

In **Rehabilitation,** historic building materials and character-defining features are protected and maintained as they are in the treatment Preservation. However, greater latitude is given in the **Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings** to replace extensively deteriorated, damaged, or missing features using either the same material or compatible substitute materials. Of the four treatments, only **Rehabilitation** allows alterations and the construction of a new addition, if necessary for a continuing or new use for the historic building.

Identify, Retain, and Preserve Historic Materials and Features

The guidance for the treatment **Rehabilitation** begins with recommendations to identify the form and detailing of those architectural materials and features that are important in defining the building's historic character and which must be retained to preserve that character. Therefore, guidance on ***identifying, retaining, and preserving*** character-defining features is always given first.

Protect and Maintain Historic Materials and Features

After identifying those materials and features that are important and must be retained in the process of **Rehabilitation** work, then ***protecting and maintaining*** them are addressed. Protection generally involves the least degree of intervention and is preparatory to other work. Protection includes the maintenance of historic materials and features as well as ensuring that the property is protected before and during rehabilitation work. A historic building undergoing rehabilitation will often require more extensive work. Thus, an overall evaluation of its physical condition should always begin at this level.

Repair Historic Materials and Features

Next, when the physical condition of character-defining materials and features warrants additional work, ***repairing*** is recommended. **Rehabilitation** guidance for the repair of historic materials, such as masonry, again begins with the least degree of intervention possible. In rehabilitation, repairing also includes the limited replacement in kind or with a compatible substitute material of extensively deteriorated or missing components of features when there are surviving prototypes features that can be substantiated by documentary and physical evidence. Although using the same kind of material is always the preferred option, a substitute material may be an acceptable alternative if the form, design, and scale, as well as the substitute material itself, can effectively replicate the appearance of the remaining features.

Replace Deteriorated Historic Materials and Features

Following repair in the hierarchy, **Rehabilitation** guidance is provided for ***replacing*** an entire character-defining feature with new material because the level of deterioration or damage of materials precludes repair. If the missing feature is character defining or if it is critical to the survival of the building (e.g., a roof), it should be replaced to match the historic feature based on physical or historic documentation of its form and detailing. As with repair, the preferred option is always replacement of the entire feature in kind (i.e., with the same material, such as wood for wood). However, when this is not feasible, a compatible substitute material that can reproduce the overall appearance of the historic material may be considered.

It should be noted that, while the National Park Service guidelines recommend the replacement of an entire character-defining feature that is extensively deteriorated, the guidelines never recommend removal and replacement with new material of a feature that could reasonably be repaired and, thus, preserved.

Design for the Replacement of Missing Historic Features

When an entire interior or exterior feature is missing, such as a porch, it no longer plays a role in physically defining the historic character of the building unless it can be accurately recovered in form and detailing through the process of carefully documenting the historic appearance. If the feature is not critical to the survival of the building, allowing the building to remain without the feature is one option. But if the missing feature is important to the historic character of the building, its replacement is always recommended in the **Rehabilitation** guidelines as the first, or preferred, course of action. If adequate documentary and physical evidence exists, the feature may be accurately reproduced. A second option in a rehabilitation treatment for replacing a missing feature, particularly when the available information about the feature is inadequate to permit an accurate reconstruction, is to ***design*** a new feature that is compatible with the overall historic character of the building. The new design should always take into account the size, scale, and material of the building itself and should be clearly differentiated from the authentic historic features. For properties that have changed over time, and where those changes have acquired significance, reestablishing missing historic features generally should not be undertaken if the missing features did not coexist with the features currently on the building. Juxtaposing historic features that did not exist concurrently will result in a false sense of the building's history.

Alterations

Some exterior and interior alterations to a historic building are generally needed as part of a **Rehabilitation** project to ensure its continued use, but it is most important that such alterations do not radically change, obscure, or destroy character-defining spaces, materials, features, or finishes. Alterations may include changes to the site or setting, such as the selective removal of buildings or other features of the building site or setting that are intrusive, not character defining, or outside the building's period of significance.

Code-Required Work: Accessibility and Life Safety

Sensitive solutions to meeting code requirements in a **Rehabilitation** project are an important part of protecting the historic character of the building. Work that must be done to meet accessibility and life-safety requirements must also be assessed for its potential impact on the historic building, its site, and setting.

Resilience to Natural Hazards

Resilience to natural hazards should be addressed as part of a **Rehabilitation** project. A historic building may have existing characteristics or features that help to address or minimize the impacts of natural hazards. These should always be used to best advantage when considering new adaptive treatments so as to have the least impact on the historic character of the building, its site, and setting.

Sustainability

Sustainability should be addressed as part of a **Rehabilitation** project. Good preservation practice is often synonymous with sustainability. Existing energy-efficient features should be retained and repaired. Only sustainability treatments should be considered that will have the least impact on the historic character of the building.

The topic of sustainability is addressed in detail in *The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings.*

New Exterior Additions and Related New Construction

Rehabilitation is the only treatment that allows expanding a historic building by enlarging it with an addition. However, the **Rehabilitation** guidelines emphasize that new additions should be considered only after it is determined that meeting specific new needs cannot be achieved by altering non-character-defining interior spaces. If the use cannot be accommodated in this way, then an attached exterior addition may be considered. New additions should be designed and constructed so that the character-defining features of the historic building, its site, and setting are not negatively impacted. Generally, a new addition should be subordinate to the historic building. A new addition should be compatible, but differentiated enough so that it is not confused as historic or original to the building. The same guidance applies to new construction so that it does not negatively impact the historic character of the building or its site.

Rehabilitation as a Treatment. *When repair and replacement of deteriorated features are necessary; when alterations or additions to the property are planned for a new or continued use; and when its depiction at a particular time is not appropriate, Rehabilitation may be considered as a treatment. Prior to undertaking work, a documentation plan for Rehabilitation should be developed.*

WINDOWS

RECOMMENDED	NOT RECOMMENDED
Identifying, retaining, and preserving windows and their functional and decorative features that are important to the overall character of the building. The window material and how the window operates (e.g., double hung, casement, awning, or hopper) are significant, as are its components (including sash, muntins, ogee lugs, glazing, pane configuration, sills, mullions, casings, or brick molds) and related features, such as shutters.	Removing or substantially changing windows or window features which are important in defining the overall historic character of the building so that, as a result, the character is diminished. Changing the appearance of windows that contribute to the historic character of the building by replacing materials, finishes, or colors which noticeably change the sash, depth of the reveal, and muntin configurations; the reflectivity and color of the glazing; or the appearance of the frame. Obscuring historic wood window trim with metal or other material. Replacing windows solely because of peeling paint, broken glass, stuck sash, or high air infiltration. These conditions, in themselves, do not indicate that windows are beyond repair.
Protecting and maintaining the wood or metal which comprises the window jamb, sash, and trim through appropriate treatments, such as cleaning, paint removal, and reapplication of protective coating systems.	Failing to protect and maintain window materials on a cyclical basis so that deterioration of the window results.
Protecting windows against vandalism before work begins by covering them and by installing alarm systems that are keyed into local protection agencies.	Leaving windows unprotected and subject to vandalism before work begins, thereby also allowing the interior to be damaged if it can be accessed through unprotected windows.
Making windows weathertight by recaulking gaps in fixed joints and replacing or installing weatherstripping.	
Protecting windows from chemical cleaners, paint, or abrasion during work on the exterior of the building.	Failing to protect historic windows from chemical cleaners, paint, or abrasion when work is being done on the exterior of the building.
Protecting and retaining historic glass when replacing putty or repairing other components of the window.	Failing to protect the historic glass when making window repairs.

WINDOWS

RECOMMENDED	NOT RECOMMENDED
Sustaining the historic operability of windows by lubricating friction points and replacing broken components of the operating system (such as hinges, latches, sash chains or cords) and replacing deteriorated gaskets or insulating units.	Failing to maintain windows and window components so that windows are inoperable, or sealing operable sash permanently. Failing to repair and reuse window hardware such as sash lifts, latches, and locks.
Adding storm windows with a matching or a one-over-one pane configuration that will not obscure the characteristics of the historic windows. Storm windows improve energy efficiency and are especially beneficial when installed over wood windows because they also protect them from accelerated deterioration.	
Adding interior storm windows as an alternative to exterior storm windows when appropriate.	

[18] The historic metal storm windows in this 1920s office building were retained and repaired during the rehabilitation project.

[19] Installing a mockup of a proposed replacement window can be helpful to evaluate how well the new windows will match the historic windows that are missing or too deteriorated to repair.

[20 a-d] The original steel windows in this industrial building were successfully repaired as part of the rehabilitation project (left).

WINDOWS

RECOMMENDED	NOT RECOMMENDED
Installing sash locks, window guards, removable storm windows, and other reversible treatments to meet safety, security, or energy conservation requirements.	
Evaluating the overall condition of the windows to determine whether more than protection and maintenance, such as repairs to windows and window features, will be necessary.	Failing to undertake adequate measures to ensure the protection of window features.
Repairing window frames and sash by patching, splicing, consolidating, or otherwise reinforcing them using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated, broken, or missing components of features when there are surviving prototypes, such as sash, sills, hardware, or shutters.	Removing window features that could be stabilized, repaired, or conserved using untested consolidants, improper repair techniques, or unskilled personnel, potentially causing further damage to the historic materials. Replacing an entire window when repair of the window and limited replacement of deteriorated or missing components are feasible.
Removing glazing putty that has failed and applying new putty; or, if glass is broken, carefully removing all putty, replacing the glass, and reputtying.	
Installing new glass to replace broken glass which has the same visual characteristics as the historic glass.	
Replacing in kind an entire window that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. If using the same kind of material is not feasible, then a compatible substitute material may be considered.	Removing a character-defining window that is unrepairable or is not needed for the new use and blocking up the opening, or replacing it with a new window that does not match. Using substitute material for the replacement that does not convey the same appearance of the surviving components of the window or that is physically incompatible.

[21] The windows on the lower floor, which were too deteriorated to repair, were replaced with new steel windows matching the upper-floor historic windows that were retained.

WINDOWS

RECOMMENDED	NOT RECOMMENDED
Modifying a historic single-glazed sash to accommodate insulated glass when it will not jeopardize the soundness of the sash or significantly alter its appearance.	Modifying a historic single-glazed sash to accommodate insulated glass when it will jeopardize the soundness of the sash or significantly alter its appearance.
Using low-e glass with the least visible tint in new or replacement windows.	Using low-e glass with a dark tint in new or replacement windows, thereby negatively impacting the historic character of the building.
Using window grids rather than true divided lights on windows on the upper floors of high-rise buildings if they will not be noticeable.	Using window grids rather than true divided lights on windows in low-rise buildings or on lower floors of high-rise buildings where they will be noticeable, resulting in a change to the historic character of the building.
Ensuring that spacer bars in between double panes of glass are the same color as the window sash.	Using spacer bars in between double panes of glass that are not the same color as the window sash.
Replacing all of the components in a glazing system if they have failed because of faulty design or materials that have deteriorated with new material that will improve the window performance without noticeably changing the historic appearance.	Replacing all of the components in a glazing system with new material that will noticeably change the historic appearance.
Replacing incompatible, non-historic windows with new windows that are compatible with the historic character of the building; or reinstating windows in openings that have been filled in.	
The following work is highlighted to indicate that it is specific to **Rehabilitation** *projects and should only be considered after the preservation concerns have been addressed.*	
Designing the Replacement for Missing Historic Features	
Designing and installing a new window or its components, such as frames, sash, and glazing, when the historic feature is completely missing. It may be an accurate restoration based on documentary and physical evidence, but only when the historic feature to be replaced coexisted with the features currently on the building. Or, it may be a new design that is compatible with the size, scale, material, and color of the historic building.	Creating an inaccurate appearance because the replacement for the missing window is based upon insufficient physical or historic documentation, is not a compatible design, or because the feature to be replaced did not coexist with the features currently on the building. Installing replacement windows made from other materials that are not the same as the material of the original windows if they would have a noticeably different appearance from the remaining historic windows.

(a)

(b)

(c)

[22] **Not Recommended:** (a-b) The original wood windows in this late-19th-century building, which were highly decorative, could likely have been repaired and retained. (c) Instead, they were replaced with new windows that do not match the detailing of the historic windows and, therefore, do not meet the Standards (above).

[23] (a)This deteriorated historic wood window was repaired and retained (b) in this rehabilitation project.

WINDOWS

RECOMMENDED	NOT RECOMMENDED
Alterations and Additions for a New Use	
Adding new window openings on rear or other secondary, less-visible elevations, if required by a new use. The new openings and the windows in them should be compatible with the overall design of the building but, in most cases, not duplicate the historic fenestration.	Changing the number, location, size, or glazing pattern of windows on primary or highly-visible elevations which will alter the historic character of the building. Cutting new openings on character-defining elevations or cutting new openings that damage or destroy significant features. Adding balconies at existing window openings or new window openings on primary or other highly-visible elevations where balconies never existed and, therefore, would be incompatible with the historic character of the building.
Replacing windows that are too deteriorated to repair using the same sash and pane configuration, but with new windows that operate differently, if necessary, to accommodate a new use. Any change must have minimal visual impact. Examples could include replacing hopper or awning windows with casement windows, or adding a realigned and enlarged operable portion of industrial steel windows to meet life-safety codes.	Replacing a window that contributes to the historic character of the building with a new window that is different in design (such as glass divisions or muntin profiles), dimensions, materials (wood, metal, or glass), finish or color, or location that will have a noticeably different appearance from the historic windows, which may negatively impact the character of the building.
Installing impact-resistant glazing, when necessary for security, so that it is compatible with the historic windows and does not damage them or negatively impact their character.	Installing impact-resistant glazing, when necessary for security, that is incompatible with the historic windows and that damages them or negatively impacts their character.
Using compatible window treatments (such as frosted glass, appropriate shades or blinds, or shutters) to retain the historic character of the building when it is necessary to conceal mechanical equipment, for example, that the new use requires be placed in a location behind a window or windows on a primary or highly-visible elevation.	Removing a character-defining window to conceal mechanical equipment or to provide privacy for a new use of the building by blocking up the opening.

MASONRY: STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

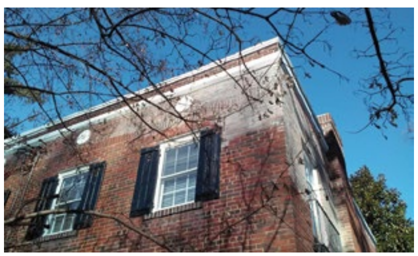
RECOMMENDED	NOT RECOMMENDED
Identifying, retaining and preserving masonry features that are important in defining the overall historic character of the building (such as walls, brackets, railings, cornices, window and door surrounds, steps, and columns) and decorative ornament and other details, such as tooling and bonding patterns, coatings, and color.	Removing or substantially changing masonry features which are important in defining the overall historic character of the building so that, as a result, the character is diminished. Replacing or rebuilding a major portion of exterior masonry walls that could be repaired, thereby destroying the historic integrity of the building. Applying paint or other coatings (such as stucco) to masonry that has been historically unpainted or uncoated to create a new appearance. Removing paint from historically-painted masonry.
Protecting and maintaining masonry by ensuring that historic drainage features and systems that divert rainwater from masonry surfaces (such as roof overhangs, gutters, and downspouts) are intact and functioning properly.	Failing to identify and treat the causes of masonry deterioration, such as leaking roofs and gutters or rising damp.
Cleaning masonry only when necessary to halt deterioration or remove heavy soiling.	Cleaning masonry surfaces when they are not heavily soiled to create a "like-new" appearance, thereby needlessly introducing chemicals or moisture into historic materials.
Carrying out masonry cleaning tests when it has been determined that cleaning is appropriate. Test areas should be examined to ensure that no damage has resulted and, ideally, monitored over a sufficient period of time to allow long-range effects to be predicted.	Cleaning masonry surfaces without testing or without sufficient time for the testing results to be evaluated.

[1] An alkaline-based product is appropriate to use to clean historic marble because it will not damage the marble, which is acid sensitive.

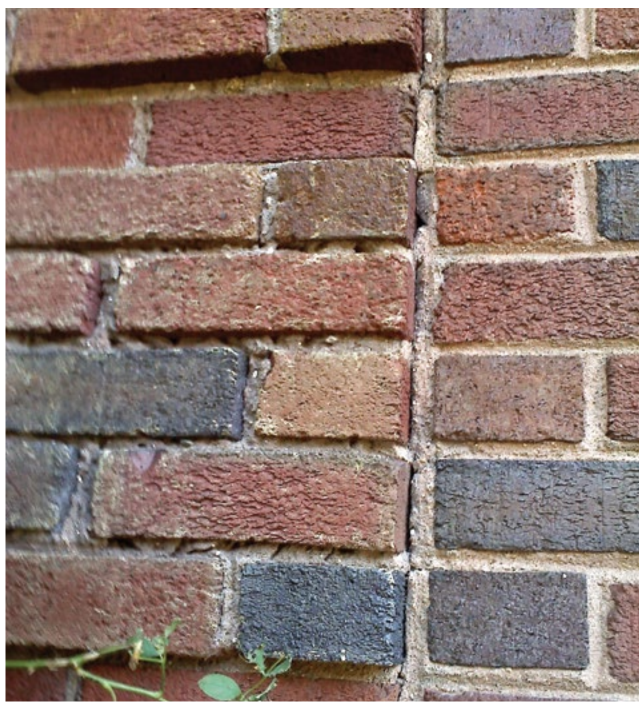
[2] Mid-century modern building technology made possible the form of this parabola-shaped structure and its thin concrete shell construction. Built in 1961 as the lobby of the La Concha Motel in Las Vegas, it was designed by Paul Revere Williams, one of the first prominent African-American architects. It was moved to a new location and rehabilitated to serve as the Neon Museum, and is often cited as an example of Googie architecture. *Credit: Photographed with permission at The Neon Museum, Las Vegas, Nevada.*

MASONRY: STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

RECOMMENDED	NOT RECOMMENDED
Cleaning soiled masonry surfaces with the gentlest method possible, such as using low-pressure water and detergent and natural bristle or other soft-bristle brushes.	Cleaning or removing paint from masonry surfaces using most abrasive methods (including sandblasting, other media blasting, or high-pressure water) which can damage the surface of the masonry and mortar joints. Using a cleaning or paint-removal method that involves water or liquid chemical solutions when there is any possibility of freezing temperatures. Cleaning with chemical products that will damage some types of masonry (such as using acid on limestone or marble), or failing to neutralize or rinse off chemical cleaners from masonry surfaces.



[3] **Not Recommended:** The white film on the upper corner of this historic brick row house is the result of using a scrub or slurry coating, rather than traditional repointing by hand, which is the recommended method.



[4] **Not Recommended:** The quoins on the left side of the photo show that high-pressure abrasive blasting used to remove paint can damage even early 20th-century, hard-baked, textured brick and erode the mortar, whereas the same brick on the right, which was not abrasively cleaned, is undamaged.

MASONRY: STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

RECOMMENDED	NOT RECOMMENDED
Using biodegradable or environmentally-safe cleaning or paint-removal products.	
Using paint-removal methods that employ a poultice to which paint adheres, when possible, to neatly and safely remove old lead paint.	
Using coatings that encapsulate lead paint, when possible, where the paint is not required to be removed to meet environmental regulations.	
Allowing only trained conservators to use abrasive or laser-cleaning methods, when necessary, to clean hard-to-reach, highly-carved, or detailed decorative stone features.	
Removing damaged or deteriorated paint only to the next sound layer using the gentlest method possible (e.g., hand scraping) prior to repainting.	Removing paint that is firmly adhered to masonry surfaces, unless the building was unpainted historically and the paint can be removed without damaging the surface.
Applying compatible paint coating systems to historically-painted masonry following proper surface preparation.	Failing to follow manufacturers' product and application instructions when repainting masonry features.
Repainting historically-painted masonry features with colors that are appropriate to the historic character of the building and district.	Using paint colors on historically-painted masonry features that are not appropriate to the historic character of the building and district.
Protecting adjacent materials when cleaning or removing paint from masonry features.	Failing to protect adjacent materials when cleaning or removing paint from masonry features.
Evaluating the overall condition of the masonry to determine whether more than protection and maintenance, such as repairs to masonry features, will be necessary.	Failing to undertake adequate measures to ensure the protection of masonry features.
Repairing masonry by patching, splicing, consolidating, or otherwise reinforcing the masonry using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing parts of masonry features when there are surviving prototypes, such as terra-cotta brackets or stone balusters.	Removing masonry that could be stabilized, repaired, and conserved, or using untested consolidants and unskilled personnel, potentially causing further damage to historic materials. Replacing an entire masonry feature, such as a cornice or balustrade, when repair of the masonry and limited replacement of deteriorated or missing components are feasible.

MASONRY: STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

RECOMMENDED	NOT RECOMMENDED
Repairing masonry walls and other masonry features by repointing the mortar joints where there is evidence of deterioration, such as disintegrating mortar, cracks in mortar joints, loose bricks, or damaged plaster on the interior.	Removing non-deteriorated mortar from sound joints and then repointing the entire building to achieve a more uniform appearance.
Removing deteriorated lime mortar carefully by hand raking the joints to avoid damaging the masonry.	
Using power tools only on horizontal joints on brick masonry in conjunction with hand chiseling to remove hard mortar that is deteriorated or that is a non-historic material which is causing damage to the masonry units. Mechanical tools should be used only by skilled masons in limited circumstances and generally not on short, vertical joints in brick masonry.	Allowing unskilled workers to use masonry saws or mechanical tools to remove deteriorated mortar from joints prior to repointing.
Duplicating historic mortar joints in strength, composition, color, and texture when repointing is necessary. In some cases, a lime-based mortar may also be considered when repointing Portland cement mortar because it is more flexible.	Repointing masonry units with mortar of high Portland cement content (unless it is the content of the historic mortar). Using "surface grouting" or a "scrub" coating technique, such as a "sack rub" or "mortar washing," to repoint exterior masonry units instead of traditional repointing methods. Repointing masonry units (other than concrete) with a synthetic caulking compound instead of mortar.
Duplicating historic mortar joints in width and joint profile when repointing is necessary.	Changing the width or joint profile when repointing.
Repairing stucco by removing the damaged material and patching with new stucco that duplicates the old in strength, composition, color, and texture.	Removing sound stucco or repairing with new stucco that is different in composition from the historic stucco. Patching stucco or concrete without removing the source of deterioration. Replacing deteriorated stucco with synthetic stucco, an exterior finish and insulation system (EFIS), or other non-traditional materials.

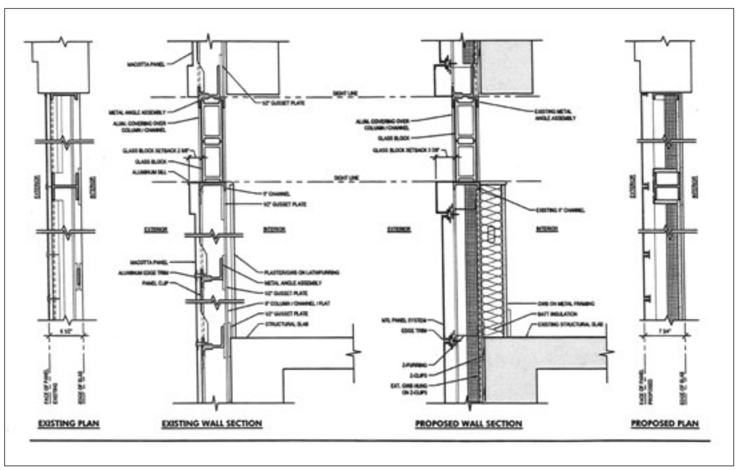
MASONRY: STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

RECOMMENDED	NOT RECOMMENDED
Using mud plaster or a compatible lime-plaster adobe render, when appropriate, to repair adobe.	Applying cement stucco, unless it already exists, to adobe.
Sealing joints in concrete with appropriate flexible sealants and backer rods, when necessary.	
Cutting damaged concrete back to remove the source of deterioration, such as corrosion on metal reinforcement bars. The new patch must be applied carefully so that it will bond satisfactorily with and match the historic concrete.	Patching damaged concrete without removing the source of deterioration.

[5] Rebars in the reinforced concrete ceiling have rusted, causing the concrete to spall. The rebars must be cleaned of rust before the concrete can be patched.

[6] Some areas of the concrete brise soleil screen on this building constructed in 1967 are badly deteriorated. If the screen cannot be repaired, it may be replaced in kind or with a composite substitute material with the same appearance as the concrete.

[7] (a) J.W. Knapp's Department Store, built 1937-38, in Lansing, MI, was constructed with a proprietary material named "Maul Macotta" made of enameled steel and cast-in-place concrete panels. Prior to its rehabilitation, a building inspection revealed that, due to a flaw in the original design and construction, the material was deteriorated beyond repair. The architects for the rehabilitation project devised a replacement system (b) consisting of enameled aluminum panels that matched the original colors (c). Photos and drawing (a-b): Quinn Evans Architects; *Photo (c): James Haefner Photography.*



MASONRY: STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

RECOMMENDED	NOT RECOMMENDED
Using a non-corrosive, stainless-steel anchoring system when replacing damaged stone, concrete, or terra-cotta units that have failed.	
Applying non-historic surface treatments, such as water-repellent coatings, to masonry only after repointing and only if masonry repairs have failed to arrest water penetration problems.	Applying waterproof, water-repellent, or non-original historic coatings (such as stucco) to masonry as a substitute for repointing and masonry repairs.
Applying permeable, anti-graffiti coatings to masonry when appropriate.	Applying water-repellent or anti-graffiti coatings that change the historic appearance of the masonry or that may trap moisture if the coating is not sufficiently permeable.
Replacing in kind an entire masonry feature that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. Examples can include large sections of a wall, a cornice, pier, or parapet. If using the same kind of material is not feasible, then a compatible substitute material may be considered.	Removing a masonry feature that is unrepairable and not replacing it, or replacing it with a new feature that does not match. Using substitute material for the replacement that does not convey the same appearance of the surviving components of the masonry feature.
The following work is highlighted to indicate that it is specific to **Rehabilitation** *projects and should only be considered after the preservation concerns have been addressed.*	
Designing the Replacement for Missing Historic Features	
Designing and installing a replacement masonry feature, such as a step or door pediment, when the historic feature is completely missing. It may be an accurate restoration based on documentary and physical evidence, but only when the historic feature to be replaced coexisted with the features currently on the building. Or, it may be a new design that is compatible with the size, scale, material, and color of the historic building.	Creating an inaccurate appearance because the replacement for the missing masonry feature is based upon insufficient physical or historic documentation, is not a compatible design, or because the feature to be replaced did not coexist with the features currently on the building. Introducing a new masonry feature that is incompatible in size, scale, material, or color.

Proposition A 2016 Bond Program
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

ATTACHMENT E

AIR QUALITY ASSESSMENT AND HEALTH RISK ASSESSMENT—

Buena Vista Horace Mann K-8 Community School Modernization Project

Proposition A 2016 Bond Program
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

NOTICE OF EXEMPTION – ADDITIONAL INFORMATION

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FINAL
Air Quality Assessment for the San Francisco Unified School District's Buena Vista Horace Mann K-8 Community School Modernization Project, City and County of San Francisco, California

MARCH 2024

PREPARED FOR

San Francisco Unified School District

PREPARED BY

SWCA Environmental Consultants

FINAL DRAFT AIR QUALITY ASSESSMENT FOR THE SAN FRANCISCO UNIFIED SCHOOL DISTRICT'S BUENA VISTA HORACE MANN K-8 COMMUNITY SCHOOL MODERNIZATION PROJECT, CITY AND COUNTY OF SAN FRANCISCO, CALIFORNIA

Prepared for

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SWCA Project No. 77638

March 2024

CONTENTS

Appendices

Figures

Tables

1 INTRODUCTION

San Francisco Unified School District (SFUSD) retained SWCA Environmental Consultants (SWCA) to conduct an air quality assessment and Baseline Environmental Consulting (Baseline) to conduct a health risk assessment in support of the proposed Buena Vista Horace Mann (BVHM) School Modernization Project (project). The purpose of this report is to explain the methodologies used to evaluate the effects of the proposed project on ambient air quality. This air quality assessment provides a summary of the air pollutant emissions calculation methodologies, a summary of the emission reduction measures assumed consistent with all applicable rules and regulations, and the results of the air pollutant emissions calculations as well as the health risk assessment (see Appendix A and Appendix B for greater detail). The evaluation of project impacts was conducted to comply with Bay Area Air Quality Management District (BAAQMD) requirements for air quality assessments, to satisfy the requirements of the California Environmental Quality Act (CEQA), and as recommended in the BAAQMD CEQA Guidelines chapters dated April 2023 (BAAQMD 2023), which are incorporated into this technical document by reference. Chapter 3, Thresholds of Significance, of the BAAQMD CEQA guidelines presents the BAAQMD thresholds of significance for use in determining whether a proposed project will have a significant impact on air quality and provides the substantial evidence that lead agencies will need to support their use of these thresholds, which is also incorporated into this technical document by reference (BAAQMD 2023).

Although the project site is located within the City and County of San Francisco, the SFUSD is the Lead Agency. As such, the City has no authority over the project, but the policies of the City and the Division of the State Architect, which oversees school construction, have been considered when applicable to the proposed project.

2 PROJECT DESCRIPTION AND LOCATION

The SFUSD BVHM K-8 Community School (school or project site) is located in the Mission District in the east-central part of San Francisco, San Francisco County, California (Figure 1). The project site addresses are 3351 23rd Street and 1241 Valencia Street, and the school is located on Assessor's Block 3643, Lot #034. The school is directly bounded by 23rd Street to the north, Bartlett Street to the east, and Valencia Street to the west, and intervening mixed-use buildings lie to the south between the project site and 24th Street. The neighborhood has residential, commercial, and industrial areas and buildings.

The total project site is 2.56 acres and contains approximately 106,179 square feet of building area. The project site consists of a series of one-, two-, and three-story connected buildings arranged along the project site perimeter and surrounding two central courtyards—the north courtyard is approximately 14,000 square feet, and the south courtyard is approximately 30,000 square feet (Figure 2). Covered walkways stretch from east to west in the north courtyard. The courtyards contain a garden, asphalt pavement, a turf field, lunch tables, and a playground. Although various buildings are located along the property line, typically there is a narrow band of shrubs, pavement, and dirt between the face of the building and the sidewalk on all three streets. There are approximately 30 street trees on all three frontages of the buildings. The school currently serves kindergarten through 8th grade with a capacity of 652 students.

The project would conduct a full structural seismic renovation of Buildings A, B2, C1, C2, and C3; demolish a portion of Building C2; and construct new Building C4 (Figure 3). Within Building C2, the one-story 6,225-square-foot cafeteria would be demolished. Building C4 would be a new 5,574-square-foot two-story classroom building in place of a portion of existing Building C2. The project would not substantially increase student capacity, i.e., by more than 50% or 10 classrooms; rather, it would meet existing needs. The school has no on-site parking, and none is proposed.

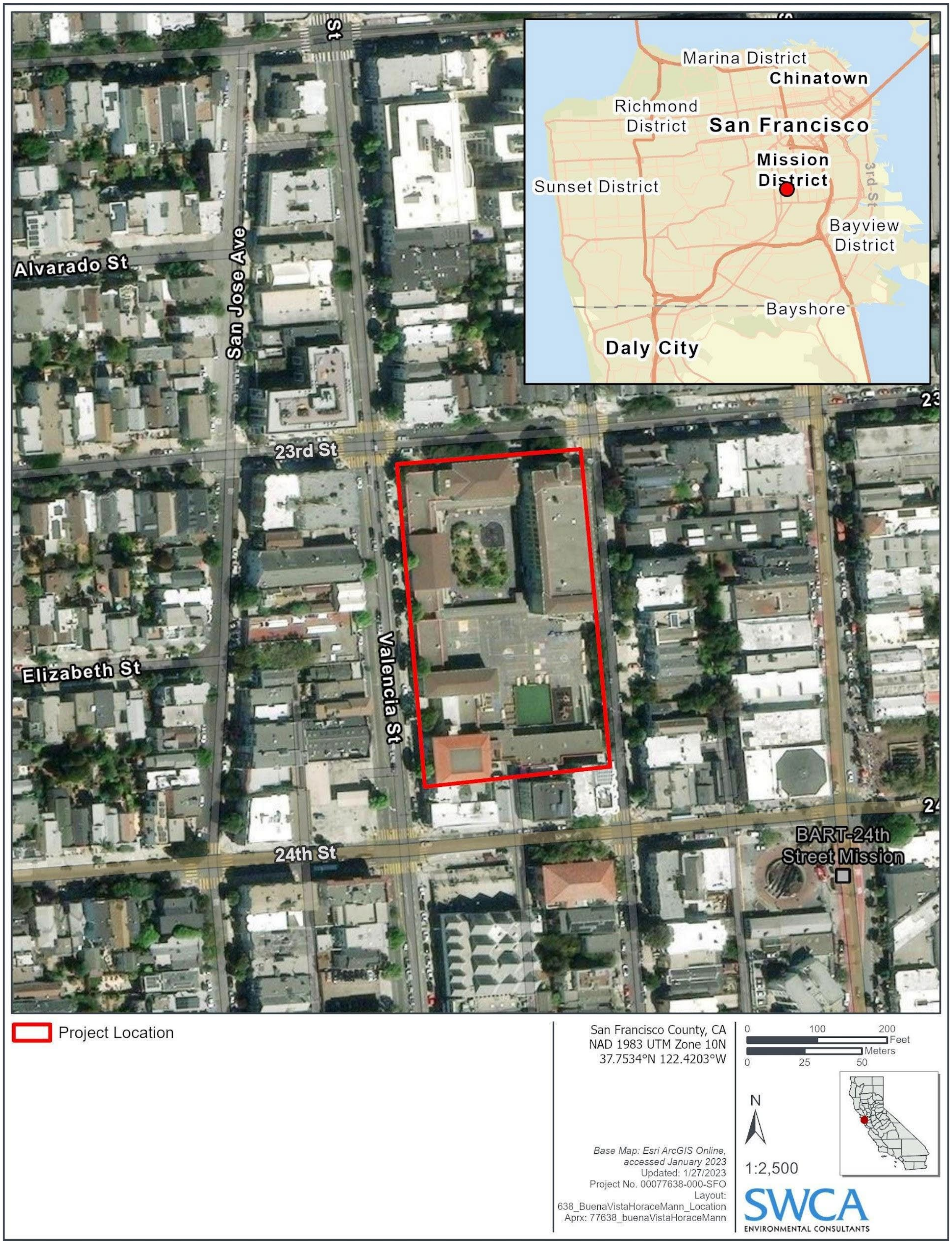

Figure 1. Project location map.

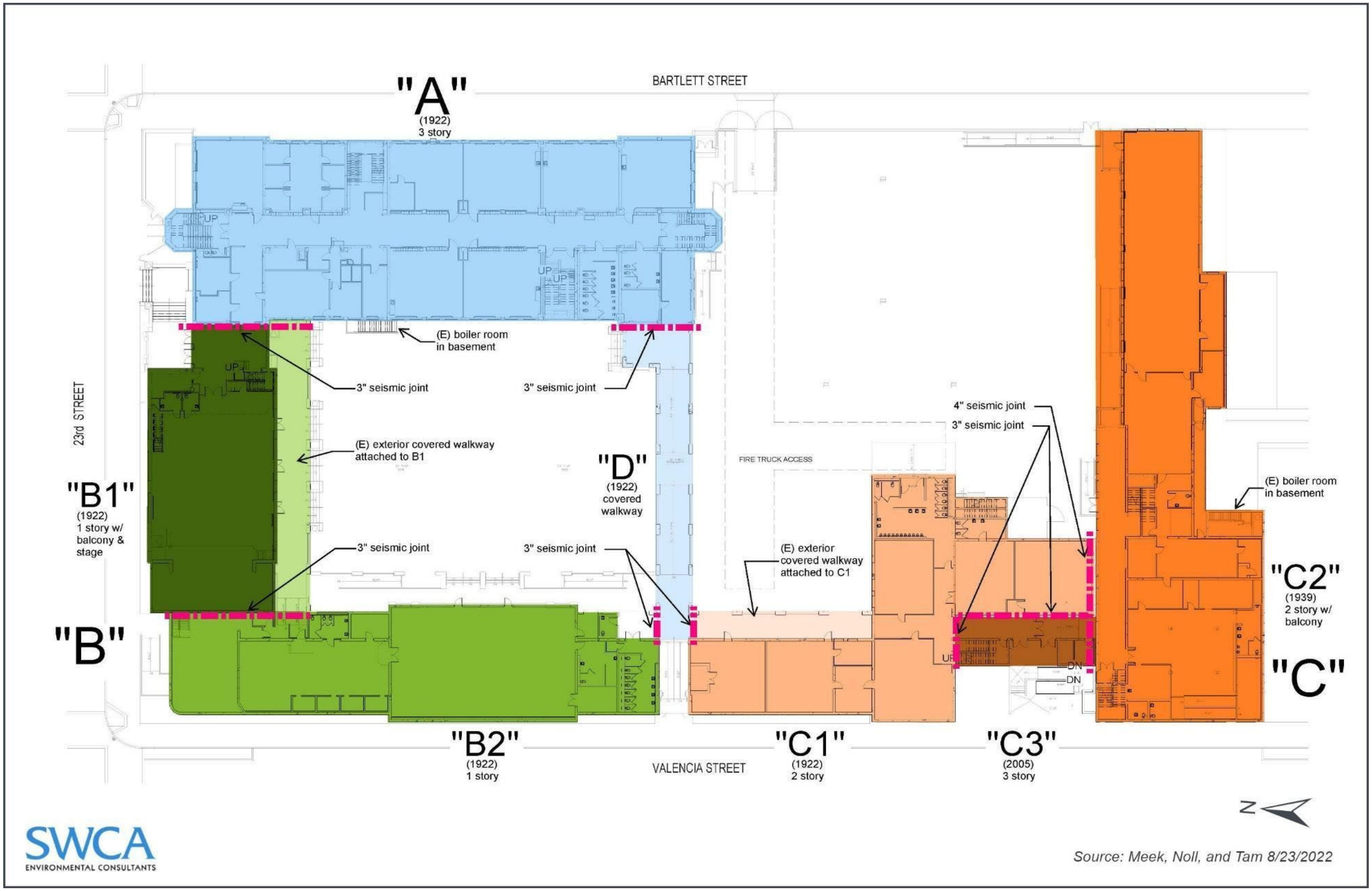

Figure 2. Existing project site plan.

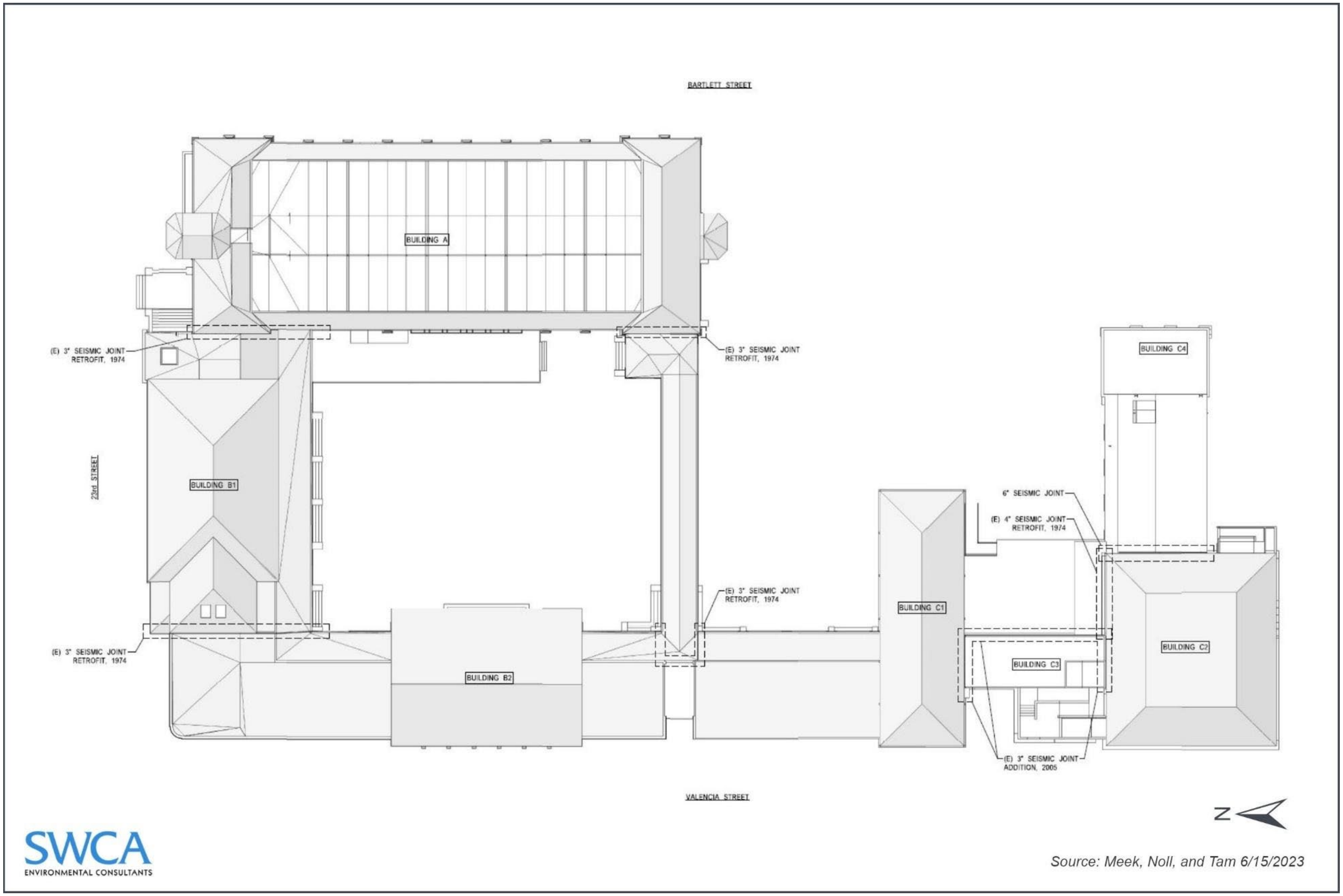

Figure 3. Proposed project site plan.

The new Building C4 would house two classrooms on the ground floor and two classrooms on the floor above. The building would be composed in a contemporary style and have a stepped-back massing at the second floor to create outdoor walkways along the classroom spaces. The building would feature a mixture of materials, including large-format ceramic tile cladding, plaster veneer, metal panel sun and rain screens, and metal guardrails on the second floor.

The project would modernize all existing building interiors and exteriors as follows:

- Upgrading heating, ventilation, and air conditioning (HVAC); plumbing; electrical lighting; telecommunications; alarms; and security systems
- Making seismic improvements to existing shear walls and structural diaphragm connections
- Rehabilitating and/or replacing exterior windows with similar pattern to the original historic appearance
- Repairing the existing exterior finish
- Rehabilitating and/or replacing interior finishes (e.g., flooring, ceiling, painting)
- Adding accessibility improvements to existing bathrooms on every floor

The project would also modernize the project site as follows:

- Installing new ramps and stairs
- Removing existing natural gas infrastructure and replacing with electric utilities
- Rerouting and replacement of existing utilities, both above and below ground
- Regrading existing asphalt pavement in the schoolyard for accessibility and replacing asphalt in areas with permeable pavement
- Adding vegetated planters and flow-through bioretention planters
- Widening the vehicle driveway for fire department accessibility
- Reprogramming schoolyard spaces

The project would entirely reconstruct the north and south courtyards and include improvements to pavement and surfacing, play structures, shade structures, vegetation planting, and irrigation. Six existing trees within the north courtyard adjacent to Building A would remain and be protected with fencing during construction. The project would also implement stormwater management on-site, reducing peak water flow by 34% and total runoff from the project site by 26%.

2.1 Construction Time Frame and Phasing

Construction of the project, from mobilization to the site to final completion, is expected to start in summer 2025 (August) and end in later winter/early spring 2028 (February/March), lasting for approximately 31 months. Construction would occur in two main phases such that demolition and new construction on the south side of the campus (Buildings C1, C2, C3, and C4) would occur in the first half of construction and renovations to the north side would occur in the second half of construction. Within the two main phases, the following six phases were assumed:

1. Demolition (including the one-story 6,225-square-foot cafeteria during phase 1 – south)
2. Site preparation (including site clearing and leveling and transport of building materials)

3. Grading (including import of approximately 250 cubic yards of fill during phase 1 – south)
4. Building construction (including building construction and renovations)
5. Paving (including paving and resurfacing)
6. Architectural coating (including the interior and exterior of buildings)

All construction activities, including construction staging of equipment, would be situated entirely within the project site. Typical construction equipment would be used during all phases of project construction and would be stored within the staging area, potentially including excavators, graders, tractors, loaders, and pavers. Once construction is completed, the project would continue to be an operational school for approximately 652 students.

3 ENVIRONMENTAL SETTING

3.1 Air Quality Setting

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 San Francisco Bay Area Air Basin (SFBAAB) 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.

The project is located in the City and County of San Francisco within the SFBAAB, which consists of the entirety of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties; the western portion of Solano County; and the southern portion of Sonoma County. The BAAQMD has jurisdiction within this portion of the SFBAAB. The BAAQMD has full jurisdiction within the entirety of the City and County of San Francisco.

The SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits in the Bay Area, creating a western coast gap, the Golden Gate, and an eastern coast gap, the Carquinez Strait, which allows air to flow in and out of the Bay Area and the Central Valley. The climate is dominated by the strength and location of a semipermanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. The upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold-water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

Summertime temperatures in the SFBAAB are determined in large part by the effect of differential heating between land and water surfaces. On summer afternoons, the temperatures at the coast can be 35 degrees Fahrenheit cooler than temperatures 15 to 20 miles inland; at night, this contrast usually decreases to less than 10 degrees Fahrenheit. In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large.

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains (November–March) account for about 75% of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another, even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys. During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing (an upward and downward movement of air) are usually high, and thus pollution levels tend to be low (i.e., air pollutants are dispersed more readily into the atmosphere rather than accumulate under stagnant conditions). However, during the winter, frequent dry periods do occur, where mixing and ventilation are low and pollutant levels build up.

3.1.1 Regional Attainment Status

Depending on whether the applicable ambient air quality standards are met or exceeded, the SFBAAB is classified on a federal and state level as being in "attainment" or "nonattainment." The U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) determine the air quality attainment status of designated areas by comparing ambient air quality measurements from state and local ambient air monitoring stations with the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), respectively. These designations are determined on a pollutant-by-pollutant basis. Consistent with federal requirements, an unclassifiable/unclassified designation is treated as an attainment designation. The SFBAAB is currently designated as a nonattainment area for ozone (O_3) under the NAAQS and CAAQS, particulate matter 10 microns or less than in diameter (PM_{10}) under the CAAQS, and particulate matter 2.5 microns or less in diameter ($PM_{2.5}$) under the NAAQS and CAAQS. Therefore, the SFBAAB is considered an "attainment/unclassified" area for all other pollutants (EPA 2023).

3.2 Air Pollution and Potential Health Effects

3.2.1 Criteria Air Pollutants

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants in order to protect the public health and welfare. These pollutants are referred to as "criteria air pollutants," and the national and state standards have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety, and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment, either directly or in reaction with other pollutants due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in the air quality within the SFBAAB. The criteria air pollutants for which national and state standards have been promulgated and which are most relevant to current air quality planning and regulation in the SFBAAB include carbon monoxide (CO), O_3, particulate matter, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, sulfates, and hydrogen sulfide (H_2S). These pollutants, as well as volatile organic compounds (VOCs) and toxic air contaminants (TACs), are discussed in the following paragraphs. The national and California criteria pollutants and the applicable ambient air quality standards are listed in Table 1.

Table 1. California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	--	Same as Primary
	8 hour	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)	
Respirable particulate matter (PM_{10})	24 hour	50 µg/m³	150 µg/m³	Same as Primary
	Annual mean	20 µg/m³	--	
Fine particulatematter ($PM_{2.5}$)	24 hour	--	35 µg/m³	Same as Primary
	Annual mean	12 µg/m³	12.0 µg/m³	15 µg/m³
Carbon monoxide (CO)	1 hour	20 ppm (23 µg/m³)	35 ppm (40 mg/m³)	--
	8 hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	--
Nitrogen dioxide (NO_2)	1 hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	--
	Annual mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
Sulfur dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	--
	3 hour	--	--	0.5 ppm (1,300 µg/m³)
	24 hour	0.04 ppm (105 µg/m³)	0.14 ppm	--
	Annual mean	--	0.030 ppm	--
Lead	30-day average	1.5 µg/m³	--	--
	Calendarquarter	--	1.5 µg/m³	Same as Primary
	Rolling 3-month average	--	0.15 µg/m³	Same as Primary
Visibility reducing particles	8 hour	10-mile visibility standard, extinction of 0.23 per kilometer	No National Standards	
Sulfates	24 hour	25 µg/m³		
Hydrogen sulfide (H_2S)	1 hour	0.03 ppm (42 µg/m³)		
Vinyl chloride	24 hour	0.01 ppm (265 µg/m³)		

Source: CARB (2016)

Notes: ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; -- = no standard
National annual $PM_{2.5}$ primary standard is currently being proposed to be reduced to 9 to 10 µg/m³.

3.2.1.1 CARBON MONOXIDE

CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions (EPA 2022).

3.2.1.2 OZONE

O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly nitrogen oxides (NO_x) and reactive organic gases (ROG, also sometimes referred to as "volatile organic compounds" [VOCs] by some regulatory agencies). The main sources of NOx and ROG, often referred to as "ozone precursors," are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth's surface in the troposphere (ozone). The O_3 that the EPA and CARB regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2022). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

3.2.1.3 PARTICULATE MATTER

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue.

Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in $PM_{2.5}$ and PM_{10} (EPA 2022).

3.2.1.4 NITROGEN DIOXIDE

NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_X is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2022).

3.2.1.5 SULFUR DIOXIDE

SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel (EPA 2022).

3.2.1.6 LEAD

Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. Secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern with the phaseout of leaded gasoline.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead (EPA 2022).

3.2.1.7 OTHERS

3.2.1.7.1 Sulfates

Sulfates, the fully oxidized form of sulfur, typically occur in combination with metals or hydrogen ions and are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

3.2.1.7.2 Vinyl Chloride

Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

3.2.1.7.3 Hydrogen Sulfide

H_2S is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of H_2S include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to H_2S can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

3.2.2 Volatile Organic Compounds

VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the state as TACs. While there are no specific VOC ambient air quality standards, VOC is a prime component (along with NO_x) of the photochemical processes by which such criteria pollutants as O_3, NO_2, and certain fine particles are formed. They are, thus, regulated as “precursors” to the formation of those criteria pollutants.

3.2.3 Toxic Air Contaminants

TACs refer to a diverse group of “non-criteria” air pollutants that can affect human health but have not had ambient air quality standards established for them. This is not because they are fundamentally different from the pollutants discussed above, but because their effects tend to be local rather than regional. TACs are identified by federal and state agencies based on a review of available scientific evidence. In California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics “Hot Spots” Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hot spots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

The federal TACs are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health, although there are no ambient standards established for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or other acute (short-term) or chronic (long-term) health problems. For TACs that are known or suspected carcinogens, the CARB has consistently found that there are no levels or thresholds below which exposure is risk free. 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. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health effects, a similar factor, called a Hazard Index, is used to evaluate risk. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). Examples of TAC sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources. The TAC that is relevant to the implementation of the project include diesel particulate matter (diesel PM).

Diesel PM was identified as a TAC by the CARB in August 1998 (CARB 1998). Diesel PM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57% attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3% of emissions, include shipyards, warehouses, heavy-equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report diesel PM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities.

Exposure to diesel PM can have immediate health effects. Diesel PM can have a range of health effects including irritation of eyes, throat, and lungs; headaches; lightheadedness; and nausea. Exposure to diesel PM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. Children, the elderly, and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. In California, diesel PM has been identified as a carcinogen.

While not a TAC, fine particulate matter ($PM_{2.5}$) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the CEQA. Diesel exhaust is the predominant TAC in air in urban areas and is estimated to contribute more than 85% of a 2006 inventory of Bay Area cancer risk from TACs (BAAQMD 2014). According to CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State of California's Proposition 65 or under the federal Hazardous Air Pollutants programs.

CARB has adopted and implemented a number of regulations to reduce emissions of diesel PM from stationary and mobile sources. Several of these regulatory programs affect medium- and heavy-duty diesel trucks that represent the bulk of diesel PM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of diesel PM and NO_x from existing on-road heavy-duty diesel fueled vehicles, including those used at construction sites. The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. Therefore, as of January 1, 2023, all trucks and buses are 2010 or newer model year engines.

Naturally occurring asbestos (NOA) areas are identified based on the type of rock found in the area. Asbestos-containing rocks found in California are ultramafic rocks, including serpentine rocks. Asbestos has been designated a TAC by the CARB and is a known carcinogen. When this material is disturbed in connection with construction, grading, quarrying, or surface mining operations, asbestos-containing dust can be generated. Exposure to asbestos can result in adverse health effects such as lung cancer, mesothelioma (cancer of the linings of the lungs and abdomen), and asbestosis (scarring of lung tissues that results in constricted breathing) (Van Gosen and Clinkenbeard 2011).

NOA is prevalent in at least 44 of California's 58 counties. Asbestos is the name for a group of naturally occurring silicate minerals. Asbestos may be found in serpentine, other ultramafic and volcanic rock. When rock containing NOA is broken or crushed, asbestos may become released and become airborne, causing a potential health hazard. BAAQMD Regulation 11, Rule 2, in addition to the California Airborne Toxic Control Measures (ATCMs) 17 California Code of Regulations (CCR) Section 93105 and 17 CCR Section 93106, controls emissions of asbestos to the atmosphere during demolition, renovation, milling, and manufacturing and establishes appropriate waste disposal procedures. The project site is not located in a geologic setting with a potential to contain asbestos, and therefore, NOA will not be an issue for this project (CARB 2000a).

3.2.4 Odors

A qualitative assessment should be made as to whether a project has the potential to generate odorous emissions of a type or quantity that could meet the statutory definition for nuisance, i.e., odors "which cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property" (Health and Safety Code Section 41700). While offensive odors usually do not cause any physical harm, they can be unpleasant enough to lead to considerable distress among the public and generate citizen complaints to local governments and the BAAQMD. BAAQMD Regulation 7, Odorous Substances, places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Odors are also regulated under BAAQMD Regulation 1, Rule 1-301, Public Nuisance, which states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property." Under BAAQMD Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

4 REGULATORY SETTING

Federal, state, and local agencies have set ambient air quality standards for certain air pollutants through statutory requirements and have established regulations and various plans and policies to maintain and improve air quality, as described below.

4.1 Criteria Pollutants and Toxic Air Contaminants

4.1.1 Federal

4.1.1.1 AIR QUALITY

The federal Clean Air Act (CAA), which was passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The CAA delegates primary responsibility for clean air to the EPA, which develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the CAA, the EPA has established the NAAQS for six criteria air pollutants that are pervasive in urban environments and for which national and state health-based ambient air quality standards have been established. O_3, CO, NO_2, SO_2, lead, and particulate matter (PM_{10} and $PM_{2.5}$) are the six criteria air pollutants. O_3 is a secondary pollutant; NO_x and VOCs are of particular interest as they are precursors to O_3 formation. The NAAQS are divided into primary and secondary standards; the primary standards are set to protect human health within an adequate margin of safety, and the secondary standards are set to protect environmental values, such as plant and animal life. The standards for all criteria pollutants are presented in Table 1.

The CAA requires the EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The act also mandates that the State submit and implement a State Implementation Plan for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

4.1.1.2 TOXIC SUBSTANCE CONTROL ACT

The Toxic Substances Control Act (TSCA) of 1976 provides the EPA with authority to require reporting, recordkeeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA became law on October 11, 1976, and became effective on January 1, 1977. The TSCA authorized the EPA to secure information on all new and existing chemical substances, as well as to control any of the substances that were determined to cause unreasonable risk to public health or the environment. Congress later added additional titles to the TSCA, with this original part designated in Title I – Control of Hazardous Substances. TSCA regulatory authority and program implementation rests predominantly with the federal government (i.e., the EPA); however, the EPA can authorize states to operate their own EPA-authorized programs for some portions of the statute. TSCA Title IV allows states the flexibility to develop accreditation and certification programs and work practice standards for lead-related inspection, risk assessment, renovation, and abatement that are at least as protective as existing federal standards.

4.1.1.3 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (ASBESTOS)

The EPA's air toxics regulation for asbestos is intended to minimize the release of asbestos fibers during activities involving the handling of asbestos. Asbestos was one of the first hazardous air pollutants regulated under the air toxics program as there are major health effects associated with asbestos exposure (lung cancer, mesothelioma, and asbestosis). On March 31, 1971, the EPA identified asbestos as a hazardous pollutant, and on April 6, 1973, EPA promulgated the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), currently found in 40 Code of Federal Regulations (CFR) 61(M). The Asbestos NESHAP have been amended several times, most comprehensively in November 1990. In 1995 the rule was amended to correct cross-reference citations to Occupational Safety and Health Administration (OSHA), Department of Transportation (DOT), and other EPA rules governing asbestos. Air toxics regulations under the CAA have guidance on reducing asbestos in renovation and demolition of buildings; institutional, commercial, and industrial building; large-scale residential demolition; exceptions to the asbestos removal requirements; asbestos control methods; waste disposal and transportation; and milling, manufacturing, and fabrication.

4.1.2 State

4.1.2.1 CALIFORNIA CLEAN AIR ACT

The California Clean Air Act (CCAA) was adopted by the CARB in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for O_3, CO, SO_2, and NO_2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. The CARB and local air districts are responsible for achieving CAAQS, which are to be achieved through district-level air quality management plans (AQMPs) that would be incorporated into the State Implementation Plan. In California, the EPA has delegated authority to prepare State Implementation Plans to CARB, which in turn, has delegated that authority to individual air districts. Each district plan is required to either 1) achieve a 5% annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors, or 2) provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

The State of California began to set its ambient air quality standards (i.e., CAAQS) in 1969, under the mandate of the Mulford-Carrell Act. The CCAA requires all air districts of the state to achieve and maintain the CAAQS by the earliest practical date. Table 1 shows the CAAQS currently in effect for each of the criteria pollutants, as well as the other pollutants recognized by the state. As shown in Table 1, the CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, H_2S, vinyl chloride, and visibility-reducing particles.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- 20 CCR: Appliance Energy Efficiency Standards
- 24 CCR Part 6: Building Energy Efficiency Standards
- 24 CCR Part 11: Green Building Standards Code

4.1.2.2 CALIFORNIA CODE OF REGULATIONS

The CCR is the official compilation and publication of regulations adopted, amended, or repealed by the state agencies pursuant to the Administrative Procedure Act. The CCR includes regulations that pertain to air quality emissions. Specifically, 13 CCR Section 2485 states that the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to 5 minutes at any location. In addition, 17 CCR Section 93115 states that operation of any stationary, diesel-fueled, compression-ignition engine shall meet specified fuel and fuel additive requirements and emission standards.

4.1.2.3 TOXIC AIR CONTAMINANTS REGULATIONS

California regulates TACs primarily through the Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807, also known as the Tanner Air Toxics Act) and the Air Toxics Hot Spots Information and Assessment Act (AB 2588 – Connelly) of 1987. In the early 1980s, the CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. AB 1807 created California’s program to reduce exposure to air toxics. AB 2588 supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks (CARB 2011).

In August 1998, CARB identified diesel PM emissions 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 (CARB 2000b). The goal of the plan is to reduce PM_{10} (inhalable particulate matter) emissions and the associated health risk by 75% in 2010, and by 85% by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy-duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., standby power generators, etc.). During the control measure phase, specific statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles were evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions. The project would be required to comply with applicable diesel control measures.

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, to communicate the results to the public through notices and public meetings.

CARB has promulgated the following specific rules to limit TAC emissions:

- 13 CCR Chapter 10, Section 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- 13 CCR Chapter 10, Section 2480: Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 13 CCR Section 2477 and Article 8: Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

4.1.3 Regional and Local

4.1.3.1 BAY AREA AIR QUALITY MANAGEMENT DISTRICT

The BAAQMD is the agency responsible for ensuring that the NAAQS and CAAQS are attained and maintained in the SFBAAB. Air quality conditions in the SFBAAB have improved significantly since the BAAQMD was created in 1955. The BAAQMD prepares AQMPs to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares O_3 attainment plans for the National O_3 standard and clean air plans for the California O_3 standard. The BAAQMD prepares these AQMPs in coordination with Association of Bay Area Governments and Metropolitan Transportation Commission to ensure consistent assumptions about regional growth. In 2023 the BAAQMD CEQA guideline chapters were updated to include the thresholds of significance chapter, which outlines the current thresholds of significance for determining the significance of air pollutants and climate impacts.

4.1.3.1.1 Bay Area Air Quality Management District 2017 Clean Air Plan

The BAAQMD adopted the 2017 *Clean Air Plan: Spare the Air, Cool the Climate* (2017 Clean Air Plan) (BAAQMD 2017) on April 19, 2017, making it the most recently adopted comprehensive plan. The 2017 Clean Air Plan incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools (BAAQMD 2017). The 2017 Clean Air Plan serves as an update to the adopted Bay Area 2010 Clean Air Plan and continues to provide the framework for SFBAAB to achieve attainment of the NAAQS and CAAQS. The 2017 Clean Air Plan updates the Bay Area's O_3 plan, which is based on the "all feasible measures" approach to meet the requirements of the CCAA. It sets a goal of reducing health risk impacts to local communities by 20% between 2015 and 2020 and lays the groundwork for reducing greenhouse gas (GHG) emissions in the Bay Area to meet the state's 2030 GHG reduction target and 2050 GHG reduction goal. It also includes a vision for the Bay Area in a post-carbon year 2050 that encompasses the following:

- Construct buildings that are energy efficient and powered by renewable energy.
- Walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets.
- Incubate and produce clean energy technologies.

- Live a low-carbon lifestyle by purchasing low-carbon foods and goods in addition to recycling and putting organic waste to productive use.

A multipollutant control strategy was developed to be implemented in the next 3 to 5 years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce emissions of O_3, particulate matter, TACs, and GHGs from a full range of emission sources. These control measures cover the following sectors: 1) stationary (industrial) sources, 2) transportation, 3) energy, 4) agriculture, 5) natural and working lands, 6) waste management, 7) water, 8) super-GHG pollutants, and 9) buildings. The proposed control strategy is based on the following key priorities:

- Reduce emissions of criteria air pollutants and TACs from all key sources.
- Reduce emissions of "super-GHGs" such as methane, black carbon, and fluorinated gases.
- Decrease demand for fossil fuels (gasoline, diesel, and natural gas).
- Increase efficiency of the energy and transportation systems.
- Reduce demand for vehicle travel and high-carbon goods and services.
- Decarbonize the energy system.
- Make the electricity supply carbon-free.
- Electrify the transportation and building sectors.

4.1.3.1.2 Community Air Risk Evaluation Program

The BAAQMD Community Air Risk Evaluation (CARE) Program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor TACs in the Bay Area, primarily diesel PM. The last update to this program was in 2014. Based on findings of the latest report, diesel PM was found to account for approximately 85% of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light-duty trucks were also identified as significant contributors: 1,3-butadiene contributed 4% and benzene contributed 3% of the cancer risk-weighted emissions. Collectively, five compounds—diesel PM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde—were found to be responsible for more than 90% of the cancer risk attributed to emissions. All of these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk-weighted emissions were combustion-related sources of diesel PM, including on-road mobile sources (31%), construction equipment (29%), and ships and harbor craft (13%). Overall, cancer risk from TAC dropped by more than 50% between 2005 and 2015, when emissions inputs accounted for state diesel regulations and other reductions.

The major contributor to acute and chronic non-cancer health effects in the SFBAAB is acrolein (C_3H_4O). Major sources of acrolein are on-road mobile sources and aircraft near freeways and commercial and military airports (BAAQMD 2006). Currently CARB does not have certified emission factors or an analytical test method for acrolein. Because the appropriate tools needed to implement and enforce acrolein emission limits are not available, the BAAQMD does not conduct health risk screening analysis for acrolein emissions (BAAQMD 2010).

The project is located in the 2020 Air Pollutant Exposure Zone (APEZ), where the estimated cumulative $PM_{2.5}$ concentration is greater than 10 micrograms per cubic meter (µg/m³) or where the estimated cumulative excess risk of cancer from air pollutants resulting from lifetime (70-year) exposure is greater than 100 in a million per the San Francisco Property Information Map (San Francisco Planning 2023). Therefore, because the school is a California Department of Education–licensed school located in an APEZ, it must comply with San Francisco Health Code Article 38. Consistent with this APEZ classification, the project area has also been identified as an impacted community for $PM_{2.5}$ under the BAAQMD CARE Program, which identifies areas with elevated pollution levels based on detailed emissions inventories and air dispersion modeling. The goals of the CARE Program are to:

- Identify areas where air pollution contributes most to health impacts and where populations are most vulnerable to air pollution.
- Apply sound scientific methods and strategies to reduce health impacts in these areas.
- Engage community groups and other agencies to develop additional actions to reduce local health impacts.

4.1.3.2 ASSEMBLY BILL 617 COMMUNITY ACTION PLANS

AB 617 was signed into law in July 2017 to develop a new community-focused program to reduce exposure more effectively to air pollution and preserve public health in environmental justice communities. AB 617 directs CARB and all local air districts to take measures to protect communities disproportionally impacted by air pollution through monitoring and implementing air pollution control strategies.

On September 27, 2018, CARB approved BAAQMD's recommended communities for monitoring and emission reduction planning. The State approved communities for year 1 of the program as well as communities that would move forward over the next 5 years. Bay Area recommendations included all the CARE areas, areas with large sources of air pollution (refineries, seaports, airports, etc.), areas identified through statewide screening tools as having pollution and/or health burden vulnerability, and areas with low life expectancy (BAAQMD 2019).

5 METHODOLOGY

This analysis focuses on the potential change in the air quality environment due to implementation of the project. Air pollution emissions would result from both construction and operation of the project. Specific methodologies used to evaluate these emissions are discussed below.

The analysis is based on project specifics and default values in the latest versions of California Emission Estimator Model (CalEEMod). Accordingly, this analysis has been conducted with the most recently available tools prepared and accepted by the regulatory agencies.

5.1 Thresholds of Significance

Based on criteria presented in State CEQA Guidelines Appendix G, a project would have a significant air quality impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (AQP);
- Result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under applicable federal or state ambient air quality standards;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

A discussion of applicable thresholds of significance and significance determination follows.

The BAAQMD CEQA Air Quality Guidelines were prepared to assist in the evaluation of 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 (Table 2), best management practices (BMPs) for construction (referred to as mitigation measures or standard control measures), and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and GHG emissions. These thresholds are designed to establish the level at which the applicant-believed air pollution emissions would cause significant environmental impacts under CEQA.

Table 2. BAAQMD Regional (Mass Emission) Criteria Air Pollutant Significance Thresholds

	Construction Phase	Operational Phase	
Pollutant	**Average Daily Emissions (pounds/day)**	**Average Daily Emissions (pounds/day)**	**Maximum Annual Emissions (tons/year)**
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	82 (exhaust)	54	10
PM_{10} and $PM_{2.5}$ Fugitive Dust	BMPs	None	None

Source: BAAQMD (2023)

Projects that do not exceed the emissions in Table 2 would not cumulatively contribute to health effects in the SFBAAB. If projects were to exceed the emissions in Table 2, emissions would cumulatively contribute to the nonattainment status and would contribute to elevating health effects associated with these criteria air pollutants. Known health effects related to O_3 include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants.

However, for projects that exceed the emissions in Table 2, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment since mass emissions are not correlated with concentrations of emissions or how many additional individuals in the SFBAAB would be affected by the health effects cited above. The BAAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SFBAAB, and at the present time, it has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health in order to address the issue raised in *Sierra Club v. County of Fresno (Friant Ranch, L.P.) (2018) 6 Cal.5th 502, Case No. S21978* (Friant Ranch).

O_3 concentrations are dependent on a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level O_3 concentrations in relation to the NAAQS and CAAQS, it is speculative to link health risks to the magnitude of emissions exceeding the significance thresholds. To achieve the health-based standards established by the EPA, the air districts prepare AQMPs that detail regional programs to attain the ambient air quality standards. However, if a project within the BAAQMD exceeds the regional significance thresholds, the project could contribute to an increase in health effects in the basin until such time the attainment standards are met in the SFBAAB.

Congested intersections have the potential to create elevated concentrations of CO, referred to as CO hotspots. The significance criteria for CO hotspots are based on the CAAQS for CO, which are 9.0 parts per million (ppm) (8-hour average) and 20.0 ppm (1-hour average). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology, the SFBAAB is in attainment of the NAAQS and CAAQS, and CO concentrations in the SFBAAB have steadily declined. Because CO concentrations have improved, the BAAQMD does not require a CO hotspot analysis if the following criteria are met (CARB 2014):

- The project is 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.
- The project 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 intersection to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, belowgrade roadway).

5.1.1 Toxic Air Contaminants

The BAAQMD's significance thresholds for local community risk and hazard impacts apply to both the siting of a new source and the siting of a new receptor. Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts at the local level. The proposed project would generate TACs and $PM_{2.5}$ during construction activities that could elevate concentrations of air pollutants at the nearby residential, day care, and school-based sensitive receptors. The thresholds for construction-related local community risk and hazard impacts are the same as those for project operations. BAAQMD has adopted screening tables for air toxics evaluation during construction (BAAQMD 2017, 2023). Construction-related TAC and $PM_{2.5}$ impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site and on-site receptors, as applicable.

Project-level emissions of TACs or $PM_{2.5}$ from individual sources that exceed any of the thresholds listed below are considered a potentially significant community health risk:

- An excess cancer risk level of more than 10 in one million, or a noncancer (i.e., chronic or acute) hazard index greater than 1.0 would be a significant project contribution.
- An incremental increase of greater than 0.3 $\mu g/m^3$ annual average $PM_{2.5}$ from a single source would be a significant project contribution.

Cumulative sources represent the combined total risk values of each of the individual sources within the 1,000-foot evaluation zone. A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source or location of a receptor, plus the contribution from the project, exceeds any of the following:

- An excess cancer risk level of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0.
- 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.

In February 2015, the OEHHA adopted new health risk assessment guidance that includes several efforts to be more protective of children's health. These updated procedures include the use of age sensitivity factors to account for the higher sensitivity of infants and young children to cancer causing chemicals, and age-specific breathing rate (OEHHA 2022). See Table 1 in Appendix B for the BAAQMD health risk screening thresholds utilized for the health risk assessment.

5.2 Construction Assumptions

The project's emissions will be evaluated based on significance thresholds established by BAAQMD, as discussed above. Daily emissions during construction are estimated by assuming a conservative construction schedule and applying the multiple source and fugitive dust emission factors derived from the BAAQMD-recommended CalEEMod. Details of the modeling assumptions and emission factors are provided in Appendix A. The calculations of the emissions generated during project construction activities reflect the types and quantities of construction equipment that would be used to complete the project.

Construction emissions associated with the project, including emissions associated with the operation of off-road equipment, haul-truck trips, on-road worker vehicle trips, vehicle travel on paved and unpaved surfaces, and fugitive dust from material handling activities, were calculated using CalEEMod Version 2022.1 (California Air Pollution Control Officers Association [CAPCOA] 2022). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model uses widely accepted federal and state models for emission estimates and default data from sources such as EPA AP-42 emission factors, CARB vehicle emission models, and studies from California agencies such as the California Energy Commission. The model quantifies direct emissions from construction and operations, as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The model was developed in collaboration with the air districts in California. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions.

Construction would occur in two main phases such that demolition and new construction on the south side of the campus (Buildings C1, C2, C3, and C4) would occur in the first half of construction and renovations to the north side would occur in the second half of construction. Emissions modeling included emissions generated during the project within the two main phases (north and south) have been grouped into six phases in CalEEMod based on the types of equipment and the land use type:

1. Demolition (including the one-story 6,225-square-foot cafeteria during phase 1 – south)
2. Site preparation (including site clearing and leveling and transport of building materials)
3. Grading (including import of approximately 250 cubic yards of fill during phase 1 – south)
4. Building construction (including building construction and renovations)
5. Paving (including paving and resurfacing)
6. Architectural coating (including the interior and exterior of buildings)

One CalEEMod land use ("Elementary School") was utilized for a 2.56-acre project area with 106,179 square feet of buildings and 13,470 square feet of landscape area.

Modeling input data were based on this anticipated construction schedule and phasing. Construction equipment and usage required for each phase were obtained using CalEEMod defaults for the Elementary School land use type, which represents the project site, information provided by SFUSD, and default parameters contained in the model for the project site (San Francisco County) and land uses. The default construction equipment was utilized for this land use and size with the default workload (worker, vendor, haul) increased to be conservative. This analysis includes quantification of construction off-road equipment, fugitive dust, and on-road mobile sources. The construction duration is assumed to be approximately 31 months (August 2025–February 2028). Project construction would consist of different activities undertaken in phases, through to the operation of the project. Typical construction equipment would be used during all phases of project construction and would be stored within the staging area, potentially including dozers, backhoes, graders, and excavators. Table 3 and Table 4 show the project's anticipated construction schedule, present an estimate of the maximum number of pieces of equipment for each construction phase, and assume equipment would be operating 5 days per week for the construction phase duration. The construction emissions were mitigated in the CalEEMod model to comply with any required BAAQMD control measures and to reduce local impacts.

Table 3. Construction Anticipated Schedule, Trips, and Equipment – South

Phase (Duration)	Equipment Used: Type	Number	Hours/Day	Daily Vehicle Trips
1. Demolition – South 8/1/2025–9/11/2025 (30 working days)	Tractors/Loaders/Backhoes	3	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Concrete/Industrial Saws	1	8	
	Rubber Tired Dozers	1	8	
	Off-Highway Truck	1	8	
2. Site Preparation – South 9/12/2025–9/30/2025 (13 working days)	Graders	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Scrapers	1	8	
	Off-Highway Truck	1	8	
	Tractors/Loaders/Backhoes	1	8	
3. Grading – South 10/1/2025–10/22/2025 (16 working days)	Graders	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Tractors/Loaders/Backhoes	2	8	
	Off-Highway Truck	1	8	
	Rubber Tired Dozers	1	8	
4. Building Construction – South 10/23/2025–10/14/2026 (255 working days)	Cranes	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Forklifts	2	8	
	Generator Sets	1	8	
	Tractors/Loaders/Backhoes	1	8	
	Welders	3	8	
5. Paving – South 10/15/2026–11/4/2026 (15 working days)	Pavers	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Tractors/Loaders/Backhoes	1	8	
	Rollers	2	8	
	Paving Equipment	1	8	
	Cement and Mortar Mixers	1	8	
6. Architectural Coating – South 11/5/2026–11/23/2026 (13 working days)	Air Compressors	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel

Note: For the parameters that are not provided in the table (e.g., equipment horsepower and load factor, on-road trip lengths), CalEEMod defaults were used.

Table 4. Construction Anticipated Schedule, Trips, and Equipment – North

Phase (Duration)	Equipment Used – Type	Equipment Used – Number	Equipment Used – Hours/Day	Daily Vehicle Trips
1. Demolition – North 11/24/2026–1/4/2027 (30 working days)	Tractors/Loaders/Backhoes	3	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Concrete/Industrial Saws	1	8	
	Rubber Tired Dozers	1	8	
	Off-Highway Truck	1	8	
2. Site Preparation – North 1/5/2027–1/21/2027 (13 working days)	Graders	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Scrapers	1	8	
	Off-Highway Truck	1	8	
	Tractors/Loaders/Backhoes	1	8	
3. Grading – North 1/22/2027–2/12/2027 (16 working days)	Graders	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Tractors/Loaders/Backhoes	2	8	
	Off-Highway Truck	1	8	
	Rubber Tired Dozers	1	8	
4. Building Construction – North 2/13/2027–2/4/2028 (255 working days)	Cranes	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Forklifts	2	8	
	Generator Sets	1	8	
	Tractors/Loaders/Backhoes	1	8	
	Welders	3	8	
5. Paving – North 2/5/2028–2/18/2028 (10 working days)	Pavers	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel
	Tractors/Loaders/Backhoes	1	8	
	Rollers	2	8	
	Paving Equipment	1	8	
	Cement and Mortar Mixers	1	8	
6. Architectural Coating – North 2/19/2026–2/28/2026 (7 working days)	Air Compressors	1	8	46 one-way worker trips 18 one-way vendor trips 6 one-way haul truck trips 0.5 mile of on-site truck travel

Note: For the parameters that are not provided in the table (e.g., equipment horsepower and load factor, on-road trip lengths), CalEEMod defaults were used.

5.3 Operations Assumptions

Once construction is completed, the project would continue to be an operational K-8 school. Criteria pollutant emissions from the operations of the K-8 school were estimated using CalEEMod Version 2022.1 (CAPCOA 2022). Year 2029 was assumed as the first full year of operations after completion of construction. The operational emissions were calculated based on CalEEMod defaults associated with the project's land use type and size. The CalEEMod Elementary School land use was utilized for a 2.56-acre project area with 106,179 square feet of buildings and 13,470 square feet of landscape area. Analysis of the project's likely impact on regional air quality during project operation takes into consideration five types of sources: 1) area, 2) energy, 3) water and wastewater consumption, 4) waste consumption, and 5) mobile. Details of the modeling assumptions and emission factors are provided in Appendix A.

5.4 Construction Emissions

Construction emissions associated with the proposed project, including emissions associated with the operation of off-road equipment, on-road worker vehicle trips, and vehicle travel on paved and unpaved surfaces, were calculated using CalEEMod Version 2022.1. Utilizing the construction assumptions above and detailed in Appendix A, unmitigated and mitigated emissions were calculated and are presented in Table 5 and Table 6. Mitigation was not required for the project's emissions to be below the BAAQMD Significance Thresholds for CAPs, but do reflect the BMPs required for all projects as discussed further in Section 6.1, *Standard Control Measures.* However, as discussed in Section 6.2, *Mitigation Measures*, mitigation would be required to reduce impacts to sensitive receptors below TAC and $PM_{2.5}$ significance thresholds (see Table 6).

Table 5. Unmitigated Construction Emissions Summary

Construction Year	Unmitigated Construction Emissions Summary					
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2
Pollutant Emission (pounds per day)						
2025 Peak Daily Emission	2.08	18.58	21.10	0.67	0.61	0.05
2026 Peak Daily Emission	1.81	18.01	22.60	0.61	0.56	0.06
2027 Peak Daily Emission	1.76	16.60	20.10	0.64	0.59	0.04
2028 Peak Daily Emission	1.69	13.51	17.95	0.39	0.36	0.04
BAAQMD Significance Thresholds	*54*	*54*	*N/A*	*82*	*54*	*N/A*
Threshold Exceeded?	*No*	*No*	*N/A*	*No*	*No*	*N/A*
Pollutant Emission (tons per year)						
2025 Max Annual	0.10	0.91	1.03	0.17	0.07	<0.005
2026 Max Annual	0.95	1.88	2.29	0.23	0.09	0.01
2027 Max Annual	0.23	1.89	2.37	0.29	0.11	0.01
2028 Max Annual	0.03	0.24	0.31	0.03	0.01	<0.005
BAAQMD Significance Thresholds	*10*	*10*	*N/A*	*15*	*10*	*N/A*
Threshold Exceeded?	*No*	*No*	*N/A*	*No*	*No*	*N/A*

Source: Emissions were quantified using CalEEMod Version 2022.1 (CAPCOA 2022).

Notes: N/A = not applicable, no threshold
Model results (summer, winter, and annual) and assumptions are provided in Appendix A.

Table 6. Mitigated Construction Emissions Summary

Construction Year	Mitigated Construction Emissions Summary					
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2
Pollutant Emission (pounds per day)						
2025 Peak Daily Emission	0.55	7.28	23.53	0.11	0.11	0.05
2026 Peak Daily Emission	0.62	9.90	27.50	0.13	0.129	0.05
2027 Peak Daily Emission	0.62	7.02	24.54	0.11	0.10	0.04
2028 Peak Daily Emission	0.66	7.39	23.21	0.13	0.12	0.04
BAAQMD Significance Thresholds	*54*	*54*	*N/A*	*82*	*54*	*N/A*
Threshold Exceeded?	*No*	*No*	*N/A*	*No*	*No*	*N/A*
Pollutant Emission (tons per year)						
2025 Max Annual	0.03	0.31	1.25	0.08	0.034	<0.005
2026 Max Annual	0.80	0.86	2.89	0.12	0.044	0.01
2027 Max Annual	0.08	0.86	3.06	0.14	0.05	0.01
2028 Max Annual	0.01	0.12	0.41	0.02	<0.005	<0.005
BAAQMD Significance Thresholds	*10*	*10*	*N/A*	*15*	*10*	*N/A*
Threshold Exceeded?	*No*	*No*	*N/A*	*No*	*No*	*N/A*

Source: Emissions were quantified using CalEEMod Version 2022.1 (CAPCOA 2022).

Notes: N/A = not applicable, no threshold
Model results (summer, winter, and annual) and assumptions are provided in Appendix A.

5.5 Operational Emissions

The project would modernize all existing building interiors and exteriors as follows, which would reduce air quality impacts from school operations:

- Upgrading HVAC, plumbing, electrical lighting, telecommunications, alarms, and security systems
- Removing existing natural gas infrastructure and replacing with electric utilities
- Rerouting and replacement of existing utilities, both above and below ground
- Regrading existing asphalt pavement in the school yard for accessibility and replacing asphalt in areas with permeable pavement
- Adding vegetated planters and flow thru bioretention planters

Utilizing the operations assumptions above and detailed in Appendix A, operations emissions were calculated for the following five types of sources and are presented in Table 7: 1) area, 2) energy, 3) water and wastewater consumption, 4) waste consumption, and 5) mobile.

Table 7. Unmitigated Operational Emissions Summary

Operation Year 2029	Unmitigated Operational Emissions Summary					
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2
Pollutant Emission (pounds per day)						
Area	3.33	0.04	4.62	0.01	0.01	0.00
Energy	0.10	1.75	1.47	0.13	0.13	0.01
Mobile	2.39	1.22	14.49	2.71	0.70	0.03
Water	0	0	0	0	0	0
Waste	0	0	0	0	0	0
Total	5.82	3.00	20.58	2.85	0.84	0.04
BAAQMD Significance Thresholds	*54*	*54*	*N/A*	*82*	*54*	*N/A*
Threshold Exceeded?	*No*	*No*	*N/A*	*No*	*No*	*N/A*
Pollutant Emission (tons per year)						
Area	0.54	0.003	0.42	0.0007	0.001	0.00002
Energy	0.02	0.32	0.27	0.02	0.02	0.002
Mobile	0.30	0.18	1.86	0.34	0.09	0.004
Water	0	0	0	0	0	0
Waste	0	0	0	0	0	0
Total	0.86	0.50	2.55	0.37	0.11	0.01
BAAQMD Significance Thresholds	*10*	*10*	*N/A*	*15*	*10*	*N/A*
Threshold Exceeded?	*No*	*No*	*N/A*	*No*	*No*	*N/A*

Source: Emissions were quantified using CalEEMod Version 2022.1 (CAPCOA 2022).

Notes: N/A = not applicable, no threshold
Model results (summer, winter, and annual) and assumptions are provided in Appendix A.

5.6 Toxic Air Contaminants Impacts (Construction and Operations)

Potential TAC impacts are evaluated in Appendix B utilizing the mass emissions calculated in CalEEMod (Appendix A). The project will implement the control measures discussed in Section 6.1, *Standard Control Measures*, and the mitigation measure discussed in Section 6.2, *Mitigation Measures,* which would reduce TAC emissions during construction. The project's construction emissions from particulate exhaust matter, which is utilized to represent diesel PM, is less than 1 pound per day and 0.07 ton per year as shown in Appendix A. The project's operations emissions from particulate exhaust matter would be less than 0.25 pound per day and 0.04 ton per year as shown in Appendix A. Therefore, TAC emissions would be low and consistent with TAC-related rules and regulations. As shown in Table 2 of Appendix B (pg. 9), implementation of the exhaust control measures under Control Measure AIR-1 would reduce the health risks during project construction at the Maximum Exposed Individual Resident (MEIR) and On-Site Student below the thresholds of significance. Therefore, with the implementation of Control Measure AIR-1, construction of the project would not expose existing sensitive receptors or off-site workers to substantial concentrations of TACs and $PM_{2.5}$.

6 IMPACT ANALYSIS

Impact AQ-1 **Would the project conflict with or obstruct implementation of the applicable air quality plan?**

Less Than Significant Impact. A project is conforming with applicable adopted plans if it complies with the applicable BAAQMD rules and regulations and emission control strategies. The 2017 Clean Air Plan is the current applicable regional AQP for the SFBAAB (BAAQMD 2023). The primary goals of the 2017 Clean Air Plan are to protect public health and the climate, and the plan acknowledges that the BAAQMD's two stated goals of protection are closely related. As such, the 2017 Clean Air Plan identifies a wide range of control measures intended to decrease both criteria pollutants and GHG emissions. Determining consistency with the 2017 Clean Air Plan involves assessing whether applicable control measures contained in the 2017 Clean Air Plan are implemented and whether implementation of the proposed project would disrupt or hinder implementation of AQP control measures. The control measures are organized into five categories: 1) stationary and area source control measures, 2) mobile source measures, 3) transportation control measures, 4) land use and local impact measures, and 5) energy and climate measures. The project is a modernization of a K-8 school that would update all existing building interiors and exteriors and the project site including utility upgrades as outlined in Section 2, *Project Description and Location*. The removal of natural gas infrastructure and conversion to an all-electric building as part of energy efficiency in combination with limited increase in student capacity and/or employment growth would be consistent with the 2017 Clean Air Plan. The control measures in the 2017 Clean Air Plan are consistent with the project, and all projects within BAAQMD's jurisdiction are required to implement the BAAQMD BMPs during construction activities. As discussed in Section 6.1, *Standard Control Measures*, the project would implement all BMPs for construction activities and would be consistent with the assumptions in the AQP. Furthermore, the proposed project would not include any special features that would disrupt or hinder implementation of the AQP control measures. Therefore, the project would not obstruct implementation of the 2017 Clean Air Plan.

Furthermore, the thresholds of significance, adopted by BAAQMD, determine compliance with the goals of attainment plans in the region. As such, emissions below the BAAQMD significance thresholds would not conflict with or obstruct implementation of the 2017 Clean Air Plan. As shown in Table 5, Table 6, and Table 7, emissions from project construction and operations would be below the thresholds of significance; therefore, the project would not conflict with implementation of the 2017 Clean Air Plan.

Impact AQ-2 **Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?**

Less Than Significant Impact. Project implementation would generate emissions of criteria air pollutants during construction and operation. The BAAQMD's thresholds of significance represent the allowable emissions a project can generate without generating a cumulatively considerable contribution to regional air quality impacts. Therefore, a project that would not exceed the BAAQMD thresholds of significance on a project level also would not be considered to result in a cumulatively considerable contribution to these regional air quality impacts. The region is in nonattainment for federal and state O_3 standards, state PM_{10} standards, and federal and state $PM_{2.5}$ standards. Impacts related to construction and operation of the proposed project are addressed separately below.

Construction

Implementation of the project would generate emissions of criteria air pollutants during construction. The estimated unmitigated emissions from construction of the project are summarized in Table 5. The detailed assumptions and calculations, as well as CalEEMod outputs, are provided in Appendix A.

As Table 5 shows, estimated unmitigated construction emissions for all pollutants would be below BAAQMD significance thresholds. The combined construction emissions from all components of the proposed project would be below the recommended BAAQMD thresholds of significance. Therefore, project construction would have a less-than-significant impact. However, for all projects, the BAAQMD recommends the implementation of BMPs, whether or not construction-related emissions exceed applicable thresholds of significance. BMPs consistent with regional rules and regulations and Control Measure AIR-1 have been included to further reduce localized impacts. The estimated mitigated emissions from construction of the project are summarized in Table 6.

Operations

Project operations would generate VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips; area sources, including the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment; water; waste; and energy sources. The estimated emissions from operation of the project are summarized in Table 7. Complete details of the emissions calculations are provided in Appendix A.

As Table 7 shows, estimated unmitigated operational emissions for all pollutants would be below BAAQMD significance thresholds. Also, project operations would meet the BAAQMD CO hotspot analysis screening criteria regarding traffic volumes at any affected intersection. Therefore, the proposed project would not need a CO hotspot analysis. Therefore, based on the above criteria, the proposed project would have a less-than-significant impact related to CO hotspots.

The combined construction emissions and combined operational emissions from all components of the proposed project would be below the recommended BAAQMD thresholds of significance. Therefore, the project would not be anticipated to exceed any significance threshold and would have a less-than-significant contribution to cumulative impacts.

Impact AQ-3 **Would the project expose sensitive receptors to substantial pollutant concentrations?**

Less Than Significant Impact. Some population groups, such as children, the elderly, and acutely and chronically ill persons, are considered more sensitive to air pollution than others. Sensitive receptor locations typically include residential areas, hospitals, elder-care facilities, rehabilitation centers, daycare centers, and parks. The K-8 school located in an urban area and is surrounded by many residences.

Sensitive receptors on the project site include the kindergarten to 8th grade classrooms where children congregate throughout the school day. Existing sensitive land uses near the project site include residences to the north, west, south, and southeast; the Synergy School about 510 feet to the south; the Semillitas Family Daycare about 710 feet to the east; and the Alta Vista Middle School about 750 feet to the northeast of the project site.

While criteria air pollutants (such as particulate matter [PM_{10} and $PM_{2.5}$]) are a concern at the regional level, community risk impacts from TACs and annual $PM_{2.5}$ exposure to nearby sensitive receptors are also a localized concern. While the discussion under Impact AQ-2 above addressed particulate matter at the regional level, this impact addresses particulate matter at the localized level. Operation of the project is not expected to cause any localized emissions that could expose sensitive receptors to unhealthy air pollutant levels, because no stationary sources of TACs, such as generators, are proposed as part of the project and none of the modernizations would increase current operational emissions. However, the project is a sensitive receptor that could be exposed to existing sources of TACs. Project-related construction activity would temporarily generate dust and equipment exhaust that could affect nearby sensitive receptors.

Construction activities, particularly during site preparation and grading would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if BMPs are employed to reduce these emissions. The project would comply with all control measures in Section 6.1, *Standard Control Measures*.

Construction equipment and associated heavy-duty truck traffic would also generate diesel exhaust, which is a known TAC. Construction exhaust emissions may pose community risks for sensitive receptors such as nearby residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors.

A community risk assessment was conducted to evaluate potential health effects on sensitive receptors at these nearby residences from construction emissions of diesel PM and $PM_{2.5}$. Results are presented in a health risk assessment in Appendix B. Emissions and dispersion modeling was conducted to predict the diesel PM concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated at each sensitive receptor. This dispersion modeling was completed utilizing the CalEEMod results presented in Appendix A. As shown in Table 2 of Appendix B (pg. 9), at the MEIR the excess cancer risk level for unmitigated DPM was 50.4 in one million exceeding the 10 in one million TAC threshold of significance and the unmitigated annual average $PM_{2.5}$ was 0.27 $\mu g/m^3$, which would not exceed the 0.3 $\mu g/m^3$ annual average $PM_{2.5}$ threshold of significance. At the On-Site Student, the excess cancer risk for the unmitigated annual average $PM_{2.5}$ was 0.39 $\mu g/m^3$, exceeding the 0.3 $\mu g/m^3$ annual average $PM_{2.5}$ threshold of significance, and the excess cancer risk for unmitigated DPM was 14.7 in one million, exceeding the 10 in one million TAC threshold of significance. Table 2 in Appendix B also shows the health risks during project construction and that implementation of Control Measure AIR-1 (see Section 6.2) would reduce impacts below the TAC and $PM_{2.5}$ significance thresholds by equipping all off-road diesel equipment with Tier 4 engines. The use of the Tier 4 engines would reduce the project DPM and $PM_{2.5}$ emissions by 81% and 61%, respectively. Therefore, it is recommended that the project should implement Control Measure AIR-1 to control diesel exhaust during construction. The project would also implement the control measures discussed in Section 6.1, *Standard Control Measures*, which would reduce TAC and $PM_{2.5}$ emissions and impacts. The project's construction emissions from particulate exhaust matter, which is utilized to represent diesel PM, would be less than 1 pound per day and 0.07 ton per year as shown in Appendix A. The project's operations emissions from particulate exhaust matter would be less than 0.25 pound per day and 0.04 ton per year, as shown in Appendix A. Therefore, TAC emissions would be low and consistent with TAC-related rules and regulations and would have a less-than-significant impact. Estimates of the cumulative health risks at the MEIR for the project are summarized and compared to the BAAQMD's cumulative thresholds of significance in Table 3 of Appendix B (pgs. 11—12). As shown in Table 3, the cumulative cancer risk, chronic hazard index, and annual average $PM_{2.5}$ concentration at the MEIR would be below the BAAQMD's cumulative thresholds. Therefore, implementation of the project would not expose existing sensitive receptors to substantial concentrations of TACs and $PM_{2.5}$ that would be considered cumulatively considerable.

As discussed, NOA is prevalent in at least 44 of California's 58 counties, which when broken or crushed, asbestos may become released and become airborne, causing a potential health hazard. BAAQMD Regulation 11, Rule 2, in addition to the ATCMs, controls emissions of asbestos to the atmosphere during demolition, renovation, milling, and manufacturing and establish appropriate waste disposal procedures. The project is not located in a geologic setting with a potential to host asbestos and, therefore, NOA asbestos would not be an issue for this project (CARB 2000a).

Impact AQ-4 **Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

Less Than Significant Impact. The project would not be a source of any odors during construction and operations. During construction, a limited number of diesel engines would be operated on the project site for limited durations. Diesel exhaust and VOCs from these diesel engines would be emitted during construction of the proposed project, which are objectionable to some; however, emissions would disperse rapidly from the project site, and diesel exhaust odors would be consistent with existing vehicle odors in the area. Considering this information, construction and operation of the proposed project would not create other emissions or odors adversely affecting a substantial number of people and would have a less-than-significant impact.

6.1 Standard Control Measures

As discussed, all construction projects within BAAQMD jurisdiction must comply with the BMPs regarding fugitive dust and equipment exhaust emissions. The BMPs to be included in the project consistent with regional rules and regulations are as follows:

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

Implementation of these control measures would ensure that the recommended BAAQMD BMPs are in place to reduce impacts. The BAAQMD's standard control measures should be stipulated in contract requirements and detailed on all construction plans.

6.2 Mitigation Measures

As noted, due to the location of the school in an APEZ and the potential exposure of sensitive receptors to construction-related TACs and $PM_{2.5}$ emissions in excess of the BAAQMD's thresholds, it is recommended that the project implement Control Measures AIR-1 to control diesel exhaust during construction.

> **Control Measure AIR-1**: During project construction, all diesel engines for off-road equipment shall meet the California Air Resources Board's Tier 4 certification requirements, unless a good faith effort by the contractor can demonstrate that such engines are not available for particular equipment. In the event that a Tier 4 engine is not available for any off-road equipment, a Tier 3 engine shall be used or that equipment shall be equipped with retrofit controls (e.g., diesel particulate filter) to reduce exhaust emissions of diesel particulate matter (DPM) to no more than Tier 3 levels unless certified by the engine manufacturers that the use of such devices is not practical for specific engine types. The contractor shall submit equipment logs demonstrating Tier level compliance with this measure for all off-road diesel equipment to the San Francisco Unified School District prior to the start of construction activities. During project construction, all off-road diesel equipment shall have tags clearly visible for inspection showing that the engine meets the standards of this measure. The foregoing requirements shall be included in the appropriate contract documents with the contractor.

Equipping all off-road diesel equipment with Tier 4 engines would reduce the project DPM and $PM_{2.5}$ emissions by 81% and 61%, respectively. Requirements to use best available verified diesel emissions control (VDEC) engines such as Tier 4 engines would reduce impacts to a less-than-significant levels. The use of Tier 4 engines for construction equipment should be stipulated in contract requirements and detailed on all construction plans.

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APPENDIX A

2024 CalEEMod Results
Air Pollutant and GHG Emission Calculations

Buena-Vista Horace Mann School Modernization Project V2 v2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Buena-Vista Horace Mann School Modernization Project V2 v2
Construction Start Date	8/1/2025
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	4.60
Precipitation (days)	41.8
Location	3351 23rd St, San Francisco, CA 94110, USA
County	San Francisco
City	San Francisco
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1143
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Elementary School	112	1000sqft	2.56	106,179	13,470	13,470	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.66	2.08	18.6	21.1	0.05	0.68	2.96	3.54	0.62	0.41	0.95	—	5,556	5,556	0.37	0.21	3.79	5,632
Mit.	0.85	0.62	7.03	24.9	0.05	0.11	1.44	1.53	0.11	0.25	0.34	—	5,556	5,556	0.37	0.21	3.79	5,632
% Reduced	68%	70%	62%	-18%	—	84%	51%	57%	83%	39%	65%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.90	83.2	18.0	22.6	0.06	0.67	8.45	9.12	0.61	3.66	4.27	—	6,652	6,652	0.54	0.38	0.18	6,781
Mit.	1.23	83.1	9.90	27.5	0.06	0.13	3.58	3.66	0.12	1.51	1.60	—	6,652	6,652	0.54	0.38	0.18	6,781
% Reduced	57%	< 0.5%	45%	-22%	—	81%	58%	60%	80%	59%	63%	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.64	5.20	10.3	13.0	0.03	0.33	1.28	1.60	0.31	0.32	0.61	—	3,632	3,632	0.24	0.15	1.10	3,682
Mit.	0.58	4.38	4.73	16.8	0.03	0.07	0.70	0.78	0.07	0.19	0.26	—	3,632	3,632	0.24	0.15	1.10	3,682
% Reduced	64%	16%	54%	-29%	—	78%	45%	51%	76%	41%	58%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	0.95	1.89	2.37	0.01	0.06	0.23	0.29	0.06	0.06	0.11	—	601	601	0.04	0.02	0.18	610
Mit.	0.11	0.80	0.86	3.06	0.01	0.01	0.13	0.14	0.01	0.03	0.05	—	601	601	0.04	0.02	0.18	610
% Reduced	64%	16%	54%	-29%	—	78%	45%	51%	76%	41%	58%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.66	2.08	18.6	21.1	0.05	0.68	2.96	3.54	0.62	0.41	0.95	—	5,556	5,556	0.37	0.21	3.79	5,632
2026	2.35	1.81	14.9	18.4	0.05	0.48	1.37	1.85	0.44	0.23	0.68	—	5,082	5,082	0.34	0.19	3.49	5,151
2027	2.27	1.76	14.2	18.2	0.04	0.43	1.37	1.80	0.40	0.23	0.63	—	5,047	5,047	0.33	0.19	3.16	5,114
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.45	1.90	16.4	18.5	0.05	0.67	8.45	9.12	0.61	3.66	4.27	—	5,092	5,092	0.36	0.21	0.10	5,163
2026	2.90	83.2	18.0	22.6	0.06	0.61	2.73	3.25	0.56	0.47	0.95	—	6,652	6,652	0.54	0.38	0.18	6,781
2027	2.53	1.99	16.6	20.1	0.04	0.64	8.45	9.09	0.59	3.66	4.25	—	5,465	5,465	0.35	0.20	0.08	5,535
2028	2.18	1.69	13.5	18.0	0.04	0.39	1.37	1.75	0.36	0.23	0.59	—	4,988	4,988	0.32	0.19	0.07	5,054

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.73	0.57	4.97	5.63	0.01	0.18	0.76	0.94	0.16	0.23	0.39	—	1,503	1,503	0.11	0.06	0.49	1,524
2026	1.61	5.20	10.3	12.5	0.03	0.33	0.93	1.26	0.31	0.16	0.47	—	3,484	3,484	0.24	0.15	1.10	3,535
2027	1.64	1.27	10.3	13.0	0.03	0.32	1.28	1.60	0.30	0.32	0.61	—	3,632	3,632	0.24	0.14	0.98	3,682
2028	0.21	0.16	1.29	1.72	< 0.005	0.04	0.12	0.16	0.03	0.02	0.06	—	478	478	0.03	0.02	0.12	484
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.13	0.10	0.91	1.03	< 0.005	0.03	0.14	0.17	0.03	0.04	0.07	—	249	249	0.02	0.01	0.08	252
2026	0.29	0.95	1.88	2.29	0.01	0.06	0.17	0.23	0.06	0.03	0.09	—	577	577	0.04	0.02	0.18	585
2027	0.30	0.23	1.89	2.37	0.01	0.06	0.23	0.29	0.05	0.06	0.11	—	601	601	0.04	0.02	0.16	610
2028	0.04	0.03	0.24	0.31	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.01	—	79.2	79.2	0.01	< 0.005	0.02	80.2

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.76	0.55	4.84	24.9	0.05	0.09	1.44	1.53	0.09	0.25	0.34	—	5,556	5,556	0.37	0.21	3.79	5,632
2026	0.85	0.62	7.03	23.6	0.05	0.11	0.82	0.93	0.11	0.18	0.29	—	5,082	5,082	0.34	0.19	3.49	5,151
2027	0.83	0.62	6.92	23.4	0.04	0.11	0.82	0.92	0.10	0.18	0.28	—	5,047	5,047	0.33	0.19	3.16	5,114
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.87	0.64	7.28	23.5	0.05	0.11	3.58	3.64	0.11	1.51	1.58	—	5,092	5,092	0.36	0.21	0.10	5,163
2026	1.23	83.1	9.90	27.5	0.06	0.13	1.63	1.76	0.12	0.36	0.48	—	6,652	6,652	0.54	0.38	0.18	6,781
2027	0.83	0.62	7.02	24.5	0.04	0.11	3.58	3.66	0.10	1.51	1.60	—	5,465	5,465	0.35	0.20	0.08	5,535
2028	0.87	0.66	7.39	23.2	0.04	0.13	0.82	0.94	0.12	0.18	0.30	—	4,988	4,988	0.32	0.19	0.07	5,054

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.23	0.17	1.68	6.84	0.01	0.03	0.39	0.42	0.03	0.11	0.14	—	1,503	1,503	0.11	0.06	0.49	1,524
2026	0.58	4.38	4.69	15.9	0.03	0.07	0.57	0.64	0.07	0.13	0.20	—	3,484	3,484	0.24	0.15	1.10	3,535
2027	0.58	0.43	4.73	16.8	0.03	0.07	0.70	0.78	0.07	0.19	0.26	—	3,632	3,632	0.24	0.14	0.98	3,682
2028	0.08	0.06	0.67	2.22	< 0.005	0.01	0.07	0.09	0.01	0.02	0.03	—	478	478	0.03	0.02	0.12	484
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.04	0.03	0.31	1.25	< 0.005	0.01	0.07	0.08	0.01	0.02	0.03	—	249	249	0.02	0.01	0.08	252
2026	0.11	0.80	0.86	2.89	0.01	0.01	0.10	0.12	0.01	0.02	0.04	—	577	577	0.04	0.02	0.18	585
2027	0.11	0.08	0.86	3.06	0.01	0.01	0.13	0.14	0.01	0.03	0.05	—	601	601	0.04	0.02	0.16	610
2028	0.01	0.01	0.12	0.41	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	79.2	79.2	0.01	< 0.005	0.02	80.2

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.59	5.82	3.00	20.6	0.04	0.16	2.69	2.85	0.16	0.68	0.84	83.9	5,288	5,372	8.81	0.16	8.14	5,649
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.74	5.02	3.16	16.4	0.04	0.15	2.69	2.84	0.15	0.68	0.84	83.9	5,145	5,229	8.83	0.18	0.61	5,502
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.39	4.70	2.73	14.0	0.03	0.15	1.87	2.02	0.15	0.48	0.62	83.9	4,325	4,409	8.76	0.13	2.79	4,669
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.44	0.86	0.50	2.55	0.01	0.03	0.34	0.37	0.03	0.09	0.11	13.9	716	730	1.45	0.02	0.46	773

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.58	2.39	1.22	14.5	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	3,035	3,035	0.20	0.14	7.73	3,090
Area	0.82	3.33	0.04	4.62	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.0	19.0	< 0.005	< 0.005	—	19.1
Energy	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,223	2,223	0.21	0.01	—	2,230
Water	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	3.59	5.82	3.00	20.6	0.04	0.16	2.69	2.85	0.16	0.68	0.84	83.9	5,288	5,372	8.81	0.16	8.14	5,649
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.55	2.35	1.41	15.0	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	2,910	2,910	0.23	0.15	0.20	2,962
Area	—	2.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,223	2,223	0.21	0.01	—	2,230
Water	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	2.74	5.02	3.16	16.4	0.04	0.15	2.69	2.84	0.15	0.68	0.84	83.9	5,145	5,229	8.83	0.18	0.61	5,502
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.79	1.65	0.96	10.2	0.02	0.01	1.87	1.89	0.01	0.48	0.49	—	2,081	2,081	0.16	0.11	2.38	2,119
Area	0.41	2.95	0.02	2.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.36	9.36	< 0.005	< 0.005	—	9.40
Energy	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,223	2,223	0.21	0.01	—	2,230
Water	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3

Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	2.39	4.70	2.73	14.0	0.03	0.15	1.87	2.02	0.15	0.48	0.62	83.9	4,325	4,409	8.76	0.13	2.79	4,669
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.30	0.18	1.86	< 0.005	< 0.005	0.34	0.34	< 0.005	0.09	0.09	—	345	345	0.03	0.02	0.39	351
Area	0.07	0.54	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56
Energy	0.04	0.02	0.32	0.27	< 0.005	0.02	—	0.02	0.02	—	0.02	—	368	368	0.03	< 0.005	—	369
Water	—	—	—	—	—	—	—	—	—	—	—	0.95	1.91	2.86	0.10	< 0.005	—	6.01
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	0.44	0.86	0.50	2.55	0.01	0.03	0.34	0.37	0.03	0.09	0.11	13.9	716	730	1.45	0.02	0.46	773

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.58	2.39	1.22	14.5	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	3,035	3,035	0.20	0.14	7.73	3,090
Area	0.82	3.33	0.04	4.62	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.0	19.0	< 0.005	< 0.005	—	19.1
Energy	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,223	2,223	0.21	0.01	—	2,230
Water	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	3.59	5.82	3.00	20.6	0.04	0.16	2.69	2.85	0.16	0.68	0.84	83.9	5,288	5,372	8.81	0.16	8.14	5,649
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.55	2.35	1.41	15.0	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	2,910	2,910	0.23	0.15	0.20	2,962

Area	—	2.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,223	2,223	0.21	0.01	—	2,230
Water	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	2.74	5.02	3.16	16.4	0.04	0.15	2.69	2.84	0.15	0.68	0.84	83.9	5,145	5,229	8.83	0.18	0.61	5,502
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.79	1.65	0.96	10.2	0.02	0.01	1.87	1.89	0.01	0.48	0.49	—	2,081	2,081	0.16	0.11	2.38	2,119
Area	0.41	2.95	0.02	2.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.36	9.36	< 0.005	< 0.005	—	9.40
Energy	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,223	2,223	0.21	0.01	—	2,230
Water	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	2.39	4.70	2.73	14.0	0.03	0.15	1.87	2.02	0.15	0.48	0.62	83.9	4,325	4,409	8.76	0.13	2.79	4,669
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.30	0.18	1.86	< 0.005	< 0.005	0.34	0.34	< 0.005	0.09	0.09	—	345	345	0.03	0.02	0.39	351
Area	0.07	0.54	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56
Energy	0.04	0.02	0.32	0.27	< 0.005	0.02	—	0.02	0.02	—	0.02	—	368	368	0.03	< 0.005	—	369
Water	—	—	—	—	—	—	—	—	—	—	—	0.95	1.91	2.86	0.10	< 0.005	—	6.01
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	0.44	0.86	0.50	2.55	0.01	0.03	0.34	0.37	0.03	0.09	0.11	13.9	716	730	1.45	0.02	0.46	773

3. Construction Emissions Details

3.1. Demolition -South (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.28	1.92	16.7	18.0	0.04	0.67	—	0.67	0.61	—	0.61	—	3,826	3,826	0.16	0.03	—	3,839
Demolition	—	—	—	—	—	—	0.22	0.22	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.81	3.81	< 0.005	< 0.005	< 0.005	4.05
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.37	1.48	< 0.005	0.05	—	0.05	0.05	—	0.05	—	314	314	0.01	< 0.005	—	316
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	0.31	0.31	< 0.005	< 0.005	< 0.005	0.33
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	52.1	52.1	< 0.005	< 0.005	—	52.2
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.14	0.13	0.09	1.68	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	415	415	0.01	0.01	1.56	421
Vendor	0.10	0.02	0.90	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	543	543	0.08	0.08	1.29	570
Hauling	0.13	0.01	0.91	0.74	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	509	509	0.12	0.08	0.94	537
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.3	32.3	< 0.005	< 0.005	0.06	32.8
Vendor	0.01	< 0.005	0.08	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.6	44.6	0.01	0.01	0.05	46.8
Hauling	0.01	< 0.005	0.08	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.8	41.8	0.01	0.01	0.03	44.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.35	5.35	< 0.005	< 0.005	0.01	5.42
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.39	7.39	< 0.005	< 0.005	0.01	7.75
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.92	6.92	< 0.005	< 0.005	0.01	7.30

3.2. Demolition -South (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.38	2.92	21.1	0.04	0.07	—	0.07	0.07	—	0.07	—	3,826	3,826	0.16	0.03	—	3,839
Demolition	—	—	—	—	—	—	0.14	0.14	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.81	3.81	< 0.005	< 0.005	< 0.005	4.05

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.24	1.74	< 0.005	0.01	—	0.01	0.01	—	0.01	—	314	314	0.01	< 0.005	—	316
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.31	0.31	< 0.005	< 0.005	< 0.005	0.33
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.04	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	52.1	52.1	< 0.005	< 0.005	—	52.2
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.09	1.68	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	415	415	0.01	0.01	1.56	421
Vendor	0.10	0.02	0.90	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	543	543	0.08	0.08	1.29	570
Hauling	0.13	0.01	0.91	0.74	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	509	509	0.12	0.08	0.94	537
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.3	32.3	< 0.005	< 0.005	0.06	32.8
Vendor	0.01	< 0.005	0.08	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.6	44.6	0.01	0.01	0.05	46.8
Hauling	0.01	< 0.005	0.08	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.8	41.8	0.01	0.01	0.03	44.1

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.35	5.35	< 0.005	< 0.005	0.01	5.42
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.39	7.39	< 0.005	< 0.005	0.01	7.75
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.92	6.92	< 0.005	< 0.005	0.01	7.30

3.3. Demolition -North (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.83	15.5	17.6	0.04	0.60	—	0.60	0.55	—	0.55	—	3,827	3,827	0.16	0.03	—	3,841
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.15	1.31	< 0.005	0.04	—	0.04	0.04	—	0.04	—	285	285	0.01	< 0.005	—	286
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.05	0.05	< 0.005	< 0.005	< 0.005	—	0.28	0.28	< 0.005	< 0.005	< 0.005	0.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.21	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	—	47.1	47.1	< 0.005	< 0.005	—	47.3

Demolitio	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390
Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556
Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.7	28.7	< 0.005	< 0.005	0.05	29.1
Vendor	0.01	< 0.005	0.06	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.5	39.5	0.01	0.01	0.04	41.4
Hauling	0.01	< 0.005	0.07	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.8	36.8	0.01	0.01	0.03	38.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.75	4.75	< 0.005	< 0.005	0.01	4.82
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.53	6.53	< 0.005	< 0.005	0.01	6.86
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.09	6.09	< 0.005	< 0.005	< 0.005	6.43

3.4. Demolition -North (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.38	2.92	21.1	0.04	0.07	—	0.07	0.07	—	0.07	—	3,827	3,827	0.16	0.03	—	3,841
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.22	1.57	< 0.005	0.01	—	0.01	0.01	—	0.01	—	285	285	0.01	< 0.005	—	286
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.28	0.28	< 0.005	< 0.005	< 0.005	0.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.04	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.1	47.1	< 0.005	< 0.005	—	47.3
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390
Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556

Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.7	28.7	< 0.005	< 0.005	0.05	29.1
Vendor	0.01	< 0.005	0.06	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.5	39.5	0.01	0.01	0.04	41.4
Hauling	0.01	< 0.005	0.07	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.8	36.8	0.01	0.01	0.03	38.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.75	4.75	< 0.005	< 0.005	0.01	4.82
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.53	6.53	< 0.005	< 0.005	0.01	6.86
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.09	6.09	< 0.005	< 0.005	< 0.005	6.43

3.5. Demolition -North (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.13	1.79	14.9	17.4	0.04	0.56	—	0.56	0.51	—	0.51	—	3,827	3,827	0.16	0.03	—	3,840
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.87
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30.0	30.0	< 0.005	< 0.005	—	30.1

Demolitio	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.96	4.96	< 0.005	< 0.005	—	4.98
Demolitio n	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.10	1.37	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	379	379	0.01	0.01	0.03	383
Vendor	0.09	0.02	0.82	0.59	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	0.03	542
Hauling	0.12	0.01	0.84	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.02	507
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.97	2.97	< 0.005	< 0.005	< 0.005	3.01
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.24
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.76	3.76	< 0.005	< 0.005	< 0.005	3.97
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.50
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.70
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	0.66

3.6. Demolition -North (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.38	2.92	21.1	0.04	0.07	—	0.07	0.07	—	0.07	—	3,827	3,827	0.16	0.03	—	3,840
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.87
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30.0	30.0	< 0.005	< 0.005	—	30.1
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.96	4.96	< 0.005	< 0.005	—	4.98
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.10	1.37	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	379	379	0.01	0.01	0.03	383
Vendor	0.09	0.02	0.82	0.59	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	0.03	542
Hauling	0.12	0.01	0.84	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.02	507
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.97	2.97	< 0.005	< 0.005	< 0.005	3.01
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.24
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.76	3.76	< 0.005	< 0.005	< 0.005	3.97
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.50
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.70
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	0.66

3.7. Site Preparation - South (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.96	1.65	13.7	14.2	0.04	0.57	—	0.57	0.53	—	0.53	—	4,085	4,085	0.17	0.03	—	4,099

Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.81	3.81	< 0.005	< 0.005	< 0.005	4.05
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.49	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.1	24.1	< 0.005	< 0.005	—	24.2
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.09	1.68	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	415	415	0.01	0.01	1.56	421
Vendor	0.10	0.02	0.90	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	543	543	0.08	0.08	1.29	570
Hauling	0.13	0.01	0.91	0.74	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	509	509	0.12	0.08	0.94	537

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.0	14.0	< 0.005	< 0.005	0.02	14.2
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	19.3	19.3	< 0.005	< 0.005	0.02	20.3
Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.1	18.1	< 0.005	< 0.005	0.01	19.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.32	2.32	< 0.005	< 0.005	< 0.005	2.35
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.36
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16

3.8. Site Preparation - South (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.39	2.01	21.9	0.04	0.08	—	0.08	0.08	—	0.08	—	4,085	4,085	0.17	0.03	—	4,099
Dust From Material Movement	—	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.81	3.81	< 0.005	< 0.005	< 0.005	4.05
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.1	24.1	< 0.005	< 0.005	—	24.2
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.09	1.68	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	415	415	0.01	0.01	1.56	421
Vendor	0.10	0.02	0.90	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	543	543	0.08	0.08	1.29	570
Hauling	0.13	0.01	0.91	0.74	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	509	509	0.12	0.08	0.94	537
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.0	14.0	< 0.005	< 0.005	0.02	14.2
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	19.3	19.3	< 0.005	< 0.005	0.02	20.3

Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.1	18.1	< 0.005	< 0.005	0.01	19.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.32	2.32	< 0.005	< 0.005	< 0.005	2.35
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.36
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16

3.9. Site Preparation - North (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.83	1.54	11.6	14.0	0.04	0.48	—	0.48	0.44	—	0.44	—	4,085	4,085	0.17	0.03	—	4,099
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.87
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.05	0.41	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	146	146	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.1	24.1	< 0.005	< 0.005	—	24.2
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.10	1.37	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	379	379	0.01	0.01	0.03	383
Vendor	0.09	0.02	0.82	0.59	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	0.03	542
Hauling	0.12	0.01	0.84	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.02	507
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.02	13.7
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.4	18.4	< 0.005	< 0.005	0.02	19.3
Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.01	18.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.24	2.24	< 0.005	< 0.005	< 0.005	2.27
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.05	3.05	< 0.005	< 0.005	< 0.005	3.20
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.99

3.10. Site Preparation - North (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.39	2.01	21.9	0.04	0.08	—	0.08	0.08	—	0.08	—	4,085	4,085	0.17	0.03	—	4,099
Dust From Material Movement	—	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.87
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	146	146	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.1	24.1	< 0.005	< 0.005	—	24.2

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.10	1.37	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	379	379	0.01	0.01	0.03	383
Vendor	0.09	0.02	0.82	0.59	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	0.03	542
Hauling	0.12	0.01	0.84	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.02	507
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.02	13.7
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.4	18.4	< 0.005	< 0.005	0.02	19.3
Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.01	18.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.24	2.24	< 0.005	< 0.005	< 0.005	2.27
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.05	3.05	< 0.005	< 0.005	< 0.005	3.20
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.99

3.11. Grading - South (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.83	1.54	14.3	15.0	0.02	0.65	—	0.65	0.60	—	0.60	—	2,527	2,527	0.10	0.02	—	2,536
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.43	3.43	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.78	3.78	< 0.005	< 0.005	< 0.005	4.01
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.63	0.66	< 0.005	0.03	—	0.03	0.03	—	0.03	—	111	111	< 0.005	< 0.005	—	111
Dust From Material Movement	—	—	—	—	—	—	0.31	0.31	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.18
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.12	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	18.3	18.3	< 0.005	< 0.005	—	18.4
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.12	1.53	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	393	393	0.01	0.02	0.04	398
Vendor	0.10	0.02	0.94	0.62	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	543	543	0.08	0.08	0.03	569
Hauling	0.13	0.01	0.96	0.74	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	508	508	0.12	0.08	0.02	536
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.2	17.2	< 0.005	< 0.005	0.03	17.5
Vendor	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.8	23.8	< 0.005	< 0.005	0.02	25.0
Hauling	0.01	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.3	22.3	0.01	< 0.005	0.02	23.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.89
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.69	3.69	< 0.005	< 0.005	< 0.005	3.90

3.12. Grading - South (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.24	1.24	14.7	0.02	0.05	—	0.05	0.05	—	0.05	—	2,527	2,527	0.10	0.02	—	2,536

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.78	3.78	< 0.005	< 0.005	< 0.005	4.01
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.65	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	111	111	< 0.005	< 0.005	—	111
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.18
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.3	18.3	< 0.005	< 0.005	—	18.4
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.12	1.53	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	393	393	0.01	0.02	0.04	398
Vendor	0.10	0.02	0.94	0.62	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	543	543	0.08	0.08	0.03	569
Hauling	0.13	0.01	0.96	0.74	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	508	508	0.12	0.08	0.02	536

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.2	17.2	< 0.005	< 0.005	0.03	17.5
Vendor	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.8	23.8	< 0.005	< 0.005	0.02	25.0
Hauling	0.01	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.3	22.3	0.01	< 0.005	0.02	23.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.89
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.69	3.69	< 0.005	< 0.005	< 0.005	3.90

3.13. Grading - North (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	14.9	17.3	0.04	0.63	—	0.63	0.58	—	0.58	—	3,861	3,861	0.16	0.03	—	3,874
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.87
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.65	0.76	< 0.005	0.03	—	0.03	0.03	—	0.03	—	169	169	0.01	< 0.005	—	170

Dust From Material Movement	—	—	—	—	—	—	0.31	0.31	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.14	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	28.0	28.0	< 0.005	< 0.005	—	28.1
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.10	1.37	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	379	379	0.01	0.01	0.03	383
Vendor	0.09	0.02	0.82	0.59	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	0.03	542
Hauling	0.12	0.01	0.84	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.02	507
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.6	16.6	< 0.005	< 0.005	0.02	16.9
Vendor	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.7	22.7	< 0.005	< 0.005	0.02	23.8
Hauling	0.01	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.1	21.1	< 0.005	< 0.005	0.02	22.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.75	2.75	< 0.005	< 0.005	< 0.005	2.79
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.75	3.75	< 0.005	< 0.005	< 0.005	3.93

Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.49	3.49	< 0.005	< 0.005	< 0.005	3.68

3.14. Grading - North (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.36	1.89	21.3	0.04	0.07	—	0.07	0.07	—	0.07	—	3,861	3,861	0.16	0.03	—	3,874
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.87
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.08	0.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	169	169	0.01	< 0.005	—	170
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.0	28.0	< 0.005	< 0.005	—	28.1

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.10	1.37	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	379	379	0.01	0.01	0.03	383
Vendor	0.09	0.02	0.82	0.59	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	0.03	542
Hauling	0.12	0.01	0.84	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.02	507
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.6	16.6	< 0.005	< 0.005	0.02	16.9
Vendor	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.7	22.7	< 0.005	< 0.005	0.02	23.8
Hauling	0.01	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.1	21.1	< 0.005	< 0.005	0.02	22.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.75	2.75	< 0.005	< 0.005	< 0.005	2.79
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.75	3.75	< 0.005	< 0.005	< 0.005	3.93
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.49	3.49	< 0.005	< 0.005	< 0.005	3.68

3.15. Building Construction - South (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.73	13.8	15.6	0.04	0.52	—	0.52	0.48	—	0.48	—	3,644	3,644	0.15	0.03	—	3,657
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.78	3.78	< 0.005	< 0.005	< 0.005	4.01
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	1.89	2.13	< 0.005	0.07	—	0.07	0.07	—	0.07	—	499	499	0.02	< 0.005	—	501
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.34	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.6	82.6	< 0.005	< 0.005	—	82.9
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.12	1.53	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	393	393	0.01	0.02	0.04	398
Vendor	0.10	0.02	0.94	0.62	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	543	543	0.08	0.08	0.03	569
Hauling	0.13	0.01	0.96	0.74	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	508	508	0.12	0.08	0.02	536
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.01	0.20	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	53.9	53.9	< 0.005	< 0.005	0.09	54.6
Vendor	0.01	< 0.005	0.13	0.08	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	74.4	74.4	0.01	0.01	0.08	78.0
Hauling	0.02	< 0.005	0.13	0.10	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	69.7	69.7	0.02	0.01	0.06	73.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.92	8.92	< 0.005	< 0.005	0.02	9.04
Vendor	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.01	12.9
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.5	11.5	< 0.005	< 0.005	0.01	12.2

3.16. Building Construction - South (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.47	5.24	20.6	0.04	0.10	—	0.10	0.10	—	0.10	—	3,644	3,644	0.15	0.03	—	3,657
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.78	3.78	< 0.005	< 0.005	< 0.005	4.01
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.72	2.82	< 0.005	0.01	—	0.01	0.01	—	0.01	—	499	499	0.02	< 0.005	—	501
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.13	0.52	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	82.6	82.6	< 0.005	< 0.005	—	82.9

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.12	1.53	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	393	393	0.01	0.02	0.04	398
Vendor	0.10	0.02	0.94	0.62	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	543	543	0.08	0.08	0.03	569
Hauling	0.13	0.01	0.96	0.74	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	508	508	0.12	0.08	0.02	536
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.20	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	53.9	53.9	< 0.005	< 0.005	0.09	54.6
Vendor	0.01	< 0.005	0.13	0.08	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	74.4	74.4	0.01	0.01	0.08	78.0
Hauling	0.02	< 0.005	0.13	0.10	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	69.7	69.7	0.02	0.01	0.06	73.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.92	8.92	< 0.005	< 0.005	0.02	9.04
Vendor	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.01	12.9
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.5	11.5	< 0.005	< 0.005	0.01	12.2

3.17. Building Construction - South (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.99	1.66	13.1	15.5	0.04	0.47	—	0.47	0.43	—	0.43	—	3,645	3,645	0.15	0.03	—	3,658
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.74	3.74	< 0.005	< 0.005	< 0.005	3.98
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.99	1.66	13.1	15.5	0.04	0.47	—	0.47	0.43	—	0.43	—	3,645	3,645	0.15	0.03	—	3,658
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12	0.93	7.35	8.69	0.02	0.26	—	0.26	0.24	—	0.24	—	2,047	2,047	0.08	0.02	—	2,054
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	2.10	2.10	< 0.005	< 0.005	< 0.005	2.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.34	1.59	< 0.005	0.05	—	0.05	0.04	—	0.04	—	339	339	0.01	< 0.005	—	340
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.37
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.08	1.59	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	407	407	0.01	< 0.005	1.42	410
Vendor	0.10	0.02	0.84	0.60	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	531	531	0.08	0.08	1.19	557
Hauling	0.12	0.01	0.85	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.88	523
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390

Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556
Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.79	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	217	217	< 0.005	0.01	0.34	220
Vendor	0.06	0.01	0.49	0.34	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	298	298	0.04	0.04	0.29	313
Hauling	0.07	0.01	0.50	0.41	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	278	278	0.06	0.05	0.21	293
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.9	35.9	< 0.005	< 0.005	0.06	36.4
Vendor	0.01	< 0.005	0.09	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	49.3	49.3	0.01	0.01	0.05	51.8
Hauling	0.01	< 0.005	0.09	0.08	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.0	46.0	0.01	0.01	0.04	48.6

3.18. Building Construction - South (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.47	5.24	20.6	0.04	0.10	—	0.10	0.10	—	0.10	—	3,645	3,645	0.15	0.03	—	3,658
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.74	3.74	< 0.005	< 0.005	< 0.005	3.98
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.47	5.24	20.6	0.04	0.10	—	0.10	0.10	—	0.10	—	3,645	3,645	0.15	0.03	—	3,658
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.27	2.94	11.6	0.02	0.06	—	0.06	0.05	—	0.05	—	2,047	2,047	0.08	0.02	—	2,054
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	2.10	2.10	< 0.005	< 0.005	< 0.005	2.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	0.54	2.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	339	339	0.01	< 0.005	—	340
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.37
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.08	1.59	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	407	407	0.01	< 0.005	1.42	410
Vendor	0.10	0.02	0.84	0.60	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	531	531	0.08	0.08	1.19	557
Hauling	0.12	0.01	0.85	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.88	523
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390
Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556
Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.79	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	217	217	< 0.005	0.01	0.34	220
Vendor	0.06	0.01	0.49	0.34	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	298	298	0.04	0.04	0.29	313
Hauling	0.07	0.01	0.50	0.41	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	278	278	0.06	0.05	0.21	293
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.9	35.9	< 0.005	< 0.005	0.06	36.4

Vendor	0.01	< 0.005	0.09	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	49.3	49.3	0.01	0.01	0.05	51.8
Hauling	0.01	< 0.005	0.09	0.08	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.0	46.0	0.01	0.01	0.04	48.6

3.19. Building Construction - North (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.93	1.61	12.5	15.4	0.04	0.42	—	0.42	0.39	—	0.39	—	3,645	3,645	0.15	0.03	—	3,657
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.67	3.67	< 0.005	< 0.005	< 0.005	3.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.93	1.61	12.5	15.4	0.04	0.42	—	0.42	0.39	—	0.39	—	3,645	3,645	0.15	0.03	—	3,657
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.87
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.22	1.02	7.90	9.71	0.02	0.27	—	0.27	0.24	—	0.24	—	2,297	2,297	0.09	0.02	—	2,305
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.41	0.41	< 0.005	0.04	0.04	—	2.31	2.31	< 0.005	< 0.005	< 0.005	2.45
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.44	1.77	< 0.005	0.05	—	0.05	0.04	—	0.04	—	380	380	0.02	< 0.005	—	382
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.41

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.08	1.51	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	400	400	0.01	< 0.005	1.28	403
Vendor	0.09	0.02	0.78	0.58	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	1.06	543
Hauling	0.12	0.01	0.80	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.81	508
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.10	1.37	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	379	379	0.01	0.01	0.03	383
Vendor	0.09	0.02	0.82	0.59	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	0.03	542
Hauling	0.12	0.01	0.84	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.02	507
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.84	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	239	239	< 0.005	0.01	0.35	242
Vendor	0.06	0.01	0.51	0.37	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	326	326	0.04	0.05	0.29	342
Hauling	0.07	0.01	0.52	0.45	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	303	303	0.06	0.05	0.22	320
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.6	39.6	< 0.005	< 0.005	0.06	40.1
Vendor	0.01	< 0.005	0.09	0.07	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	53.9	53.9	0.01	0.01	0.05	56.6
Hauling	0.01	< 0.005	0.10	0.08	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.2	50.2	0.01	0.01	0.04	52.9

3.20. Building Construction - North (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.49	0.47	5.23	20.6	0.04	0.10	—	0.10	0.10	—	0.10	—	3,645	3,645	0.15	0.03	—	3,657
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.67	3.67	< 0.005	< 0.005	< 0.005	3.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.47	5.23	20.6	0.04	0.10	—	0.10	0.10	—	0.10	—	3,645	3,645	0.15	0.03	—	3,657
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.87
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.30	3.30	13.0	0.02	0.06	—	0.06	0.06	—	0.06	—	2,297	2,297	0.09	0.02	—	2,305
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.10	0.10	< 0.005	0.01	0.01	—	2.31	2.31	< 0.005	< 0.005	< 0.005	2.45
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.60	2.37	< 0.005	0.01	—	0.01	0.01	—	0.01	—	380	380	0.02	< 0.005	—	382
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.41
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.08	1.51	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	400	400	0.01	< 0.005	1.28	403
Vendor	0.09	0.02	0.78	0.58	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	1.06	543
Hauling	0.12	0.01	0.80	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.81	508
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.10	1.37	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	379	379	0.01	0.01	0.03	383

Vendor	0.09	0.02	0.82	0.59	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	517	517	0.07	0.08	0.03	542
Hauling	0.12	0.01	0.84	0.72	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	481	481	0.10	0.08	0.02	507
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.84	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	239	239	< 0.005	0.01	0.35	242
Vendor	0.06	0.01	0.51	0.37	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	326	326	0.04	0.05	0.29	342
Hauling	0.07	0.01	0.52	0.45	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	303	303	0.06	0.05	0.22	320
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.6	39.6	< 0.005	< 0.005	0.06	40.1
Vendor	0.01	< 0.005	0.09	0.07	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	53.9	53.9	0.01	0.01	0.05	56.6
Hauling	0.01	< 0.005	0.10	0.08	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.2	50.2	0.01	0.01	0.04	52.9

3.21. Building Construction - North (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.86	1.56	11.9	15.4	0.04	0.38	—	0.38	0.35	—	0.35	—	3,646	3,646	0.15	0.03	—	3,658
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.58	3.58	< 0.005	< 0.005	< 0.005	3.80
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.05	< 0.005	0.03	—	0.03	0.02	—	0.02	—	250	250	0.01	< 0.005	—	251

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.19	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	41.3	41.3	< 0.005	< 0.005	—	41.5
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.09	1.30	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	372	372	0.01	0.01	0.03	377
Vendor	0.08	0.02	0.76	0.57	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	502	502	0.07	0.07	0.02	525
Hauling	0.11	0.01	0.78	0.71	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	465	465	0.09	0.08	0.02	490
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.5	25.5	< 0.005	< 0.005	0.03	25.6
Vendor	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	0.01	0.03	36.0
Hauling	0.01	< 0.005	0.05	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.9	31.9	0.01	0.01	0.02	33.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.23	4.23	< 0.005	< 0.005	0.01	4.25
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.69	5.69	< 0.005	< 0.005	< 0.005	5.96
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.27	5.27	< 0.005	< 0.005	< 0.005	5.56

3.22. Building Construction - North (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.47	5.23	20.6	0.04	0.10	—	0.10	0.09	—	0.09	—	3,646	3,646	0.15	0.03	—	3,658
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.58	3.58	< 0.005	< 0.005	< 0.005	3.80
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.36	1.41	< 0.005	0.01	—	0.01	0.01	—	0.01	—	250	250	0.01	< 0.005	—	251
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	41.3	41.3	< 0.005	< 0.005	—	41.5
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.09	1.30	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	372	372	0.01	0.01	0.03	377
Vendor	0.08	0.02	0.76	0.57	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	502	502	0.07	0.07	0.02	525
Hauling	0.11	0.01	0.78	0.71	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	465	465	0.09	0.08	0.02	490

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.5	25.5	< 0.005	< 0.005	0.03	25.6
Vendor	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	0.01	0.03	36.0
Hauling	0.01	< 0.005	0.05	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.9	31.9	0.01	0.01	0.02	33.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.23	4.23	< 0.005	< 0.005	0.01	4.25
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.69	5.69	< 0.005	< 0.005	< 0.005	5.96
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.27	5.27	< 0.005	< 0.005	< 0.005	5.56

3.23. Paving - North (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.86	1.56	11.9	15.4	0.04	0.38	—	0.38	0.35	—	0.35	—	3,646	3,646	0.15	0.03	—	3,658
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.58	3.58	< 0.005	< 0.005	< 0.005	3.80
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.32	0.42	< 0.005	0.01	—	0.01	0.01	—	0.01	—	99.9	99.9	< 0.005	< 0.005	—	100
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.10	0.10	< 0.005	< 0.005	< 0.005	0.10
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.5	16.5	< 0.005	< 0.005	—	16.6
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.09	1.30	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	372	372	0.01	0.01	0.03	377
Vendor	0.08	0.02	0.76	0.57	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	502	502	0.07	0.07	0.02	525
Hauling	0.11	0.01	0.78	0.71	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	465	465	0.09	0.08	0.02	490
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.01	10.3
Vendor	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.01	14.4
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.7	12.7	< 0.005	< 0.005	0.01	13.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.69	1.69	< 0.005	< 0.005	< 0.005	1.70
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.38
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.11	2.11	< 0.005	< 0.005	< 0.005	2.22

3.24. Paving - North (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.52	5.74	20.6	0.04	0.12	—	0.12	0.11	—	0.11	—	3,646	3,646	0.15	0.03	—	3,658
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.58	3.58	< 0.005	< 0.005	< 0.005	3.80
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.16	0.56	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	99.9	99.9	< 0.005	< 0.005	—	100
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.10	0.10	< 0.005	< 0.005	< 0.005	0.10
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.5	16.5	< 0.005	< 0.005	—	16.6
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.09	1.30	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	372	372	0.01	0.01	0.03	377
Vendor	0.08	0.02	0.76	0.57	< 0.005	< 0.005	0.13	0.14	< 0.005	0.04	0.04	—	502	502	0.07	0.07	0.02	525
Hauling	0.11	0.01	0.78	0.71	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	465	465	0.09	0.08	0.02	490
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.01	10.3
Vendor	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.01	14.4
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.7	12.7	< 0.005	< 0.005	0.01	13.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.69	1.69	< 0.005	< 0.005	< 0.005	1.70
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.38
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.11	2.11	< 0.005	< 0.005	< 0.005	2.22

3.25. Paving - South (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.32	1.11	8.43	11.2	0.02	0.34	—	0.34	0.31	—	0.31	—	2,577	2,577	0.10	0.02	—	2,586
Paving	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	0.35	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	106	106	< 0.005	< 0.005	—	106
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.15	0.15	< 0.005	< 0.005	< 0.005	0.16

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.5	17.5	< 0.005	< 0.005	—	17.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390
Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556
Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.8	21.8	< 0.005	< 0.005	0.02	22.9
Hauling	0.01	< 0.005	0.04	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	20.3	20.3	< 0.005	< 0.005	0.02	21.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	< 0.005	2.66
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.61	3.61	< 0.005	< 0.005	< 0.005	3.79
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.37	3.37	< 0.005	< 0.005	< 0.005	3.55

3.26. Paving - South (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.31	2.84	15.2	0.02	0.06	—	0.06	0.06	—	0.06	—	2,577	2,577	0.10	0.02	—	2,586
Paving	—	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.12	0.62	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	106	106	< 0.005	< 0.005	—	106
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.15	0.15	< 0.005	< 0.005	< 0.005	0.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.5	17.5	< 0.005	< 0.005	—	17.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390
Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556

Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.8	21.8	< 0.005	< 0.005	0.02	22.9
Hauling	0.01	< 0.005	0.04	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	20.3	20.3	< 0.005	< 0.005	0.02	21.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	< 0.005	2.66
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.61	3.61	< 0.005	< 0.005	< 0.005	3.79
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.37	3.37	< 0.005	< 0.005	< 0.005	3.55

3.27. Architectural Coating - South (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.14	1.51	< 0.005	0.03	—	0.03	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	82.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.34	6.34	< 0.005	< 0.005	—	6.36
Architectural Coatings	—	2.95	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.05	1.05	< 0.005	< 0.005	—	1.05
Architectural Coatings	—	0.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390
Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556
Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	13.9
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.02	19.8
Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.6	17.6	< 0.005	< 0.005	0.01	18.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.31

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.13	3.13	< 0.005	< 0.005	< 0.005	3.28
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.92	2.92	< 0.005	< 0.005	< 0.005	3.08

3.28. Architectural Coating - South (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.86	1.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	82.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.34	6.34	< 0.005	< 0.005	—	6.36
Architectural Coatings	—	2.95	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.05	1.05	< 0.005	< 0.005	—	1.05

Architect Coatings	—	0.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390
Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556
Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	13.9
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.02	19.8
Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.6	17.6	< 0.005	< 0.005	0.01	18.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.31
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.13	3.13	< 0.005	< 0.005	< 0.005	3.28
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.92	2.92	< 0.005	< 0.005	< 0.005	3.08

3.29. Architectural Coating - North (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.14	1.51	< 0.005	0.03	—	0.03	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	52.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.74	0.74	< 0.005	0.07	0.07	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.41	3.41	< 0.005	< 0.005	—	3.43
Architectural Coatings	—	1.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.57	0.57	< 0.005	< 0.005	—	0.57
Architectural Coatings	—	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390
Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556
Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.41	7.41	< 0.005	< 0.005	0.01	7.51
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.01	10.7
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.49	9.49	< 0.005	< 0.005	0.01	10.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.23	1.23	< 0.005	< 0.005	< 0.005	1.24
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.68	1.68	< 0.005	< 0.005	< 0.005	1.77
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.57	1.57	< 0.005	< 0.005	< 0.005	1.66

3.30. Architectural Coating - North (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.86	1.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	52.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	3.72	3.72	< 0.005	< 0.005	< 0.005	3.94
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.41	3.41	< 0.005	< 0.005	—	3.43
Architectural Coatings	—	1.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.57	0.57	< 0.005	< 0.005	—	0.57
Architectural Coatings	—	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.45	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	385	385	0.01	0.01	0.04	390
Vendor	0.10	0.02	0.88	0.61	< 0.005	0.01	0.13	0.14	0.01	0.04	0.05	—	530	530	0.08	0.08	0.03	556
Hauling	0.12	0.01	0.90	0.73	0.01	0.01	0.12	0.12	0.01	0.03	0.04	—	495	495	0.11	0.08	0.02	522
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.41	7.41	< 0.005	< 0.005	0.01	7.51
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.01	10.7

Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.49	9.49	< 0.005	< 0.005	0.01	10.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.23	1.23	< 0.005	< 0.005	< 0.005	1.24
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.68	1.68	< 0.005	< 0.005	< 0.005	1.77
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.57	1.57	< 0.005	< 0.005	< 0.005	1.66

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	2.58	2.39	1.22	14.5	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	3,035	3,035	0.20	0.14	7.73	3,090
Total	2.58	2.39	1.22	14.5	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	3,035	3,035	0.20	0.14	7.73	3,090
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	2.55	2.35	1.41	15.0	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	2,910	2,910	0.23	0.15	0.20	2,962
Total	2.55	2.35	1.41	15.0	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	2,910	2,910	0.23	0.15	0.20	2,962
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.33	0.30	0.18	1.86	< 0.005	< 0.005	0.34	0.34	< 0.005	0.09	0.09	—	345	345	0.03	0.02	0.39	351

Total	0.33	0.30	0.18	1.86	< 0.005	< 0.005	0.34	0.34	< 0.005	0.09	0.09	—	345	345	0.03	0.02	0.39	351

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	2.58	2.39	1.22	14.5	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	3,035	3,035	0.20	0.14	7.73	3,090
Total	2.58	2.39	1.22	14.5	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	3,035	3,035	0.20	0.14	7.73	3,090
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	2.55	2.35	1.41	15.0	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	2,910	2,910	0.23	0.15	0.20	2,962
Total	2.55	2.35	1.41	15.0	0.03	0.02	2.69	2.71	0.02	0.68	0.70	—	2,910	2,910	0.23	0.15	0.20	2,962
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.33	0.30	0.18	1.86	< 0.005	< 0.005	0.34	0.34	< 0.005	0.09	0.09	—	345	345	0.03	0.02	0.39	351
Total	0.33	0.30	0.18	1.86	< 0.005	< 0.005	0.34	0.34	< 0.005	0.09	0.09	—	345	345	0.03	0.02	0.39	351

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Total	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Total	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	23.1	23.1	< 0.005	< 0.005	—	23.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	23.1	23.1	< 0.005	< 0.005	—	23.4

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Total	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Element School	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Total	—	—	—	—	—	—	—	—	—	—	—	—	140	140	0.02	< 0.005	—	141
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	23.1	23.1	< 0.005	< 0.005	—	23.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	23.1	23.1	< 0.005	< 0.005	—	23.4

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,083	2,083	0.18	< 0.005	—	2,089
Total	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,083	2,083	0.18	< 0.005	—	2,089
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,083	2,083	0.18	< 0.005	—	2,089
Total	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,083	2,083	0.18	< 0.005	—	2,089
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.04	0.02	0.32	0.27	< 0.005	0.02	—	0.02	0.02	—	0.02	—	345	345	0.03	< 0.005	—	346
Total	0.04	0.02	0.32	0.27	< 0.005	0.02	—	0.02	0.02	—	0.02	—	345	345	0.03	< 0.005	—	346

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,083	2,083	0.18	< 0.005	—	2,089
Total	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,083	2,083	0.18	< 0.005	—	2,089
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,083	2,083	0.18	< 0.005	—	2,089
Total	0.19	0.10	1.75	1.47	0.01	0.13	—	0.13	0.13	—	0.13	—	2,083	2,083	0.18	< 0.005	—	2,089
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.04	0.02	0.32	0.27	< 0.005	0.02	—	0.02	0.02	—	0.02	—	345	345	0.03	< 0.005	—	346
Total	0.04	0.02	0.32	0.27	< 0.005	0.02	—	0.02	0.02	—	0.02	—	345	345	0.03	< 0.005	—	346

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consum Products	—	2.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.82	0.76	0.04	4.62	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.0	19.0	< 0.005	< 0.005	—	19.1
Total	0.82	3.33	0.04	4.62	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.0	19.0	< 0.005	< 0.005	—	19.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	0.07	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56
Total	0.07	0.54	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.82	0.76	0.04	4.62	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.0	19.0	< 0.005	< 0.005	—	19.1
Total	0.82	3.33	0.04	4.62	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.0	19.0	< 0.005	< 0.005	—	19.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipme	0.07	0.07	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56
Total	0.07	0.54	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Total	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Total	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	0.95	1.91	2.86	0.10	< 0.005	—	6.01
Total	—	—	—	—	—	—	—	—	—	—	—	0.95	1.91	2.86	0.10	< 0.005	—	6.01

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Total	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Total	—	—	—	—	—	—	—	—	—	—	—	5.75	11.5	17.3	0.59	0.01	—	36.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	0.95	1.91	2.86	0.10	< 0.005	—	6.01
Total	—	—	—	—	—	—	—	—	—	—	—	0.95	1.91	2.86	0.10	< 0.005	—	6.01

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Elementary	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.3
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.3

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Total	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273

Total	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.3
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.3

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition -South	Demolition	8/1/2025	9/11/2025	5.00	30.0	—
Demolition -North	Demolition	11/24/2026	1/4/2027	5.00	30.0	—
Site Preparation - South	Site Preparation	9/12/2025	9/30/2025	5.00	13.0	—
Site Preparation - North	Site Preparation	1/5/2027	1/21/2027	5.00	13.0	—
Grading - South	Grading	10/1/2025	10/22/2025	5.00	16.0	—
Grading - North	Grading	1/22/2027	2/12/2027	5.00	16.0	—
Building Construction - South	Building Construction	10/23/2025	10/14/2026	5.00	255	—
Building Construction - North	Building Construction	2/13/2027	2/4/2028	5.00	255	—

Paving - North	Building Construction	2/5/2028	2/18/2028	5.00	10.0	—
Paving - South	Paving	10/15/2026	11/4/2026	5.00	15.0	—
Architectural Coating - South	Architectural Coating	11/5/2026	11/23/2026	5.00	13.0	—
Architectural Coating - North	Architectural Coating	2/19/2026	2/28/2026	5.00	7.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition -South	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Demolition -South	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition -South	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition -South	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Demolition -North	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition -North	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition -North	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Demolition -North	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Site Preparation - South	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation - South	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Site Preparation - South	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Site Preparation - South	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Site Preparation - North	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation - North	Scrapers	Diesel	Average	1.00	8.00	423	0.48

Site Preparation - North	Tractors/Loaders/Backh	Diesel	Average	1.00	8.00	84.0	0.37
Site Preparation - North	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Grading - South	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading - South	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading - South	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading - North	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading - North	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading - North	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading - North	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Building Construction - South	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction - South	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction - South	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction - South	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Building Construction - South	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Building Construction - South	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Building Construction - North	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction - North	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction - North	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction - North	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

Building Construction - North	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Building Construction - North	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Paving - North	Cranes	Diesel	Average	1.00	8.00	367	0.29
Paving - North	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Paving - North	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Paving - North	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving - North	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving - North	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Paving - South	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving - South	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving - South	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving - South	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving - South	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving - South	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Architectural Coating - South	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Architectural Coating - North	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition -South	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Demolition -South	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40

Demolition -South	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition -South	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	8.00	376	0.38
Demolition -North	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition -North	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Demolition -North	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Demolition -North	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	8.00	376	0.38
Site Preparation - South	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation - South	Scrapers	Diesel	Tier 4 Final	1.00	8.00	423	0.48
Site Preparation - South	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Site Preparation - South	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	8.00	376	0.38
Site Preparation - North	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation - North	Scrapers	Diesel	Tier 4 Final	1.00	8.00	423	0.48
Site Preparation - North	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Site Preparation - North	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	8.00	376	0.38
Grading - South	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading - South	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading - South	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Grading - North	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading - North	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading - North	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Grading - North	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	8.00	376	0.38
Building Construction - South	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29

Building Construction - South	Forklifts	Diesel	Tier 4 Final	2.00	8.00	82.0	0.20
Building Construction - South	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction - South	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Building Construction - South	Welders	Diesel	Tier 4 Final	3.00	8.00	46.0	0.45
Building Construction - South	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	8.00	376	0.38
Building Construction - North	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29
Building Construction - North	Forklifts	Diesel	Tier 4 Final	2.00	8.00	82.0	0.20
Building Construction - North	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction - North	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Building Construction - North	Welders	Diesel	Tier 4 Final	3.00	8.00	46.0	0.45
Building Construction - North	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	8.00	376	0.38
Paving - North	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29
Paving - North	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Paving - North	Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20
Paving - North	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Paving - North	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Paving - North	Welders	Diesel	Tier 4 Final	3.00	8.00	46.0	0.45
Paving - North	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	8.00	376	0.38
Paving - South	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37

Paving - South	Pavers	Diesel	Tier 4 Final	1.00	8.00	81.0	0.42
Paving - South	Paving Equipment	Diesel	Tier 4 Final	1.00	8.00	89.0	0.36
Paving - South	Rollers	Diesel	Tier 4 Final	2.00	8.00	36.0	0.38
Paving - South	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving - South	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	8.00	376	0.38
Architectural Coating - South	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	37.0	0.48
Architectural Coating - North	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition -South	—	—	—	—
Demolition -South	Worker	46.0	11.7	LDA,LDT1,LDT2
Demolition -South	Vendor	18.0	8.40	HHDT,MHDT
Demolition -South	Hauling	6.00	20.0	HHDT
Demolition -South	Onsite truck	1.00	0.50	HHDT
Site Preparation - South	—	—	—	—
Site Preparation - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Site Preparation - South	Vendor	18.0	8.40	HHDT,MHDT
Site Preparation - South	Hauling	6.00	20.0	HHDT
Site Preparation - South	Onsite truck	1.00	0.50	HHDT
Grading - South	—	—	—	—
Grading - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Grading - South	Vendor	18.0	8.40	HHDT,MHDT

Grading - South	Hauling	6.00	20.0	HHDT
Grading - South	Onsite truck	1.00	0.50	HHDT
Building Construction - South	—	—	—	—
Building Construction - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Building Construction - South	Vendor	18.0	8.40	HHDT,MHDT
Building Construction - South	Hauling	6.00	20.0	HHDT
Building Construction - South	Onsite truck	1.00	0.50	HHDT
Paving - South	—	—	—	—
Paving - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Paving - South	Vendor	18.0	8.40	HHDT,MHDT
Paving - South	Hauling	6.00	20.0	HHDT
Paving - South	Onsite truck	1.00	0.50	HHDT
Architectural Coating - South	—	—	—	—
Architectural Coating - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Architectural Coating - South	Vendor	18.0	8.40	HHDT,MHDT
Architectural Coating - South	Hauling	6.00	20.0	HHDT
Architectural Coating - South	Onsite truck	1.00	0.50	HHDT
Demolition -North	—	—	—	—
Demolition -North	Worker	46.0	11.7	LDA,LDT1,LDT2
Demolition -North	Vendor	18.0	8.40	HHDT,MHDT
Demolition -North	Hauling	6.00	20.0	HHDT
Demolition -North	Onsite truck	1.00	0.50	HHDT
Site Preparation - North	—	—	—	—
Site Preparation - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Site Preparation - North	Vendor	18.0	8.40	HHDT,MHDT
Site Preparation - North	Hauling	6.00	20.0	HHDT
Site Preparation - North	Onsite truck	1.00	0.50	HHDT

Grading - North	—	—	—	—
Grading - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Grading - North	Vendor	18.0	8.40	HHDT,MHDT
Grading - North	Hauling	6.00	20.0	HHDT
Grading - North	Onsite truck	1.00	0.50	HHDT
Building Construction - North	—	—	—	—
Building Construction - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Building Construction - North	Vendor	18.0	8.40	HHDT,MHDT
Building Construction - North	Hauling	6.00	20.0	HHDT
Building Construction - North	Onsite truck	1.00	0.50	HHDT
Paving - North	—	—	—	—
Paving - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Paving - North	Vendor	18.0	8.40	HHDT,MHDT
Paving - North	Hauling	6.00	20.0	HHDT
Paving - North	Onsite truck	1.00	0.50	HHDT
Architectural Coating - North	—	—	—	—
Architectural Coating - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Architectural Coating - North	Vendor	18.0	8.40	HHDT,MHDT
Architectural Coating - North	Hauling	6.00	20.0	HHDT
Architectural Coating - North	Onsite truck	1.00	0.50	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition -South	—	—	—	—
Demolition -South	Worker	46.0	11.7	LDA,LDT1,LDT2
Demolition -South	Vendor	18.0	8.40	HHDT,MHDT
Demolition -South	Hauling	6.00	20.0	HHDT

Demolition -South	Onsite truck	1.00	0.50	HHDT
Site Preparation - South	—	—	—	—
Site Preparation - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Site Preparation - South	Vendor	18.0	8.40	HHDT,MHDT
Site Preparation - South	Hauling	6.00	20.0	HHDT
Site Preparation - South	Onsite truck	1.00	0.50	HHDT
Grading - South	—	—	—	—
Grading - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Grading - South	Vendor	18.0	8.40	HHDT,MHDT
Grading - South	Hauling	6.00	20.0	HHDT
Grading - South	Onsite truck	1.00	0.50	HHDT
Building Construction - South	—	—	—	—
Building Construction - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Building Construction - South	Vendor	18.0	8.40	HHDT,MHDT
Building Construction - South	Hauling	6.00	20.0	HHDT
Building Construction - South	Onsite truck	1.00	0.50	HHDT
Paving - South	—	—	—	—
Paving - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Paving - South	Vendor	18.0	8.40	HHDT,MHDT
Paving - South	Hauling	6.00	20.0	HHDT
Paving - South	Onsite truck	1.00	0.50	HHDT
Architectural Coating - South	—	—	—	—
Architectural Coating - South	Worker	46.0	11.7	LDA,LDT1,LDT2
Architectural Coating - South	Vendor	18.0	8.40	HHDT,MHDT
Architectural Coating - South	Hauling	6.00	20.0	HHDT
Architectural Coating - South	Onsite truck	1.00	0.50	HHDT
Demolition -North	—	—	—	—

Demolition -North	Worker	46.0	11.7	LDA,LDT1,LDT2
Demolition -North	Vendor	18.0	8.40	HHDT,MHDT
Demolition -North	Hauling	6.00	20.0	HHDT
Demolition -North	Onsite truck	1.00	0.50	HHDT
Site Preparation - North	—	—	—	—
Site Preparation - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Site Preparation - North	Vendor	18.0	8.40	HHDT,MHDT
Site Preparation - North	Hauling	6.00	20.0	HHDT
Site Preparation - North	Onsite truck	1.00	0.50	HHDT
Grading - North	—	—	—	—
Grading - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Grading - North	Vendor	18.0	8.40	HHDT,MHDT
Grading - North	Hauling	6.00	20.0	HHDT
Grading - North	Onsite truck	1.00	0.50	HHDT
Building Construction - North	—	—	—	—
Building Construction - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Building Construction - North	Vendor	18.0	8.40	HHDT,MHDT
Building Construction - North	Hauling	6.00	20.0	HHDT
Building Construction - North	Onsite truck	1.00	0.50	HHDT
Paving - North	—	—	—	—
Paving - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Paving - North	Vendor	18.0	8.40	HHDT,MHDT
Paving - North	Hauling	6.00	20.0	HHDT
Paving - North	Onsite truck	1.00	0.50	HHDT
Architectural Coating - North	—	—	—	—
Architectural Coating - North	Worker	46.0	11.7	LDA,LDT1,LDT2
Architectural Coating - North	Vendor	18.0	8.40	HHDT,MHDT

Architectural Coating - North	Hauling	6.00	20.0	HHDT
Architectural Coating - North	Onsite truck	1.00	0.50	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating - South	0.00	0.00	150,000	55,000	—
Architectural Coating - North	0.00	0.00	53,090	17,697	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition -South	0.00	0.00	0.00	6,225	—
Demolition -North	0.00	0.00	0.00	0.00	—
Site Preparation - South	0.00	0.00	4.50	0.00	—
Site Preparation - North	0.00	0.00	19.5	0.00	—
Grading - South	250	0.00	6.00	0.00	—
Grading - North	0.00	0.00	16.0	0.00	—
Paving - South	0.00	0.00	0.00	0.00	0.91

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Elementary School	0.91	90%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005
2028	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Elementary School	803	0.00	0.00	209,328	3,788	0.00	0.00	987,499

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Elementary School	803	0.00	0.00	209,328	3,788	0.00	0.00	987,499

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	159,269	53,090	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Elementary School	250,000	204	0.0330	0.0040	6,500,000

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Elementary School	250,000	204	0.0330	0.0040	6,500,000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Elementary School	3,000,000	250,000

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Elementary School	3,000,000	250,000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Elementary School	145	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Elementary School	145	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Elementary School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Elementary School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Elementary School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Elementary School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Elementary School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Elementary School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Elementary School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Elementary School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	—	annual days of extreme heat
Extreme Precipitation	—	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	—	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—

Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—

2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	—
Asthma ER Admissions	—
High Blood Pressure	—
Cancer (excluding skin)	—
Asthma	—
Coronary Heart Disease	—
Chronic Obstructive Pulmonary Disease	—
Diagnosed Diabetes	—
Life Expectancy at Birth	—
Cognitively Disabled	—
Physically Disabled	—

Heart Attack ER Admissions	—
Mental Health Not Good	—
Chronic Kidney Disease	—
Obesity	—
Pedestrian Injuries	—
Physical Health Not Good	—
Stroke	—
Health Risk Behaviors	—
Binge Drinking	—
Current Smoker	—
No Leisure Time for Physical Activity	—
Climate Change Exposures	—
Wildfire Risk	—
SLR Inundation Area	—
Children	—
Elderly	—
English Speaking	—
Foreign-born	—
Outdoor Workers	—
Climate Change Adaptive Capacity	—
Impervious Surface Cover	—
Traffic Density	—
Traffic Access	—
Other Indices	—
Hardship	—
Other Decision Support	—
2016 Voting	—

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	School is on 2.56 acres
Construction: Paving	39,705 square feet of impervious area
Construction: Architectural Coatings	Updated for project specifics
Construction: Construction Phases	Anticipated schedule
Construction: Off-Road Equipment	Assumes 8 hours per day for all equipment
Construction: Dust From Material Movement	250 CY import
Construction: Trips and VMT	assumed max workers, vendors and haul trucks for all phases.
Operations: Vehicle Data	Project specific reduced from default in this area

Operations: Energy Use	Modified to match utility records
Operations: Water and Waste Water	Modified based on past utility records

APPENDIX B

2024 Health Risk Assessment

MEMORANDUM

Date: March 4, 2024 **Job No.:** 23227-00

To: Peter A. Mye, Lead Environmental Planner - Senior Project Manager, SWCA Environmental Consultants

From: Yilin Tian, Project Environmental Engineer, Baseline Environmental Consulting

Subject: Final Air Quality Health Risk Assessment for the San Francisco Unified School District's Buena Vista Horace Mann School Modernization Project

Baseline Environmental Consulting has prepared this technical memorandum to evaluate the potential health risk impacts associated with the proposed Buena Vista Horace Mann School Modernization Project (project) in San Francisco, California. The San Francisco Unified School District's Buena Vista Horace Mann (BVHM) School (school or project site) is located in the Mission District in the east central part of San Francisco, California (**Figure 1**). The project site addresses are 3351 23rd Street and 1241 Valencia Street, and the school is located on Assessor's Block 3643, Lot #034.

This technical memorandum evaluates the potential health risk impacts to nearby sensitive receptors exposed to diesel particulate matter (DPM) and fine particulate matter ($PM_{2.5}$) emissions from project construction. The health risks to nearby sensitive receptors were evaluated in accordance with guidance from the Office of Environmental Health Hazard Assessment (OEHHA)[1] and the Bay Area Air Quality Management District (BAAQMD).[2] This study will be used to support environmental review of the project under the California Environmental Quality Act (CEQA).

PROJECT DESCRIPTION

The project site is 2.56 acres and contains a series of two- and three-story connected buildings arranged along the site perimeter and surrounding two central courtyards (**Figure 2**). The north courtyard is approximately 14,000 square feet and the south courtyard is approximately 30,000 square feet. The school currently serves kindergarten through 8th grade with a capacity of 652 students. The project would demolish the existing one-story cafeteria within Building C2 and construct a new two-story cafeteria and classroom referred to as Building C4 in its place.

[1] Office of Environmental Health Hazard Assessment (OEHHA), 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, May.

[2] Bay Area Air Quality Management District (BAAQMD), 2023. CEQA Air Quality Guidelines. April.

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In addition, the project would modernize all existing building interiors and exteriors as follows:

- Upgrading heating, ventilation, and air conditioning; plumbing, electrical lighting, telecommunications, alarms, and security systems
- Making seismic improvements to existing shear walls
- Rehabilitating and/or replacing exterior windows to match the historic appearance
- Repairing the existing exterior finish
- Rehabilitating and/or replacing interior finishes (flooring, ceiling, painting)
- Adding accessibility improvements to existing bathrooms on every floor

The project would also modernize the project site as follows:

- Installing new ramps and stairs
- Removing all natural gas infrastructure and replace with electric utilities
- Rerouting and replace existing utilities
- Regrading existing asphalt pavement for accessibility and addition of permeable pavement
- Adding vegetated planters and bioretention areas
- Widening the vehicle driveway for fire department accessibility
- Reprograming schoolyard spaces

Construction of the project is expected to commence in August 2025 and end in February 2028, lasting for approximately 31 months. Construction would occur in two main phases such that demolition and new construction on the south side of the campus (Buildings C1, C2, C3, and C4) would occur in the first half of construction and renovations to the north side would occur in the second half of construction.

PROJECT ANALYSIS

During construction, the project would generate emissions of DPM and $PM_{2.5}$ from the exhaust of diesel-powered engines; these emissions are a complex mixture of soot, ash particulates, metallic abrasion particles, volatile organic compounds, and other components that can penetrate deeply into the lungs and contribute to a range of health problems. In 1998, the California Air Resources Board (CARB) identified DPM from diesel-powered engines as a toxic air contaminant (TAC) based on its potential to cause cancer and other adverse health effects.[3] The BAAQMD also recommends that construction emissions of $PM_{2.5}$, in addition to TACs, be considered in health risk assessments of air pollution due to its correlation with diesel exhaust and strong evidence for adverse health effects.

[3] California Air Resources Board (CARB), 1998. Initial Statement of Reasons for Rulemaking; Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, June.

Figure 1: Project Location

Figure 2: Existing Project Site Plan

Health Risk Screening Thresholds

For risk assessment purposes, TACs are separated into carcinogens and non-carcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per 1 million exposed individuals over a lifetime of exposure. Non-carcinogenic substances are generally assumed to have a safe threshold below which health impacts would not occur. Acute and chronic exposure to non-carcinogens is expressed as a hazard index (HI), which is the sum of expected exposure levels divided by the corresponding acceptable exposure levels.

The project site is located in the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the BAAQMD. The BAAQMD has adopted thresholds of significance to assist lead agencies in the evaluation and mitigation of air quality impacts under CEQA.[4] The BAAQMD's recommend health risk thresholds are summarized in **Table 1**.

Table 1: BAAQMD Health Risk Screening Thresholds

Impact Analysis	Pollutant	Screening Thresholds
Local Community Risks and Hazards (Operation and/or Construction)	$PM_{2.5}$ (project)	0.3 µg/m^3 (annual average)
	TACs (project)	Cancer risk increase > 10 in one million Chronic hazard index > 1.0
	$PM_{2.5}$ (cumulative)	0.8 µg/m^3 (annual average)
	TACs (cumulative)	Cancer risk > 100 in one million Chronic hazard index > 10.0

Notes: TACs = Toxic air contaminants; $PM_{2.5}$ = Fine particulate matter; µg/m^3 = micrograms per cubic meter.
Source: BAAQMD, 2023. CEQA Air Quality Guidelines. April.

Sensitive Receptors

Sensitive receptors are areas where individuals are more susceptible to the adverse effects of poor air quality. Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, parks, elderly housing, and convalescent facilities. Residential areas are also considered sensitive receptors because people are often at home for extended periods, thereby increasing the duration of exposure to potential air contaminants.

Sensitive receptors on the project site include the kindergarten to 8th grade classrooms where children congregate throughout the school day. Existing sensitive land uses near the project site include: residences to the north, west, south, and southeast; Synergy School about 510 feet to the south; the Semillitas Family Daycare about 710 feet to the east; and the Alta Vista Middle School about 750 feet to the northeast of the project site. The BAAQMD also recommends

[4] Bay Area Air Quality Management District (BAAQMD), 2023. CEQA Air Quality Guidelines. April.

evaluating health risks to offsite worker receptors, which are not considered sensitive receptors. Offsite worker receptors are located directly to the south of the project site adjacent to the southern boundary, and to the west, north, and east of the project site across the Valencia Street, 23rd Street, and Bartlett Street, respectively.

Toxic Air Contaminant and $PM_{2.5}$ Emissions from Construction

Project construction would generate DPM and $PM_{2.5}$ emissions from the exhaust of off-road diesel construction equipment, and fugitive $PM_{2.5}$ emissions from construction activities. The BAAQMD recommends using the most recent version of the California Emissions Estimator Model (CalEEMod Version 2022.1) to estimate air pollutant emissions from construction of a project. CalEEMod uses widely accepted models for emission estimates combined with appropriate default data for a variety of land use projects that can be used if site-specific information is not available. The project's emissions of criteria air pollutants during construction were evaluated in the *Air Quality Assessment for the Buena Vista Horace Mann K-8 School Modernization Project* dated February 2024 (Air Quality Assessment).[5] The primary input data used to estimate emissions associated with construction of the project were generally based on CalEEMod defaults for the Elementary School land use type. Construction of the project is expected to commence in August 2025 and end in February 2028, lasting for approximately 31 months. A copy of the CalEEMod report is included as Appendix A of the *Air Quality Assessment for the Buena Vista Horace Mann K-8 School Modernization Project*.

Health Risk Analysis

Exposure to Asbestos Emissions

The demolition of a portion of the existing Building C2 and related structures are subject to BAAQMD's Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing), which limits asbestos emissions from demolition or renovation of structures and the associated disturbance of asbestos-containing waste material generated or handled during these activities. The rule addresses the national emissions standards for asbestos and contains additional requirements. The rule requires the lead agency and its contractors to notify the BAAQMD of any regulated renovation or demolition activity. The notification must include a description of the affected structures and the methods used to determine the presence of asbestos-containing materials. All asbestos-containing material found on site must be removed prior to demolition or renovation activity in accordance with BAAQMD Regulation 11, Rule 2, which includes specific requirements to ensure that asbestos-containing materials are disposed of appropriately and safely. Because the project would be required to comply with BAAQMD

[5] SWCA Environmental Consultants, 2024. Air Quality Assessment for the Buena Vista Horace Mann K-8 School Modernization Project. February.

Regulation 11, Rule 2, nearby sensitive receptors would not be exposed to substantial concentrations of asbestos.

Exposure to Toxic Air Contaminant and $PM_{2.5}$ Emissions during Construction

In accordance with guidance from the BAAQMD and OEHHA, an assessment was conducted to evaluate potential health risks to sensitive receptors exposed to DPM and $PM_{2.5}$ emissions during project construction. The acute HI for DPM was not calculated because an acute reference exposure level has not been approved by OEHHA and CARB, and the BAAQMD does not recommend analysis of acute non-cancer health hazards from construction activity.

The annual average concentrations of DPM and $PM_{2.5}$ during construction were estimated within 1,000 feet of the project using the U.S. Environmental Protection Agency's AERMOD air dispersion model. For modeling purposes, daily emissions from construction were assumed to occur during the City of San Francisco's permitted construction hours between 7 a.m. and 8 p.m. Monday through Friday. The exhaust and fugitive dust emissions from off-road equipment were represented in the AERMOD model as two area sources encompassing the south side and the north side of the project site. Exhaust and fugitive dust emission rates for off-road equipment were based on the actual hours of work and averaged over the entire duration of construction. The input parameters and assumptions used for estimating the dispersion of DPM and $PM_{2.5}$ from off-road diesel construction equipment are included in **Attachment A**.

A uniform grid of receptors spaced 20 meters apart was created for ground level receptors at heights of 1.5 meters to develop isopleths (i.e., concentration contours) around the project site that illustrate the air dispersion pattern from the emissions sources. The AERMOD model input parameters included 1 year of BAAQMD meteorological data from the San Francisco International Airport Automated Surface Observing Systems (ASOS) Met Site (KSFO) located about 9.1 miles to the southeast of the project site.

The air dispersion model was used to estimate annual average concentrations of DPM and $PM_{2.5}$ from project construction emissions on the south side and north side of the project site. Based on the results of the air dispersion model (**Attachment A**), potential health risks were evaluated for: the maximally exposed individual resident (MEIR) on the ground floor of a residence located adjacent to the project site to the southeast; the maximally exposed offsite individual student (Offsite MEIS) at the Synergy School about 510 feet to the south of the project site; the maximally exposed onsite individual student (Onsite Student) at Building A; and the maximally exposed individual worker (MEIW) at the Esme's Beauty Studio adjacent to the project site to the south (**Figure 3**).

Figure 3: Cumulative Sources of Toxic Air Contaminant and $PM_{2.5}$ Emissions

For the MEIR, the incremental increase in cancer risk was conservatively assessed for an infant starting from birth that would be exposed to annual average DPM concentrations over the entire duration of project construction (31 months). This exposure scenario represents the most sensitive individual who could be exposed to adverse air quality conditions in the vicinity of the project site. For the Offsite MEIS and Onsite Student, it was conservatively assumed that a student 2 to 16 years of age would attend the Synergy School and BVHM School during the entire project construction duration. For the MEIW, it was conservatively assumed that an adult would work at the same location during the entire project construction duration.

Estimates of the health risks at the MEIR, Offsite MEIS, Onsite Student, and MEIW from exposure to DPM and $PM_{2.5}$ concentrations during project construction are summarized and compared to the BAAQMD's thresholds of significance in **Table 2**. At the Offsite MEIS and the MEIW, the estimated excess cancer risks and chronic HIs for DPM and annual average $PM_{2.5}$ concentrations from unmitigated construction emissions were below the thresholds of significance. At the MEIR, the estimated chronic HI for DPM and annual average $PM_{2.5}$ concentration from unmitigated construction emissions were below the thresholds of significance; however, the excess cancer risk exceeded the threshold of significance. At the Onsite Student, the estimated chronic HI for DPM from unmitigated construction emissions was below the threshold of significance, but the excess cancer risk and annual average $PM_{2.5}$ concentration exceeded the thresholds of significance. As a result, the project could potentially expose sensitive receptors to substantial concentrations of TACs and $PM_{2.5}$ from project construction.

Table 2: Health Risks during Project Construction

Emissions Scenario	Receptor	Diesel Particulate Matter		$PM_{2.5}$ Annual Average Concentration ($\mu g/m^3$)
		Cancer Risk (per million)	Chronic Hazard Index	
Off-Road Construction Equipment (Unmitigated)	MEIR	**50.4**	0.04	0.27
	Offsite MEIS	1.2	<0.01	0.02
	MEIW	2.0	0.04	0.26
	Onsite Student	**14.7**	0.04	**0.39**
Off-Road Construction Equipment (Mitigated)	MEIR	8.1	0.01	0.10
	Offsite MEIS	0.2	<0.01	<0.01
	MEIW	0.4	0.01	0.10
	Onsite Student	3.0	0.01	0.23
Thresholds of Significance		**10**	**1.0**	**0.3**

Notes: $\mu g/m^3$ = micrograms per cubic meter
Bold and shaded text indicates exceedance of threshold.
Source: **Attachment A**

Equipping all off-road diesel equipment with Tier 4 engines would reduce the project DPM and $PM_{2.5}$ emissions by 81 and 61 percent, respectively. Therefore, it is recommended that the project should implement Control Measures AIR-1 to control diesel exhaust during construction.

> **Control Measure AIR-1**: During project construction, all diesel engines for off-road equipment shall meet the California Air Resources Board's Tier 4 certification requirements, unless a good faith effort by the contractor can demonstrate that such engines are not available for particular equipment. In the event that a Tier 4 engine is not available for any off-road equipment, a Tier 3 engine shall be used or that equipment shall be equipped with retrofit controls (e.g., diesel particulate filter) to reduce exhaust emissions of diesel particulate matter (DPM) to no more than Tier 3 levels unless certified by the engine manufacturers that the use of such devices is not practical for specific engine types. The contractor shall submit equipment logs demonstrating Tier level compliance with this measure for all off-road diesel equipment to the San Francisco Unified School District prior to the start of construction activities. During project construction, all off-road diesel equipment shall have tags clearly visible for inspection showing that the engine meets the standards of this measure. The foregoing requirements shall be included in the appropriate contract documents with the contractor.

As shown in **Table 2**, implementation of these exhaust control measures under Control Measure AIR-1 would reduce the health risks at the MEIR and On-Site Student below the thresholds of significance. Therefore, with the implementation of Control Measure AIR-1, construction of the project would not expose existing sensitive receptors or offsite workers to substantial concentrations of TACs and $PM_{2.5}$.

Exposure to Toxic Air Contaminant and $PM_{2.5}$ Emissions during Operation

The proposed project would not add any stationary source (e.g., diesel emergency generator) that would generate TACs or $PM_{2.5}$. Therefore, project operation would not expose sensitive receptors to substantial pollutant concentrations.

Cumulative Exposure to Toxic Air Contaminants and $PM_{2.5}$ Emissions

In addition to a project's individual TAC and $PM_{2.5}$ emissions during construction, the potential cumulative health risks to sensitive receptors from existing TACs and $PM_{2.5}$ were evaluated. Cumulative health risks were estimated at the MEIR to represent the worst-case-exposure scenario for sensitive receptors in the project vicinity.

Based on the BAAQMD's permitted stationary source risk map,[6] there are three existing stationary sources within 1,000 feet of the MEIR (**Figure 3**):

1) Pacific Collision Care (5622)
2) G & C Auto Body LLC (8734)
3) Unocal #5458 (111757)

Preliminary health risk screening values at the MEIR associated with the stationary sources were determined using the 2021 permitted stationary source inventory data and the BAAQMD Health Risk Calculator with Distance Multipliers (Beta Version 5.0). At the time of preparation of this analysis, there were no reasonably foreseeable future projects identified within 1,000 feet of the project that would introduce a new source of TACs and/or $PM_{2.5}$ emissions.

Preliminary health risk screening values at the MEIR from exposure to mobile sources of TACs and $PM_{2.5}$ were estimated based on the BAAQMD's Mobile Source Screening Map,[7] which provides health risk estimates reflective of 2022 for residents living near roadways, rail lines, and rail yards.

Estimates of the cumulative health risks at the MEIR for the project are summarized and compared to the BAAQMD's cumulative thresholds of significance in **Table 3**. As shown in **Table 3,** the cumulative cancer risk, chronic HI, and annual average $PM_{2.5}$ concentration at the MEIR were below the BAAQMD's cumulative thresholds. Therefore, implementation of the project would not expose existing sensitive receptors to substantial concentrations of TACs and $PM_{2.5}$ that would be considered cumulatively considerable.

Table 3: Cumulative Health Risks

Source	Source Type	Ref	Diesel Particulate Matter		$PM_{2.5}$ Annual Average Concentration ($\mu g/m^3$)
			Cancer Risk (per million)	Chronic Hazard Index	
Project					
Off-Road Construction Equipment (unmitigated)	Diesel Exhaust		50.4	0.04	0.27
Off-Road Construction Equipment (mitigated)	Diesel Exhaust		8.1	0.01	0.10

[6] Bay Area Air Quality Management District (BAAQMD), 2023. Stationary Source Screening Map. Available at: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3.
[7] Bay Area Air Quality Management District (BAAQMD), 2023. Bay Area Air Quality Management District Mobile Source Screening Map, Beta Version. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools/health-risk-screening-and-modeling.

Source	Source Type	Ref	Diesel Particulate Matter		$PM_{2.5}$ Annual Average Concentration (µg/m³)
			Cancer Risk (per million)	Chronic Hazard Index	
Existing Stationary Sources					
Pacific Collision Care (5622)	No Data	1	0	0	0
G & C Auto Body LLC (8734)	No Data	1	0	0	0
Unocal #5458 (111757)	Gas Dispensing Facility	1,2	3.15	<0.01	0
Existing Mobile Sources					
Roadway	Mobile	3	10.0	0.03	0.21
Cumulative Health Risks **without** Mitigation			63.6	<0.1	0.5
Cumulative Health Risks **with** Mitigation			21.3	<0.1	0.3
Thresholds of Significance			**100**	**10.0**	**0.8**
Exceed Threshold?			**No**	**No**	**No**

Notes: µg/m³=micrograms per cubic meter; HI=hazard index; Ref=reference
Health risk screening values derived using the following BAAQMD tool and methodology references:
1) BAAQMD's Health Risk Calculator (Beta Version 5.0)
2) BAAQMD's General Multiplier Tool
3) BAAQMD Beta version Mobile Source Screening Map for Roadway, Rail, and Railyard.
Source: **Attachment A**

CONCLUSION

With the implementation of Control Measure AQ-1, the project would not result in the exposure of sensitive receptors to substantial TAC and $PM_{2.5}$ concentrations.

Attachment A

Supporting Air Quality Calculations

(also see Appendix A of the Air Quality Assessment for the Buena Vista Horace Mann K-8 School Modernization Project)

Summary of AERMOD Model Parameters, Assumptions, and Results for Unmitigated DPM and PM2.5 Emissions from Construction

AERMOD Model Parameters and Assumptions			
Source Type	**Units**	**Value**	**Notes**
Area Source: Off-Road Equipment Exhaust (DPM and PM2.5)			
Average Hours/Work Day	hours/day	13.0	7:00 a.m. – 8:00 p.m Monday through Friday
DPM Emission Rate - South	gram/second	0.00469	Exhaust PM10 from off-road construction equipment. Scaling factor used to convert result from AERMOD (Assumed 1 gram/second emission rate in the
DPM Emission Rate - North	gram/second	0.00424	
PM2.5 Exhaust Emission Rate - South	gram/second	0.00431	Exhaust PM2.5 from off-road construction equipment. Scaling factor used to convert result from AERMOD (Assumed 1 gram/second emission rate in the
PM2.5 Exhaust Emission Rate - North	gram/second	0.00390	
Release Height	meters	5.0	SMAQMD, 2015
Initial Vertical Dimension	meters	1.4	USEPA, 2022
Area Source: On-Site Fugitive PM2.5			
Fugitive PM2.5 Emission Rate - South	gram/second	0.0006	Fugitive PM2.5 from on-site construction activities. Scaling factor used to convert result from AERMOD (Assumed 1 gram/second emission rate in the AERMOD model)
Fugitive PM2.5 Emission Rate - North	gram/second	0.0007	
Release Height	meters	0.0	SMAQMD, 2015
Initial Vertical Dimension	meters	1.0	SMAQMD, 2015
AERMOD Model Results			
Sensitive Receptor	**Pollutant**	**Unmitigated Annual Average Concentration**	**Notes**
MEIR (south side construction)	DPM (µg/m^3)	0.2144	Nearest offsite residential receptor
	PM2.5 (µg/m^3)	0.2726	
MEIR (north side construction)	DPM (µg/m^3)	0.0371	Nearest offsite residential receptor
	PM2.5 (µg/m^3)	0.0404	
MEIS (south side construction)	DPM (µg/m^3)	0.0149	Nearest offsite student receptor
	PM2.5 (µg/m^3)	0.0157	
MEIS (north side construction)	DPM (µg/m^3)	0.0070	Nearest offsite student receptor
	PM2.5 (µg/m^3)	0.0075	
MEIW (south side construction)	DPM (µg/m^3)	0.2027	Nearest offsite worker
	PM2.5 (µg/m^3)	0.2592	
MEIW (north side construction)	DPM (µg/m^3)	0.0414	Nearest offsite worker
	PM2.5 (µg/m^3)	0.0453	
On-Site Student (south side construction)	DPM (µg/m^3)	0.0561	Onsite student at Building A
	PM2.5 (µg/m^3)	0.0623	
On-Site Student (north side construction)	DPM (µg/m^3)	0.2053	Onsite student at Building A
	PM2.5 (µg/m^3)	0.3919	

Notes:

DPM = diesel particulate matter

PM_{10} = particulate matter with aerodynamic resistance diameters equal to or less than 10 microns

$PM_{2.5}$ = particulate matter with aerodynamic resistance diameters equal to or less than 2.5 microns

µg/m^3 = micrograms per cubic meter

Sacramento Metropolitan Air Quality Management District (SMAQMD), 2015. *Guide to Air Quality Assessment in Sacramento County*. June.

U.S. Environmental Protection Agency (USEPA), 2022. User's Guide for the AMS/EPA Regulatory Model (AERMOD).

Summary of AERMOD Model Parameters, Assumptions, and Results for Mitigated DPM and PM2.5 Emissions from Construction

AERMOD Model Parameters and Assumptions			
Source Type	**Units**	**Value**	**Notes**
Area Source: Off-Road Equipment Exhaust (DPM)			
Average Hours/Work Day	hours/day	13.0	7:00 a.m. – 8:00 p.m Monday through Friday
Mitigated DPM Emission Rate - South	gram/second	0.00085	Exhaust PM10 from off-road construction equipment. Scaling factor used to convert result from AERMOD (Assumed 1 gram/second emission rate in the AERMOD model)
Mitigated DPM Emission Rate - North	gram/second	0.00089	
PM2.5 Exhaust Emission Rate - South	gram/second	0.00065	Exhaust PM2.5 from off-road construction equipment. Scaling factor used to convert result from AERMOD (Assumed 1 gram/second emission rate in the
PM2.5 Exhaust Emission Rate - North	gram/second	0.00065	
Release Height	meters	5.0	SMAQMD, 2015
Initial Vertical Dimension	meters	1.4	USEPA, 2022
Area Source: On-Site Fugitive PM2.5			
Fugitive PM2.5 Emission Rate - South	gram/second	0.0006	Fugitive PM2.5 from on-site construction activities. Scaling factor used to convert result from AERMOD (Assumed 1 gram/second emission rate in the AERMOD model)
Fugitive PM2.5 Emission Rate - North	gram/second	0.0007	
Release Height	meters	0.0	SMAQMD, 2015
Initial Vertical Dimension	meters	1.0	SMAQMD, 2015

AERMOD Model Results			
Sensitive Receptor	**Pollutant**	**Mitigated Annual Average Concentration**	**Notes**
MEIR (south side construction)	DPM (μg/m³)	0.0388	Nearest offsite residential receptor
	PM2.5 (μg/m³)	0.1050	
MEIR (north side construction)	DPM (μg/m³)	0.0078	Nearest offsite residential receptor
	PM2.5 (μg/m³)	0.0119	
MEIS (south side construction)	DPM (μg/m³)	0.0027	Nearest offsite student receptor
	PM2.5 (μg/m³)	0.0041	
MEIS (north side construction)	DPM (μg/m³)	0.0015	Nearest offsite student receptor
	PM2.5 (μg/m³)	0.0021	
MEIW (south side construction)	DPM (μg/m³)	0.0367	Nearest offsite worker
	PM2.5 (μg/m³)	0.1008	
MEIW (north side construction)	DPM (μg/m³)	0.0087	Nearest offsite worker
	PM2.5 (μg/m³)	0.0136	
On-Site Student (south side construction)	DPM (μg/m³)	0.0102	Onsite student at Building A
	PM2.5 (μg/m³)	0.0185	
On-Site Student (north side construction)	DPM (μg/m³)	0.0431	Onsite student at Building A
	PM2.5 (μg/m³)	0.2346	

Notes:
DPM = diesel particulate matter
PM_{10} = particulate matter with aerodynamic resistance diameters equal to or less than 10 microns
$PM_{2.5}$ = particulate matter with aerodynamic resistance diameters equal to or less than 2.5 microns
$\mu g/m^3$ = micrograms per cubic meter

Sacramento Metropolitan Air Quality Management District (SMAQMD), 2015. *Guide to Air Quality Assessment in Sacramento County* . June.
U.S. Environmental Protection Agency (USEPA), 2022. User's Guide for the AMS/EPA Regulatory Model (AERMOD).

Summary of Health Risk Assessment for Unmitigated DPM and PM2.5 Emissions during Construction

Health Risk Assessment Parameters and Results											
		MEIR			**Offsite MEIS**		**MEIW**		**Onsite Student**		
Inhalation Cancer Risk Assessment for DPM	**Units**	**0-2 Years Old Infant**		**2-16 Years Old Child**	**2-16 Years Old Offsite Student**		**16-70 Years Old Offsite Worker**		**2-16 Years Old Onsite Student**		**Notes**
	Construction Location:	**South Side**	**North Side**	**North Side**	**South Side**	**North Side**	**South Side**	**North Side**	**South Side**	**North Side**	
DPM Concentration (C)	$\mu g/m^3$	0.214	0.037	0.037	0.015	0.007	0.203	0.041	0.056	0.205	AERMOD Annual Average
Daily Breathing Rate (DBR)	L/kg-day (MEIR) L/kg-8 hours (Offsite MEIS, MEIW, Onsite Student)	1090	1090	572	520	520	230	230	520	520	BAAQMD, 2023
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	0.68	0.68	0.68	0.68	0.68	0.68	MEIR: 350 days/365 days; Offsite MEIS, Onsite Student, and MEIW: 250 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/μg-L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	Conversion of μg to mg and L to m^3
Dose (D)	mg/kg/day	0.000224	0.000039	0.000020	0.000005	0.000002	0.000032	0.000007	0.000020	0.000073	C*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	$(mg/kg/day)^{-1}$	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	Inhalation CPF for Diesel exhaust, OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	3	3	3	1	1	3	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	1.3	0.7	0.6	1.3	1.3	1.3	1.3	1.3	1.3	Based on total construction period of 15.5 months for south side construction and 15.5 months for north side construction
Averaging Time (AT)	years	70	70	70	70	70	70	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	1	1	1	--	--	--	--	--	--	BAAQMD, 2023
Worker Adjustment Factor (WAF)	unitless	--	--	--	2.58	2.58	2.58	2.58	2.58	2.58	Assumes the average emissions occur 13 hours/day, 5 days per week
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	45.5	4.3	0.6	0.8	0.4	1.7	0.3	3.1	11.5	MEIR: D*CPF*ASF*ED/AT*FAH*CF*IF Offsite MEIS, Onsite Student, MEIW: D*CPF*ASF*ED/AT*WAF*CF*IF
Total Cancer Risk	per million	**50.4**			**1.2**		**2.0**		**14.7**		
Hazard Index for DPM	**Units**	**MEIR**			**Offsite MEIS**		**MEIW**		**Onsite Student**		**Notes**
Chronic REL	$\mu g/m^3$	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	OEHHA, 2015
Chronic Hazard Index for DPM	unitless	0.043	0.007	0.007	0.0030	0.0014	0.041	0.008	0.011	0.041	HI=C/REL (OEHHA, 2015)

Notes:

DPM = diesel particulate matter

REL = reference exposure level

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

L/kg-day = liters per kilogram-day

m^3/L = cubic meters per liter

$(mg/kg/day)^{-1}$ = 1/milligrams per kilograms per day

MEIR = maximum exposed individual resident

MEIS = maximum exposed individual offsite student

MEIW = maximum exposed individual worker

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

Bay Area Air Quality Management District (BAAQMD), 2023. CEQA Air Quality Guidelines, May.

Summary of Health Risk Assessment for Mitigated DPM and PM2.5 Emissions during Construction

Health Risk Assessment Parameters and Results											
		MEIR			**Offsite MEIS**		**MEIW**		**Onsite Student**		
Inhalation Cancer Risk Assessment for DPM	**Units**	**0-2 Years Old Infant**		**2-16 Years Old Child**	**2-16 Years Old Offsite Student**		**16-70 Years Old Offsite Worker**		**2-16 Years Old Onsite Student**		**Notes**
	Construction Location:	**South Side**	**North Side**	**North Side**	**South Side**	**North Side**	**South Side**	**North Side**	**South Side**	**North Side**	
DPM Concentration (C)	μg/m^3	0.039	0.008	0.008	0.003	0.001	0.037	0.009	0.010	0.043	AERMOD Annual Average
Daily Breathing Rate (DBR)	L/kg-day (MEIR) L/kg-8 hours (Offsite MEIS, MEIW, Onsite Student)	1090	1090	572	520	520	230	230	520	520	MEIR, MEIS, and MEIW: BAAQMD, 2023
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	0.68	0.68	0.68	0.68	0.68	0.68	MEIR: 350 days/365 days; Offsite MEIS, Onsite Student, and MEIW: 250 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/μg-L	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	Conversion of μg to mg and L to m^3
Dose (D)	mg/kg/day	0.000041	0.000008	0.000004	0.000001	0.000001	0.000006	0.000001	0.000004	0.000015	C*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	Inhalation CPF for Diesel exhaust, OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	10	3	3	1	1	3	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	1.3	0.7	0.6	1.3	1.3	1.3	1.3	1.3	1.3	Based on total construction period of 15.5 months for south side construction and 15.5 months for north side construction
Averaging Time (AT)	years	70	70	70	70	70	70	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	0.85	0.85	0.85	--	--	--	--	--	--	BAAQMD, 2023
Worker Adjustment Factor (WAF)	unitless	--	--	--	2.58	2.58	2.58	2.58	2.58	2.58	Assumes the average emissions occur 13 hours/day, 5 days per week
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	7.0	0.8	0.3	0.2	0.1	0.3	0.1	0.6	2.4	MEIR: D*CPF*ASF*ED/AT*FAH*CF*IF Offsite MEIS, Onsite Student, MEIW: D*CPF*ASF*ED/AT*WAF*CF*IF
Total Cancer Risk	per million	**8.1**			**0.2**		**0.4**		**3.0**		
Hazard Index for DPM	**Units**	**MEIR**			**Offsite MEIS**		**MEIW**		**Onsite Student**		**Notes**
Chronic REL	μg/m^3	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	OEHHA, 2015
Chronic Hazard Index for DPM	unitless	0.008	0.002	0.002	0.0005	0.0003	0.007	0.002	0.002	0.009	HI=C/REL (OEHHA, 2015)

Notes:

DPM = diesel particulate matter

REL = reference exposure level

μg/m^3 = micrograms per cubic meter

L/kg-day = liters per kilogram-day

m^3/L = cubic meters per liter

(mg/kg/day)$^{-1}$ = 1/milligrams per kilograms per day

MEIR = maximum exposed individual resident

MEIS = maximum exposed individual offsite student

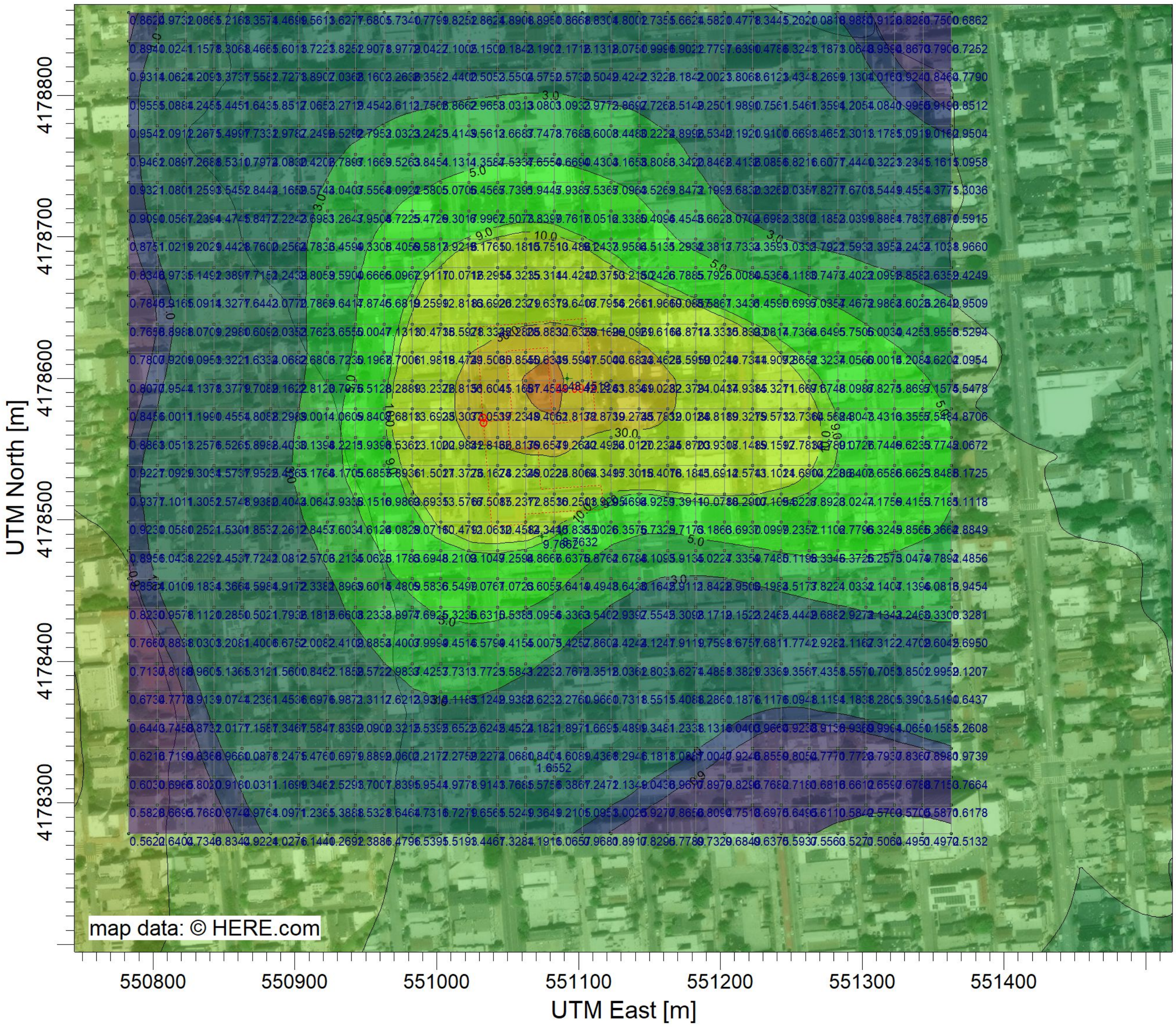
MEIW = maximum exposed individual worker

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

Bay Area Air Quality Management District (BAAQMD), 2023. CEQA Air Quality Guidelines, May.

PROJECT TITLE: Buena-Vista Horace Mann School Modernization Project

Buena-Vista Horace Mann School Modernization Project
On-site off-road construction equipment exhaust PM10 - north side



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: NORTH ug/m^3

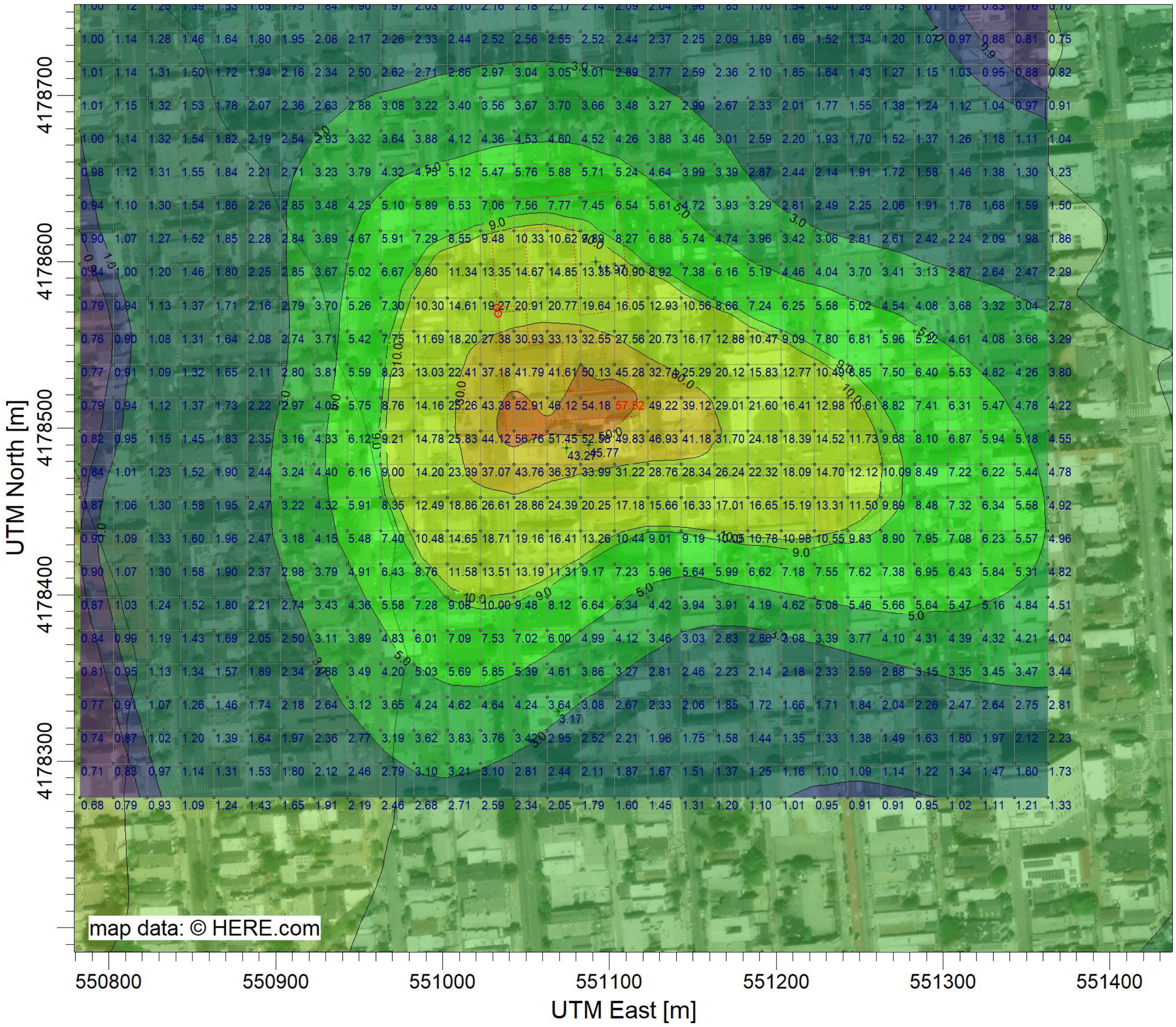
Max: 55.0 [ug/m^3] at (551082.84, 4178598.41)

0.5 | 0.9 | 1.0 | 3.0 | 5.0 | 9.0 | 10.0 | 30.0 | 50.0 | 55.0

COMMENTS:	SOURCES: **2**	COMPANY NAME: Baseline Env **Baseline Environmental Consulting**	
	RECEPTORS: **904**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:4,865 0 — 0.1 km	
	MAX: **55.0 ug/m^3**		PROJECT NO.:23227-00 **23227-00**

PROJECT TITLE: Buena-Vista Horace Mann School Modernization Project

Buena-Vista Horace Mann School Modernization Project
On-site off-road construction equipment exhaust PM10 - south side



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: SOUTH ug/m^3

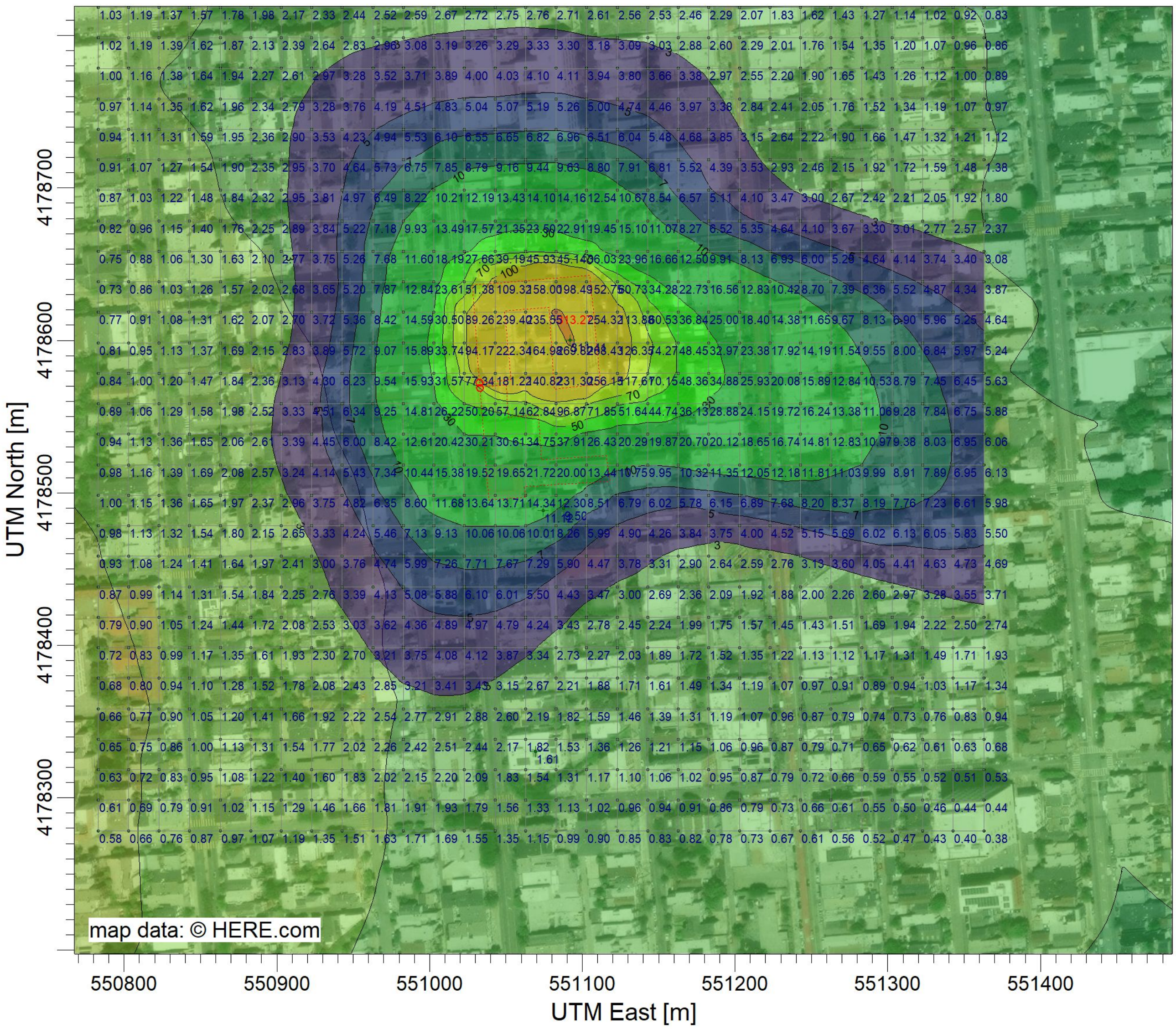
Max: 57.5 [ug/m^3] at (551102.84, 4178518.41)

0.6 0.9 1.0 3.0 5.0 9.0 10.0 30.0 50.0 57.5

COMMENTS:	SOURCES: **2**	COMPANY NAME: Baseline Env **Baseline Environmental Consulting**	
	RECEPTORS: **904**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:4,135 0 ▬ 0.1 km	
	MAX: **57.5 ug/m^3**		PROJECT NO.:23227-00 **23227-00**

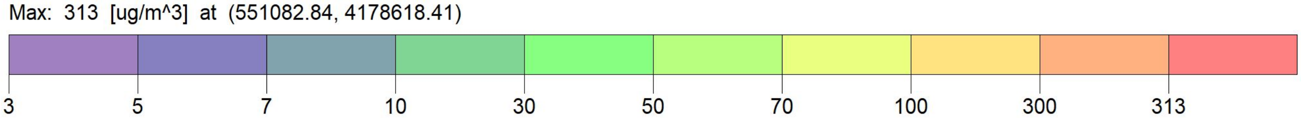
PROJECT TITLE: Buena-Vista Horace Mann School Modernization Project

Buena-Vista Horace Mann School Modernization Project
On-site Fugitive PM2.5 - north side



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: NORTH ug/m^3

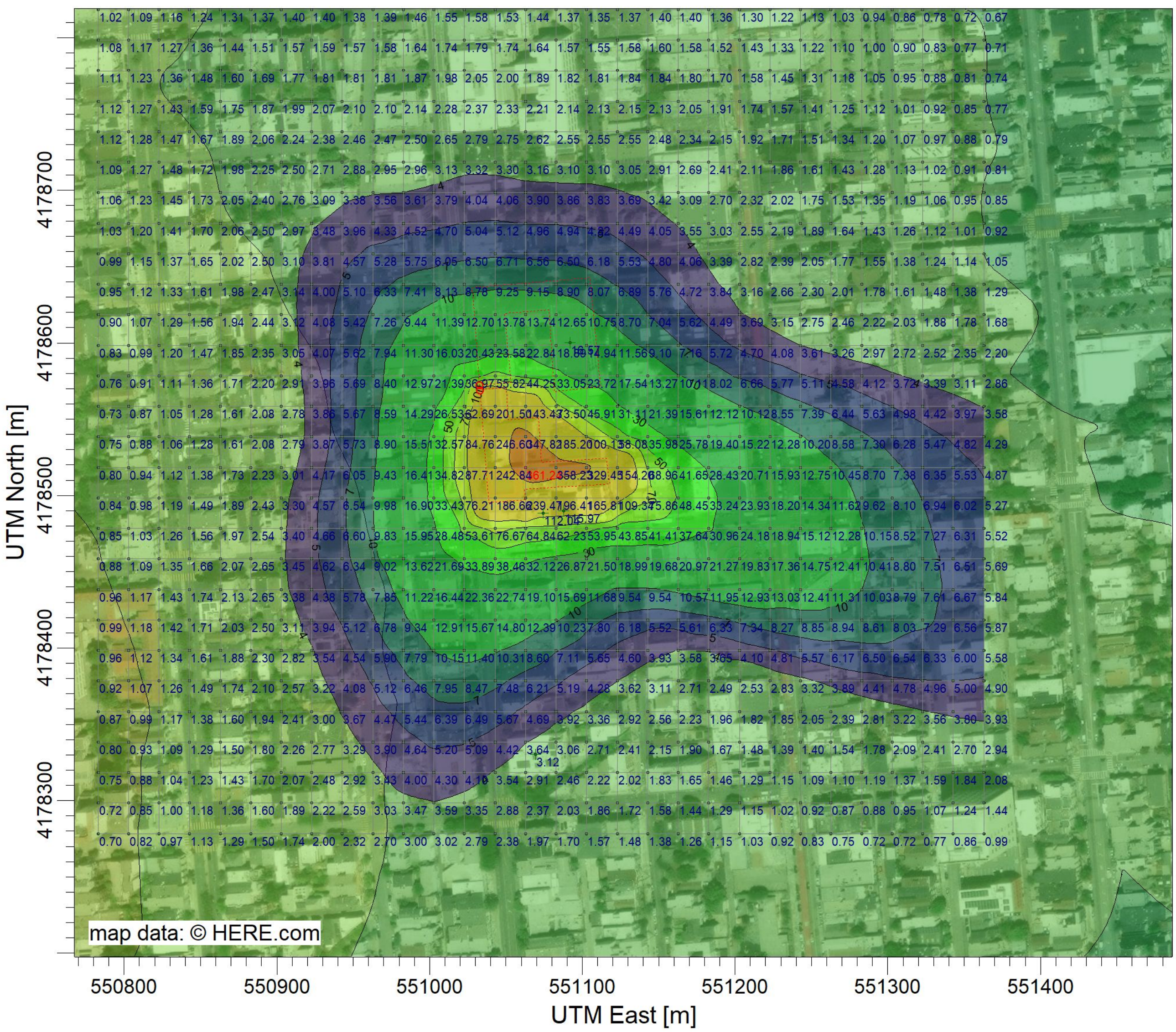
Max: 313 [ug/m^3] at (551082.84, 4178618.41)



COMMENTS:	SOURCES: **2**	COMPANY NAME: Baseline Env **Baseline Environmental Consulting**	
	RECEPTORS: **904**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:4,517 0 ▬ 0.1 km	
	MAX: **313 ug/m^3**		PROJECT NO.:23227-00 **23227-00**

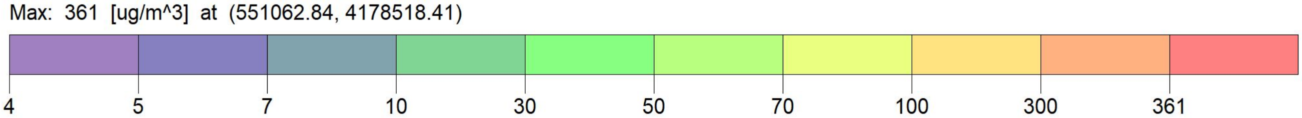
PROJECT TITLE: Buena-Vista Horace Mann School Modernization Project

Buena-Vista Horace Mann School Modernization Project
On-site Fugitive PM2.5 - south side



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: SOUTH — ug/m^3

Max: 361 [ug/m^3] at (551062.84, 4178518.41)



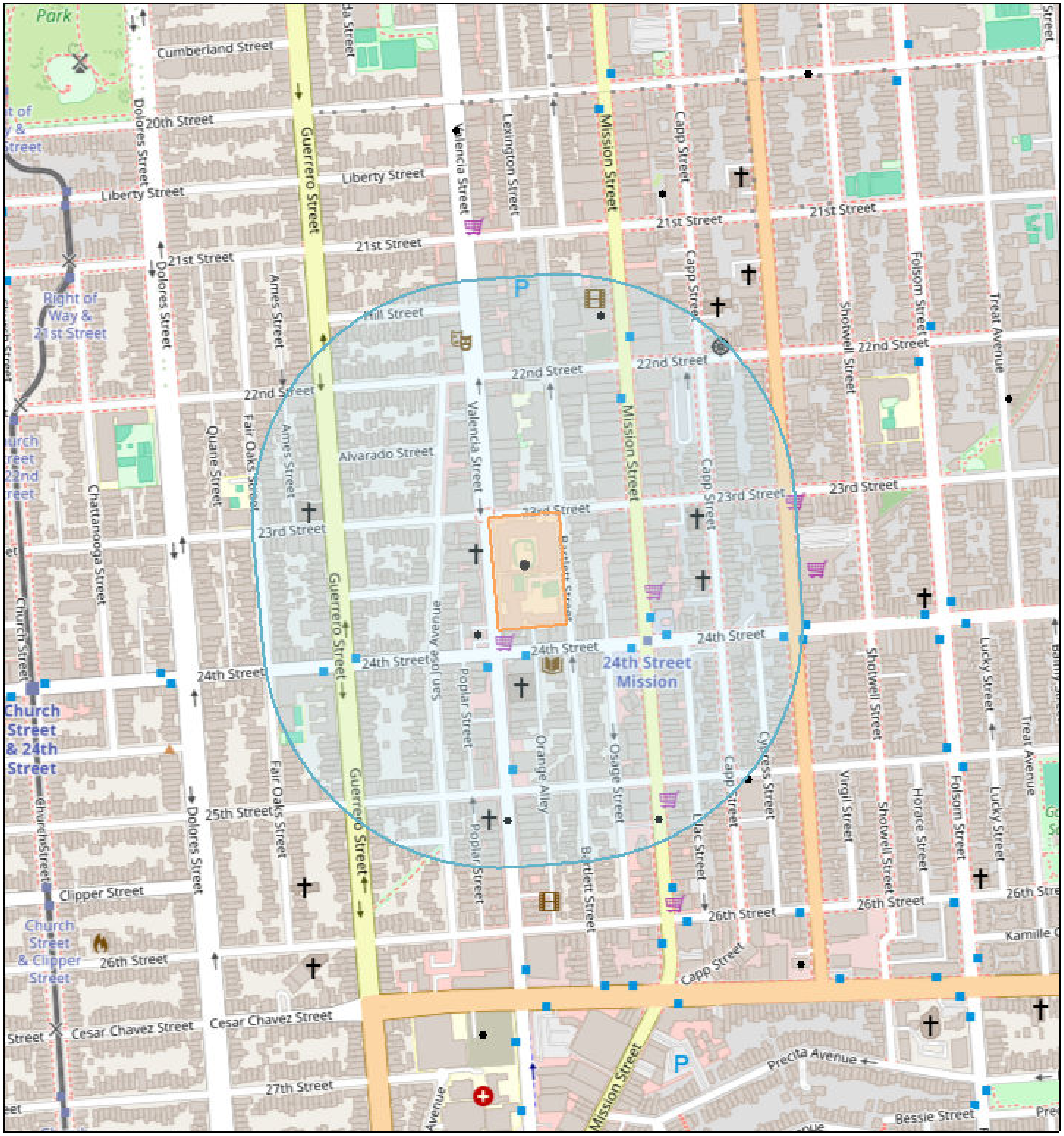
COMMENTS:	SOURCES: **2**	COMPANY NAME: Baseline Env **Baseline Environmental Consulting**	
	RECEPTORS: **904**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:4,517 (0 — 0.1 km)	
	MAX: **361 ug/m^3**		PROJECT NO.:23227-00 **23227-00**

Screening Report

Area of Interest (AOI) Information

Area : 4,808,627.17 ft²

Jan 14 2024 22:45:16 Pacific Standard Time


Park
Cumberland Street
20th Street
Liberty Street
21st Street
22nd Street
23rd Street
24th Street
25th Street
26th Street
27th Street
Hill Street
Alvarado Street
Clipper Street
Cesar Chavez Street
Precita Avenue
Bessie Street
Dolores Street
Guerrero Street
Valencia Street
Lexington Street
Mission Street
Capp Street
Shotwell Street
Folsom Street
Treat Avenue
Ames Street
Quane Street
Fair Oaks Street
Chattanooga Street
Church Street
San Jose Avenue
Poplar Street
Orange Alley
Osage Street
Bartlett Street
Cypress Street
Lilac Street
Virgil Street
Horace Street
Lucky Street
Right of Way & 21st Street
Church Street & 24th Street
Church Street & Clipper Street
24th Street Mission
P

1:9,028

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	4	N/A	N/A

Permitted Stationary Sources

#	Facility_I	Facility_N	Address	City	State
1	5622	Pacific Collision Care	1423 Valencia St	San Francisco	CA
2	8734	G & C Auto Body LLC	2925 Mission St	San Francisco	CA
3	22709	Vida Owners Association	2558 Mission Street	San Francisco	CA
4	111757	Unocal #5458	1298 Valencia St	San Francisco	CA

#	Zip	County	Latitude	Longitude	Details
1	94110	San Francisco	37.750178	-122.420490	*No Data*
2	94110	San Francisco	37.750196	-122.418285	*No Data*
3	94110	San Francisco	37.756010	-122.419132	Generator
4	94110	San Francisco	37.752326	-122.420934	Gas Dispensing Facility

#	NAICS	NAICS_Sect	NAICS_Subs	NAICS_Indu	Cancer_Ris
1	811121	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.000000
2	811121	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.000000
3	561110	Administrative and Support and Waste Management and Remediation Services	Administrative and Support Services	Office Administrative Services	2.722000
4	447110	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	4.071000

#	Chronic_Ha	PM25	Count
1	0.000000	0.000000	1
2	0.000000	0.000000	1
3	0.007000	0.003000	1
4	0.018000	0.000000	1

NOTE: A larger buffer than 1000 feet may be warranted depending on proximity to significant sources.