# Berkeley City College
# 2118 Milvia Street Project

## Initial Study – Mitigated Negative Declaration

*prepared by*

**Peralta Community College District**
333 E 8th Street
Oakland, California 94606
Contact: Atheria Smith, Acting Vice Chancellor of General Services

*prepared with the assistance of*

**Rincon Consultants, Inc.**
449 15th Street, Suite 303
Oakland, California 94612

**June 2021**

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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# Acronyms and Abbreviations

| | |
|---|---|
| AB | Assembly Bill |
| ABAG | Association of Bay Area Governments |
| ACTC | Alameda County Transportation Commission |
| AC Transit | Alameda County Transit |
| AEP | Association of Environmental Professionals |
| BAAQMD | Bay Area Air Quality Management District |
| BART | Bay Area Rapid Transit |
| BCCHD | Berkeley Civic Center Historic District |
| BFD | Berkeley Fire Department |
| BMP | best management practices |
| CalEEMod | California Emissions Estimator Model |
| CalGreen | California Green Building Standards Code |
| CalOSHA | California Occupational Safety and Health Administration |
| Caltrans | California Department of Transportation |
| CAP | Climate Action Plan |
| CARB | California Air Resources Board |
| CBC | California Building Code |
| CCR | California Code of Regulations |
| CDFW | California Department of Fish and Wildlife |
| CEC | California Energy Commission |
| CEQA | California Environmental Quality Act |
| CNEL | community noise equivalent level |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| $CO_2e$ | carbon dioxide equivalents |
| CRHR | California Register of Historical Resources |
| CWA | Clean Water Act |
| DAP | Downtown Area Plan |
| dB | decibel |
| dBA | A-weighted decibel |
| DMU | Downtown Mixed Use |

| | |
|---|---|
| DPM | diesel particulate matter |
| DSA | Division of the State Architect |
| DTSC | California Department of Toxic Substances Control |
| EBCE | East Bay Community Energy |
| EBMUD | East Bay Municipal Utility District |
| EDR | Environmental Data Resources, Inc. |
| EMFAC | Emission Factor |
| ESA | Environmental Site Assessment |
| FEMA | Federal Emergency Management Agency |
| FTA | Federal Transit Administration |
| GHG | greenhouse gas |
| GPD | gallons per day |
| GWh | gigawatt-hours |
| Hz | hertz |
| I-80 | Interstate 80 |
| I-580 | Interstate 580 |
| LEED | Leadership in Energy and Environmental Design |
| $L_{eq}$ | equivalent noise level |
| LID | Low Impact Development |
| LUST | Leaking Underground Storage Tank |
| MGD | million gallons per day |
| $\mu g/m^3$ | micrograms per cubic meter |
| MRP | Municipal Regional Stormwater Permit |
| MT | metric tons |
| MTC | Metropolitan Transportation Commission |
| MWh | megawatt hours |
| $N_2O$ | nitrous oxides |
| NAHC | Native American Heritage Commission |
| $NO_X$ | nitrogen oxides |
| NPDES | National Pollutant Discharge Elimination System |
| NRHP | National Register of Historic Places |
| OPR | Governor's Office of Planning and Research |
| PCB | polychlorinated biphenyls |

| | |
|---|---|
| PG&E | Pacific Gas and Electric Company |
| $PM_{2.5}$ | particulate matter smaller than 2.5 microns in diameter |
| $PM_{10}$ | particulate matter smaller than 10 microns in diameter |
| PPV | peak particle velocity |
| RCNM | Roadway Construction Noise Model |
| RCRA | Resource Conservation and Recovery Act |
| REC | recognized environmental condition |
| RMS | root-mean-square vibration |
| ROG | reactive organic gases |
| RWQCB | Regional Water Quality Control Board |
| SB | Senate Bill |
| SIP | State Implementation Plan |
| $SO_2$ | sulfur dioxide |
| SVP | Society of Vertebrate Paleontology |
| SWRCB | State Water Resources Control Board |
| TAC | toxic air contaminant |
| TAZ | transportation analysis zone |
| UCMP | University of California Museum of Paleontology |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VMT | vehicle miles traveled |
| vph | vehicles per hour |
| WELO | Model Water Efficient Landscape Ordinance |

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# Initial Study

The Peralta Community College District (District), as the Lead Agency, prepared this Initial Study for the Berkeley City College 2118 Milvia Street Project ("proposed project" or "project") in compliance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et. seq.).

These introductory sections describe the proposed project, including the project proponent, the project site and surrounding land uses, major project characteristics, project objectives, and discretionary actions needed for approval.

## 1. Project Proponent and Lead Agency

Peralta Community College District
333 E 8th Street
Oakland, California 94606
Contact: Atheria Smith, Acting Vice Chancellor of General Services, (510) 466-7346, atheriasmith@peralta.edu

## 2. Project Location

The project site is at 2118 Milvia Street, on the northwest corner of Milvia Street and Center Street in the City of Berkeley (Assessor's Parcel Number 57-2022-5-1). The site is regionally accessible from state routes 13, 24, and 123, and from Interstate 80 (I-80) and Interstate 580 (I-580). It is locally accessible from Shattuck Avenue, Martin Luther King Jr. Way, and University Avenue. Figure 1 shows the regional location of the project site, and Figure 2 shows the site location in its neighborhood context.

## 3. Existing Site Characteristics

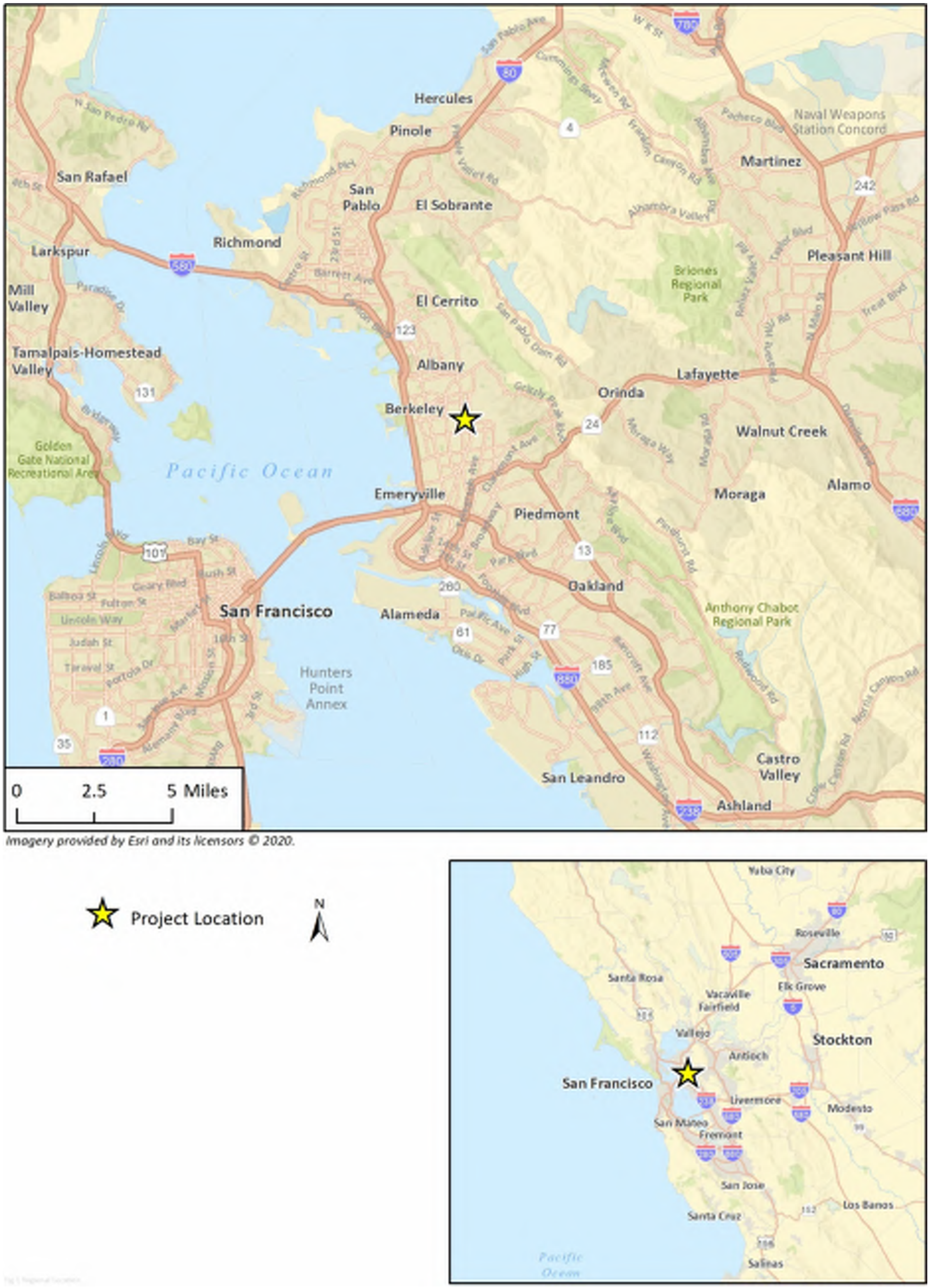
### Current Land Use Designation and Zoning

The District is not subject to local land use and zoning designations; however, the City of Berkeley designations for the site are provided for informational purposes. The project site has a City of Berkeley General Plan land use designation of Downtown and is within the "Buffer" portion of the Downtown Area Plan (DAP). The site is zoned C-DMU Buffer (Downtown Mixed Use), as defined by the City's Zoning Ordinance. Uses permitted in the C-DMU Buffer Zone include a wide range of retail, office, commercial, and residential uses.

### Project Site Conditions

The project site is a rectangular, generally level, 0.26-acre parcel developed with a 25,000-square foot, three-story office building that covers roughly the entire site. The structure was occupied previously by the City of Berkeley, which used it for municipal office space. The structure is currently vacant. Figure 3 shows photographs of the existing structure on the project site.

**Figure 1 Regional Location**




*Imagery provided by Esri and its licensors © 2020.*

**Figure 2 Project Site Location**


Imagery provided by Microsoft Bing and its licensors © 2020.

**Figure 3 Site Photographs**

**Photo 1.** View of project site looking northeast from across Center Street.

**Photo 2.** View of project site looking northwest from the Milvia Street and Center Street intersection.

### Surrounding Land Uses

The project site is in Downtown Berkeley, a neighborhood characterized by a mix of commercial, institutional, and multi-family residential development. The site is directly bordered by commercial development to the north and east and municipal and public structures to the west and south. Milvia Street bounds the site to the east and Center Street to the south. There is a seven-story commercial structure across Milvia Street to the east, a six-story structure (Berkeley City offices) immediately west of the site, a five-story structure (Berkeley City Hall) across Center Street to the south of the site, and a parking lot with a three-story commercial structure north of the site. Civic Center Park is across Center Street to the southwest. The main Berkeley City College structure is one-half-block west, on the south side of Center Street. Off-street parking is available in the Center Street parking garage located in the middle of the block immediately east of the site, as well as south and east of the existing Berkeley City College building at 2000 Center Street. The nearest residential uses include a mixed use retail and residential building at 2000 Addison Street, 100 feet northeast of the project site; an apartment building under construction at 1950 Addison Street, 150 feet northwest of the project site; and the Addison Arts Apartments at 1935 Addison Street, 180 feet northwest of the project site.

## 4. Project Characteristics

### Background

In 2018, Berkeley City College inventoried its existing instructional space at 2050 Center Street and 2000 Center Street (leased annex). The College aims to locate a full complement of activities in a new structure at 2118 Milvia Street, such that the 2000 Center Street annex is no longer required. The College had an enrollment of 1,491 full-time equivalent students in fall 2020, compared to 1,544 full-time equivalent students in fall 2019 (Peralta Community College District 2020).[1]

The proposed project is funded by local bond measures A and G. Approved by the voters in 2006, Measure A allows the District to issue and sell bonds of up to $390 million. Approved by the voters in November 2018, Measure G allows the District to issue and sell bonds up to $800 million. The proposed project is among the permissible projects listed on both the Measure A and Measure G project lists.

### Project Description

The proposed project would involve demolition of the existing structure at 2118 Milvia Street and construction of a new six-story structure as part of Berkeley City College. The proposed structure would have a total floor area of approximately 38,000 assignable square feet[2] of:

- general education facilities (anthropology lab, art studio, classrooms, communications lab, and storage),
- faculty facilities (offices and support),
- administrative offices (offices, reception area, storage, workrooms, workstations),
- outdoor meeting area (rooftop patio, staging, and storage),

[1] This decrease in enrollment may be attributed in part to the COVID-19 pandemic.
[2] Also defined as usable square feet, per the Berkeley City College Master Plan (Berkeley City College 2009).

- student services and learning communities (health center, mental wellness, veterans center, multicultural resource center, undocumented community resource center, bookstore, student lounge, and meeting/quiet rooms),
- learning resource center (offices, study area, open area, computer lab, and storage),
- building services (building entrance and operations), and
- informal meeting and gathering space on each floor.

The proposed structure would be 90 feet in height to the top of the roof, with an additional 15 feet to the top of the solar panels. Table 1 summarizes the project's characteristics. Table 2 summarizes the proposed changes from the existing footprint and height to the proposed footprint and height. Figure 4 through Figure 10 show proposed floor plans, including rooftop plans.

### Table 1 Proposed Project Characteristics

| | |
|---|---|
| Address | 2118 Milvia Street |
| Assessor's Parcel Number | 57-2022-5-1 |
| Height/Stories | 90 feet, plus 15 feet for rooftop solar panels (6 stories above grade, plus rooftop patio) |
| Lot Area | 11,326 square feet (0.26 acre) |
| Structure Footprint | 10,000 square feet |
| Total Floor Area[1] | 38,000 square feet |
| Ground Floor[2] | 6,100 square feet; loading dock, bookstore, lounge/gallery, general classroom, main entrance, offices, storage, bicycle parking, building support |
| 2nd Floor[2] | 6,700 square feet; computer lab/classroom, classroom/communication lab, general classroom, Learning Resource Center, offices, building support |
| 3rd Floor[2] | 6,800 square feet; anthropology classroom, 5 general classrooms, building support |
| 4th Floor[2] | 6,800 square feet; 2 art studios, 3 general classrooms, building support |
| 5th Floor[2] | 6,600 square feet; health center, veterans center, mental wellness, undocumented community resource center, multicultural center, general classroom, building support |
| 6th Floor[2] | 5,900 square feet; faculty offices, conference center, mail/copy room, building support |
| Rooftop[2] | 6,800 square feet; planting, rooftop patio, mechanical/building support, solar panels |

[1] The total floor area does not include rooms housing building operating equipment or machinery rooms, stairways or elevator shafts, bathrooms, or areas outside the surrounding walls of the structure.

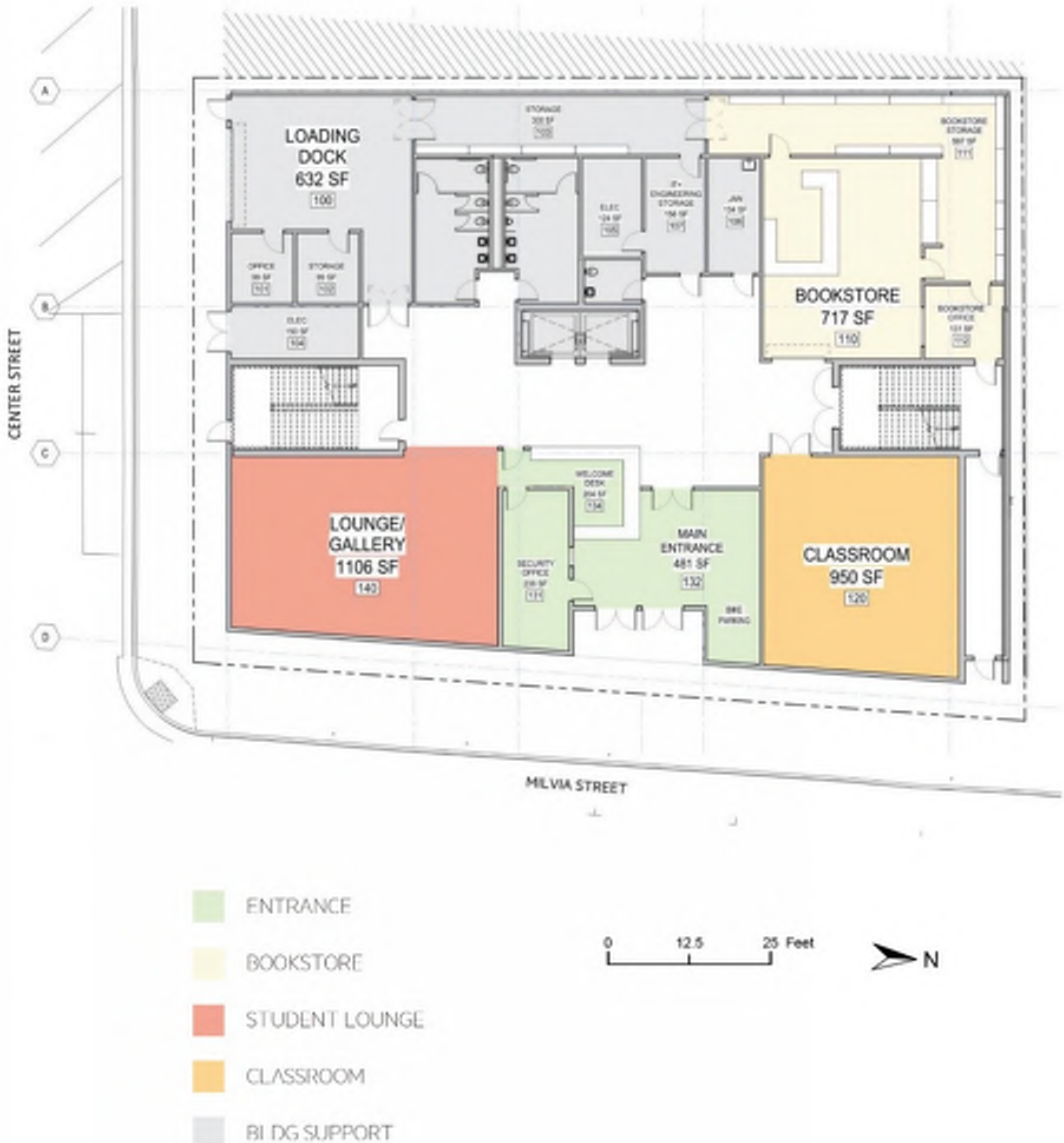
[2] The floor square footages do not include stairways or elevator shafts but do include rooms housing building operating equipment or machinery rooms.

Source: Berkeley City College Campus Expansion Diagram Plans (2020)

### Table 2 Differences Between Existing and Proposed Structures

| | Existing Development | Proposed Project | Change |
|---|---|---|---|
| Massing | 25,000 square feet | 60,000 square feet | +35,000 square feet |
| Height | 3 stories, 45 feet | 6 stories, 90 feet, plus 15 feet for rooftop solar panels and mechanical room | +45 feet, with additional 15 feet for solar panels |

**Figure 4 Proposed Site Plan – Floor 1**




*Source: Berkeley City College, 2020*

**Figure 5 Proposed Site Plan – Floor 2**


*Source: Berkeley City College, 2020*

**Figure 6 Proposed Site Plan – Floor 3**


*Source: Berkeley City College, 2020*

**Figure 7 Proposed Site Plan – Floor 4**


Source: Berkeley City College, 2020

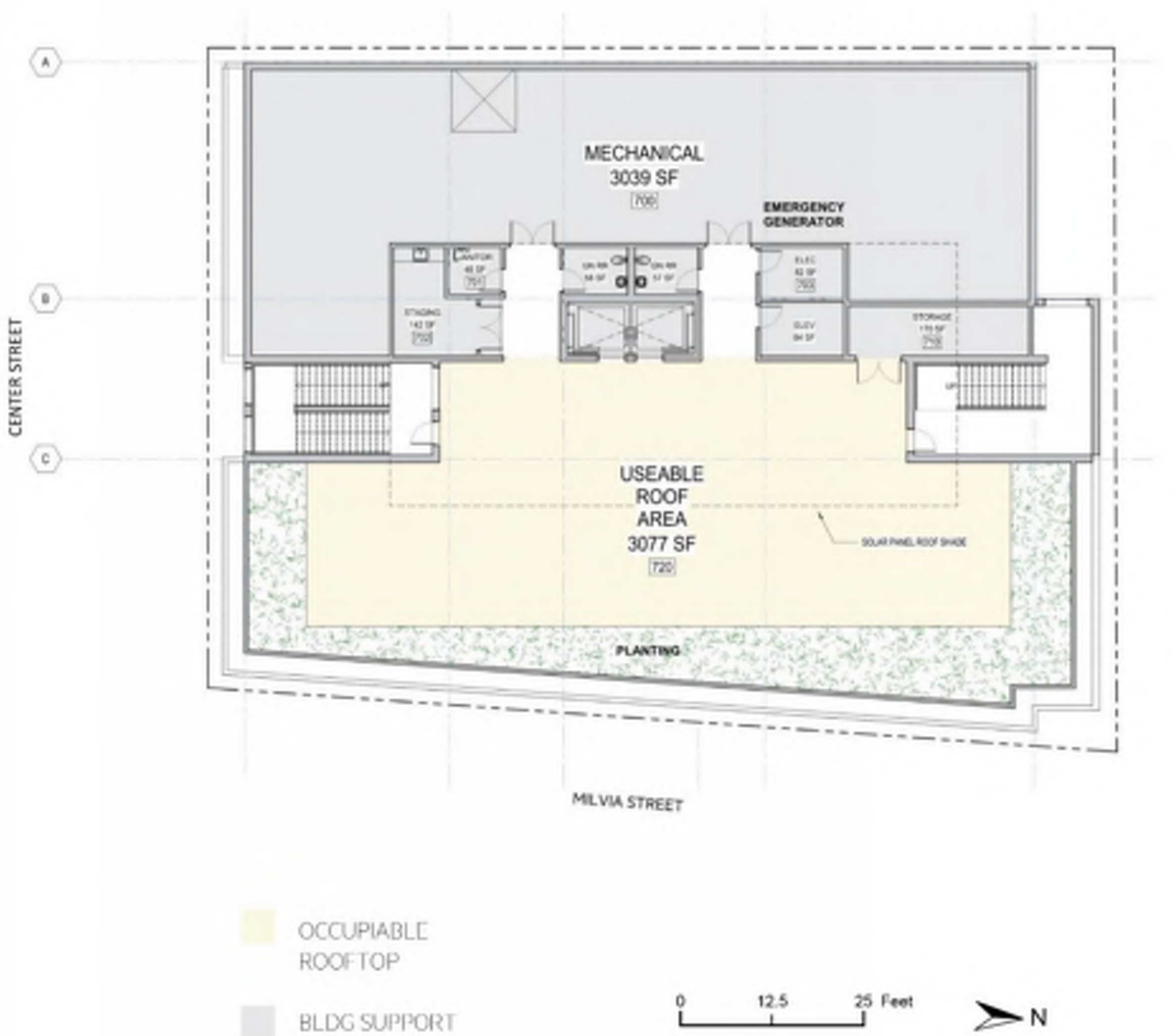
**Figure 8 Proposed Site Plan – Floor 5**


*Source: Berkeley City College, 2020*

## Figure 9 Proposed Site Plan – Floor 6


Source: Berkeley City College, 2020

**Figure 10 Proposed Site Plan – Rooftop**




*Source: Berkeley City College, 2020*

## Enrollment and Class Schedule

Designed to provide classroom space and educational facilities to accommodate existing and projected student enrollment, the proposed project would support the projected annual increase in student population of 2.4 percent per year. Classes would be scheduled at similar times as the existing Berkeley City College campus, with classes occurring Monday through Saturday year-round. Weekday daytime classes typically begin no earlier than 8:00 a.m. and typically end around 5:00 p.m. Weekday evening classes typically end no later than 9:50 p.m. The College also holds some Saturday classes between 9:00 a.m. and 5:20 p.m.

## Parking and Site Access

The proposed project would not include on-site vehicle parking, similar to existing conditions at the site. Bicycle parking is proposed on the building's first floor adjacent to the main entrance (see Figure 4). No modifications to existing street parking are proposed. Pedestrians would access the building from double-door entrances on Milvia Street and doors to the two proposed stairwells at the northeast corner of the site along Milvia Street and center of the site along Center Street.

The project would also include a first-floor loading dock accessed by a new curb cut and roll up door for occasional deliveries and trash collection, and a pedestrian door on Center Street, at the southwest corner of the project site. Additionally, the electrical facility room on the first floor would be accessed from double doors facing Center Street.

The project site is located in close proximity to existing transit facilities and facilities supporting alternative transportation modes such as walking and biking. The site is within walking distance of several bus stops for AC Transit, including stops for routes 18, 51B, 52, 65, 67, 79, 88, 800, and F, as well as the Downtown Berkeley BART station.

## Utilities

The project would include utility connections for water, wastewater, stormwater drainage, power, and telecommunications services in accordance with requirements of applicable utility providers. These utilities would connect to existing infrastructure near the site. Pacific Gas and Electric Company (PG&E) and East Bay Community Energy (EBCE) would provide electrical service; East Bay Municipal Utility District (EBMUD) would provide water service; the City of Berkeley would provide stormwater, wastewater, and solid waste services. The project would not use natural gas or connect to natural gas infrastructure. The project would rely on existing public services, including but not limited to, City of Berkeley police and fire protection and parks and open spaces provided by the City of Berkeley, East Bay Regional Parks District, the County of Alameda, and the State of California.

The project would also include an on-site emergency generator on the sixth floor of the building, in the mechanical equipment area. The generator would be located within a Level 2 sound attenuation enclosure and tested for approximately 30 minutes each month per National Fire Protection Association standards.

## Construction and Grading

Project construction is expected to occur over approximately 30 months. Demolition (3 months), site preparation (1.5 months), and grading (1.5 months) would occur over a total of approximately six months. Building construction (including architectural coating and asphalt paving) would occur over approximately 24 months. Project construction would not occur on Sundays or holidays. The maximum depth of excavation would be approximately 5 feet, and the total amount of exported soil associated with excavation would be approximately 1,500 cubic yards. Depending on the outcome of geotechnical investigations, a deep foundation system may be required. If required, the project would consider alternative construction methods, such as drilled piers to reduce vibration-intensive or noise-intensive equipment.

## Green Building Features

The project would include the installation of solar panels on the roof, which would also partially shade the rooftop patio. In addition, the project would allow for convenient use of public transit due to the site's proximity to local bus stops and Bay Area Rapid Transit (BART). The project would include a rooftop garden[3] as the College does not have any green space due to its urban environment. Based on the structure's position, the project would be designed to increase daylight illumination in the interior spaces.

Berkeley City College maintains a Sustainability and Resiliency Strategy (2018), with which the proposed project would comply. This Strategy includes measures that would achieve the College's sustainability goals. The following measures would be implemented as part of the project:

- E-1: Purchase 100 percent renewable energy. The College will purchase electricity from the EBCE Program's Brilliant 100 option.
- E-2: Follow the Peralta Green Building Guidelines. These guidelines provide guidance on how to contribute to a Zero Net Energy District.
- E-3: Hire a Facilities Manager to implement the Strategy and ensure the proposed building is operating at its full potential.
- E-4: Develop on-site renewable energy and storage. As described above, the project includes the installation of solar panels on the building roof.
- E-5: Pursue Leadership in Energy and Environmental Design (LEED) operations and maintenance certification for new buildings. The new building would aim to achieve at least LEED Gold certification.
- TR-2: Parking cash-out incentive for employees. Paid for from the parking fund, the District could offer a cash stipend for employees who do not purchase a parking permit or daily parking pass.
- TR-3: Carpool matching and guaranteed ride home for employees. The District can help facilitate matching employees for carpooling, and Alameda County Transportation Commission (ACTC) guarantees a free ride home from work for employees who are part of carpool programs.
- TR-4: Vanpooling program. The campus can implement a formal vanpool program for faculty and staff and provide designated vanpool spaces in parking lots.
- TR-8: Provide non-taxable benefits to pedestrians and bicyclists (faculty and staff). Compensate faculty and staff for using active transportation modes on commutes.
- TR-10: Transit fare subsidy for employees. Offer a monthly commuter check to faculty and staff, allowing access to BART, Alameda County Transit (AC Transit), and other major transit providers.
- TR-11: Secure bike parking. Place bicycle corrals on campus and in front of buildings for convenient short-term bicycle access, as well as secure long-term bicycle parking and access to on-campus showers and changing rooms. As described in Section 2.4.4, bicycle parking is provided on the building's first floor, adjacent to the main entrance.

[3] The roof would include landscaped plantings along the eastern side of the rooftop patio, and partially along the northern and southern sides of the rooftop patio.

- WR-2: Efficient indoor water fixtures. Install indoor water fixtures consistent with California Energy Commission (CEC) adopted maximum flow rates for toilets, urinals, kitchen faucets, and public lavatory faucets.
- SW-2: Convert from single stream to dedicated recycling. Provide dedicated recycling and compost receptacles on campus to increase waste diversion rates.
- SW-5: Install water bottle filling stations.
- SW-9: Construction, demolition, and renovation waste recycling. Ensure this waste is properly sorted and disposed of through specific language in construction RFPs and by utilizing local programs.
- SW-11: Zero waste stations. Provide facilities that allow for the proper sorting of waste, including bins for trash, recycling, and compost, with visually compelling signage in high-traffic areas.

# 5. Required Discretionary Approvals

The proposed project is subject to approval by the Peralta Community College District and the Division of the State Architect (DSA). Local approvals from the City of Berkeley would be required for any work on City property or within public rights-of-way, including utility work, sidewalk and hardscape modifications, trees or landscaping modifications and temporary closures of street parking areas or road laneways.

# Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is “Potentially Significant” or “Less than Significant with Mitigation Incorporated” as indicated by the checklist on the following pages.

| | | | | | |
|---|---|---|---|---|---|
| ■ | Aesthetics | ☐ | Agriculture and Forestry Resources | ■ | Air Quality |
| ■ | Biological Resources | ■ | Cultural Resources | ☐ | Energy |
| ■ | Geology and Soils | ☐ | Greenhouse Gas Emissions | ☐ | Hazards and Hazardous Materials |
| ■ | Hydrology and Water Quality | ☐ | Land Use and Planning | ☐ | Mineral Resources |
| ■ | Noise | ☐ | Population and Housing | ☐ | Public Services |
| ☐ | Recreation | ☐ | Transportation | ■ | Tribal Cultural Resources |
| ☐ | Utilities and Service Systems | ☐ | Wildfire | ■ | Mandatory Findings of Significance |

# Determination

Based on this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

■ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "less than significant with mitigation incorporated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Atheria Smith
Atheria Smith (Jun 24, 2021 19:46 PDT)

| | |
|---|---|
| Signature | 06/24/2021<br>Date |
| Atheria Smith<br>Printed Name | Acting Vice Chancellor of General Services<br>Title |

# Environmental Checklist

## 1 Aesthetics

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Except as provided in Public Resources Code Section 21099, would the project: | | | | |
| a. Have a substantial adverse effect on a scenic vista? | ☐ | ☐ | ☐ | ■ |
| b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | ☐ | ☐ | ☐ | ■ |
| c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? | ☐ | ■ | ☐ | ☐ |
| d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area? | ☐ | ■ | ☐ | ☐ |

*a. Would the project have a substantial adverse effect on a scenic vista?*

A scenic vista is a view from a public place (roadway, designated scenic viewing spot, etc.) that is expansive and visually notable. It can be obtained from an elevated position (such as from the top of a hillside) or it can be seen from a roadway with a longer-range view of the landscape. In an urban area, a scenic vista can include a long view down a boulevard with scenic resources, such as mature landscaping, important architecture, or other built environment features that contribute overall to a strong sense of place. An adverse effect would occur if a proposed project would block or otherwise damage the scenic vista upon implementation.

The project site is in an urbanized area of downtown Berkeley, where multi-story buildings exist on all sides. A six-story structure is adjacent to the west of the project site, and across Milvia Street to the east is an eight-story structure with rooftop equipment that adds additional height. Similarly, southeast of the site, a four-story office structure is on the corner of Milvia Street and Center Street, with another multi-story structure just south of that. On the southwest corner of Milvia Street, the Martin Luther King Jr. Civic Center is a five-story structure with the Martin Luther King Jr. Civic

Center Park just west of that. Traveling east on Center Street, distant views of the Berkeley Hills are available through a corridor formed by the urban development. The view is limited to the space directly ahead of the roadway and is neither vast nor expansive. Nonetheless, the view is important to the context of Downtown Berkley, an area defined in part by the Berkeley Hills to the east. From the Martin Luther King, Jr. Civic Center Park, public views under current conditions include existing buildings and do not feature expansive scenic vistas beyond that development

The project would be constructed on the northwest corner of Milvia Street and Center Street, replacing an existing structure. It would not extend into either roadway; neither would construction of a new, taller structure in place of the existing one on the project site obstruct views from public areas within the park, or from surrounding streets or sidewalks, of the Berkeley Hills. The project would result in no impact to scenic vistas.

**NO IMPACT**

*b. Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

None of the roadways near the project site are designated as State scenic highways, nor are they eligible for such designation. The nearest designated highway is I-580, the closest section of which is over 1.5 miles west of the project site (California Department of Transportation [Caltrans] 2019). From this distance intervening development would prevent the proposed project from affecting views from the highway toward the project site of historic buildings, landscape elements, or other scenic resources. There would be no impact.

**NO IMPACT**

*c. Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*

The project would be located in an urbanized downtown area characterized by a rich and complex range of architectural styles, mature street and park trees and other landscaped features, and broad, two-lane boulevards with street parking. According to the City of Berkeley Downtown Design Guidelines, the adjacent building to the west of the project site is designated Significant by the Landmarks Preservation Commission and the 1994 City Design Guidelines (City of Berkeley 2012). The Civic Center and the adjacent park, south of the project site, are Designated Landmarks/Structures of Merit. The City's intent is to preserve the design context in which these buildings exist to retain a consistent character by "respecting scale, use, and architectural character, while simultaneously encouraging architecture that addresses contemporary challenges with new forms of expression."

The structure and the park form a focal point for the area near the project site and take up the entire block south of the project site, with Martin Luther King Jr. Way on the west, Milvia Street on the east, Center Street on the north, and Allston Way on the south. The Civic Center forms its own historic district, as described in the Downtown Berkeley Design Guidelines (City of Berkeley 2012). Mature street trees exist along Milvia Street and Center Street, with the park being the more densely vegetated area. From various public perspectives, looking in all directions from these roadways, long range views of the landscape that typically define scenic vistas are limited by existing development and the mature urban forestation.

The architecture in this area is characterized by a distinctive mix of neo-Classical architectural style and its variations – Mission, Mediterranean, Roman, and Greek revival styles. This Classical vocabulary articulates the appearance of many significant structures built in late nineteenth and early twentieth centuries. Other stylistic traditions from the early twentieth century include Art Deco structures like the Kress Building and the Public Library. All these traditional styles feature vertical windows, regularly spaced or grouped based on the style, and streetwalls where building frontages run close to street-facing edges of the property. These are often distinguished storefronts topped with cornices, upper floor cornices that run from capitals to the next level cornice and create structural supports as well as design elements. Uppermost stories often include a capital parapet that may protect a roof or balcony but that also provides variation in the surface and edges that shape the silhouette of the structure. Decorative elements such as stone or terra cotta ornamentation, tile and terrazzo paving, structural glass, and prism glass transom windows further deepen the visual complexity of the downtown streetscape and skyline.

These nineteenth century buildings combine with later twentieth century Moderne and post-modern styles that feature simple, rectilinear forms with glass and stucco facades and limited decorative elements, but may include articulated roof profiles, and unusual façade designs forms such as enframed entrances and the V-shaped awning over the entrance to the main College campus on Center Street. This vibrant mix forms an urban visual environment distinctive to Berkeley and its downtown area, with well-defined edges that the City's Design Guidelines note are important aspects of its historic character that are to be reinforced and enhanced by renovation and new construction (City of Berkeley 2012).

Looking north on Milvia Street, toward the project site, the view is of a regularly developed, well-maintained urban landscape with dense, high-rise development and mature landscaping, some of which overarches the roadway. From Center Street looking east, a similar urban built environment frames the Berkeley Hills in the distance, just visible over the tops of the trees and between the structures, forming part of the distinctive landscape that characterizes the sense of place in Berkeley and provides a visual counterpoint to the built environment.

The proposed project would remove a three-story, contemporary style office structure and replace it with a six-story educational structure with a rooftop patio and solar installation. The Berkeley College Master Plan does not contain campus facility design guidelines, but it does indicate an intent to distinguish the visual recognizability of the College campus in its urban context, making the frontage more distinctive and improving the streetscaping that extends the College's presence to the street (Berkeley City College 2009).

Industry standards for assessment of visual quality consider the degree of unity, intactness, and vividness in the area in which the project site occurs. As described above, downtown Berkeley consists of a mix of contemporary and historic architecture that, while different, retains a degree of design unity that contributes to its high visual quality. While some structures feature less remarkable designs than others (e.g., the existing structure on the project site versus the Martin Luther King, Jr. Civic Center to the southwest), the overall effect is of an urban landform that coheres in terms of design, massing, orientation, and degree of maintenance. Furthermore, the park southwest of the project site and the other planted street landscaping contribute to the high visual quality.

As a State entity, the District is not required to comply with the City's Downtown Design Guidelines, and the project's final design may result in a potentially significant impact to visual resources, including historic context (see Section 5, *Cultural Resources*, for an in-depth discussion of this topic).Therefore, Mitigation Measure AES-1 would be required. With implementation of Mitigation Measure AES-1, impacts would be reduced to a less than significant level.

## Mitigation Measure

### *AES-1 Final Project Design*

The District shall review proposed designs and plans to ensure the form, massing, and style reinforce and enhance the built environment character of downtown Berkeley, with particular attention to the historically significant and designated buildings adjacent to and near the project site. The following best practices shall be incorporated into the design process, to the extent feasible.

- Design the building to reflect and reinforce the scale, massing, proportions, rhythm, and attention to detail established by the facades of Landmark and Significant buildings as described in the City of Berkeley Downtown Design Guidelines, but refrain from "false historicism" that mimics historic buildings.
- Provide a termination to the top of the building that complements and enhances the character of the structure and integrates into the visual landscape of the downtown.
- Incorporate elements that break up façade planes and create visual play of light and shadow, avoiding long, uninterrupted, overly consistent horizontal surfaces by using recessed areas, architectural projections, and other elements consistent with the overall building design.
- Make divisions of ground and upper floors consistent with neighboring structures in a way that maintains the visual harmony; align cornice and other horizontal, ground-floor elements like awnings and signage with similar features on neighboring structures.
- Accompany windows with light shelves, overhangs, or deep recesses to shade the window during summer while providing solar access into the structure during winter.
- Conceal electrical boxes and conduits from public view.
- Consider that the design of rooftops may be viewed from above by making rooftop equipment and enclosures attractive.
- Use high-quality, durable materials that enhance the structure and convey a sense of permanence (i.e., minimum service life of 50 years).
- Desirable façade materials for the project include brick, concrete, stucco, marble, granite, tile, and terra cotta.
- Use wood, aluminum, steel, copper, or bronze for window frames and sashes.
- Structure details should contribute to the architectural character and artistic expression of the downtown built environment and should be integral to the structure's design – not just decorative.
- Use colors that are harmonious with the adjacent development, prioritizing earth-tone colors that will not detract from Landmark and Significant buildings.

- Keep color schemes simple, using the minimum number of colors to achieve the desired appearance.
- Avoid strong or dark colors on large wall surfaces, choosing instead colors that are muted and harmonious with the major colors found nearby and reserve bold colors for accents and special features.
- Signs should reflect the structure's character and its use. A sign can add to the interest and beauty of the façade but should respect the immediate context of the structure location.
- Construct signs using high-quality materials such as metal, stone, and wood.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*d. Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?*

## Light and Glare

For purposes of this analysis, light refers to light emissions (brightness) generated by a source of light. Typical stationary sources of light include exterior parking lot and building security lighting; moving sources of light include the headlights of vehicles driving on roadways near the project site. Streetlights and other security lighting also serve as sources of light in the evening hours.

Glare is defined as focused, intense light emanating indirectly when light reflects off a surface. Daytime glare is caused in large part by sunlight shining on highly reflective surfaces. Reflective surfaces are associated with buildings that have expanses of polished or glass surfaces, light-colored pavement, and the windshields of parked cars.

The project site is in an urbanized area of Berkeley, where existing conditions include light from streetlights, exterior building security lighting, and interior light that emanates from windows at night. Vehicles driving on Milvia Street and Center Street would also produce substantial light at night from headlights adjacent to the project site.

The level of glare in the area is limited as structures have neutral colored exterior finishes and most expanses of glass walls are buffered by mature street trees, as evident along Milvia Street east of the project site, and adjacent to the project site itself. Parked cars and those traveling along Milvia and Center streets are similarly shaded by street trees or high-rise structures and glare from their windshields would be limited by these contextual factors.

A significant impact could occur if the project introduces new sources of light and glare on the project site that would be incompatible with the areas around the project site or that pose a safety hazard to motorists using adjacent streets. Although project designs have not been developed, it is assumed that the project structure would be illuminated with indoor and outdoor lighting. Security lighting would be provided along the perimeter of the structure, in stairwells, and on the rooftop patio.

As the proposed project would increase density on the project site by constructing a taller structure with more floors, the project would incrementally increase the amount of nighttime light over existing conditions. However, because the project would be situated in an urbanized context with moderately high degree of lighting, the additional light would not be significant. As the District is not required to comply with City lighting regulations and the College Master Plan does not include design guidelines, Mitigation Measure AES-2 would be required to reduce potential light impacts off site.

New vehicle parking areas would not be provided as part of the project, and thus increased glare from car windshields would not occur. Building finishes, fenestration, and other architectural features are currently unknown. Therefore, the project could include glass windows that could result in some transitory glare conditions during the day. Furthermore, architectural design could include finishes, such as polished aluminum, large banks of unshielded windows, or other features that could reflect the sun in a way that is potentially significant. Therefore, Mitigation Measure AES-3 would be required to reduce potential glare impacts.

## Shade and Shadow

The issue of shade and shadow applies when direct sunlight is blocked by on-site buildings in a way that affects adjacent properties. Users and occupants of residential, recreational, open space, outdoor dining, and pedestrian areas may expect direct sunlight that warms the areas they occupy or traverse. These land uses would be considered “shadow-sensitive.” The length of a shadow depends upon the height and size of the building from which it is cast, combined with the angle of the sun, which necessarily varies based upon the time of year. The longest shadows are cast during the winter months and the shortest occur during the summer.

During the spring equinox (approximately March 21) and the autumn equinox (approximately September 22), day and night are nearly the same length. The spring equinox marks the first day of the spring season and the autumnal equinox marks the first day of the fall season.

“Solstice” is the term used to refer to either of the two times of year when the sun is at its highest (summer) or lowest (winter) point in the sky at noon, marked by the longest and the shortest days of the year. Estimating shadow lengths for the winter and summer solstices presents the extreme shadow patterns that would occur throughout the year. Shadows cast on the summer solstice (approximately June 20) would be the shortest, becoming progressively longer until winter solstice (approximately December 21) when shadows are longest.

Shadow simulations indicate the proposed project would cast strong shadows throughout the day of the spring equinox. In the morning, shadows would fall on the adjacent uses to the west and northwest; at mid-day, shadows would fall on Milvia Street sidewalks, office uses, the parking lot adjacent to the north, and adjacent sidewalks; and in the afternoon shadows would fall on Milvia Street and some adjacent buildings and off-street parking areas located east of the project site. Much of this area is currently shaded by adjacent structures, including those to the east of the project site, and by the existing structure on the project site. All simulations are provided in Figure 11 through Figure 13.

During the summer solstice, simulations show that the project would cast a nominal shadow at 9 a.m. on the adjacent alley to the west and northwest, both of which are shaded under current conditions. At noon, the shadows would be quite short, as under existing conditions, shading only the back of the proposed structure. In the afternoon, Milvia Street and the sidewalk beside the proposed project would be shaded, more so than under current conditions. On the winter solstice, the proposed project would also cast strong shadows in a northeasterly direction in the morning; nominal, slanting shadows to the north at mid-day; and to the east onto the parking area associated with the building on the northeast corner of Milvia Street and Center Street in the evening. The shade produced by the proposed project would be similar to current conditions.

**Figure 11 Shadow Simulation Sheet 1**


*Source: Environmental Vision, 2021.*

**Figure 12 Shadow Simulation Sheet 2**


*Source: Environmental Vision, 2021.*

**Figure 13 Shadow Simulation Sheet 3**


*Source: Environmental Vision, 2021.*

Under all these circumstances, no residences, parks or other shadow-sensitive use would be shaded by the proposed project for more than four hours between 9 a.m. and 5 p.m. Consequently, equinox and solstice shadow impacts from the proposed project would be less than significant and no mitigation would be required.

## Mitigation Measures

### *AES-2 Lighting Requirements*

District staff shall review and approve designs and plans to ensure the proposed lighting does not spillover onto or otherwise negatively affect adjacent land uses. The following lighting standards shall be applied to the extent feasible:

- Provide lighting at structure entrances and for security at ground level.
- Use accent lighting to highlight interesting architectural features but ensure accent lighting does not create a source of glare or spill onto adjacent areas in an incompatible manner.
- Use structure lighting to highlight signs, entrances, walkways, and outstanding architectural features, but do not use exterior lighting that blinks or changes.
- Shield lighting to avoid direct glare onto adjacent uses, the sidewalk, and the street.
- Sign lighting shall not consist of spotlighting, halo lighting, or exposed neon but should be an inconspicuous and integrated design feature. Sign lighting shall not cause glare for pedestrians or motorists and should not blink.

### *AES-3 Glare Requirements*

District staff shall review and approve designs and plans to ensure the exterior of the proposed structure shall be constructed of non-reflective materials such as high-performance, tinted, non-reflective glass; metal-panel, pre-cast concrete; or cast-in-place or fabricated wall surfaces that are finished in such a way that glare is not created. Glass on ground floors shall be clear and non-reflective. Upper floor windows may have lightly tinted but non-reflective glass. Stained, translucent, or decorative glass may be used for transom windows and where equipment and ventilation ducts might be visible.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

# 2 Agriculture and Forestry Resources

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☐ | ☐ | ☐ | ■ |
| b. Conflict with existing zoning for agricultural use or a Williamson Act contract? | ☐ | ☐ | ☐ | ■ |
| c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? | ☐ | ☐ | ☐ | ■ |
| d. Result in the loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ■ |
| e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ■ |

*a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

*b. Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?*

*c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*

*d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

*e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?*

The site is not identified as a farmland type under the Farmland Mapping and Monitoring Program, is not enrolled in Williamson Act contracts, and does not support forest land or agricultural resources (California Department of Conservation 2016). According to California Department of Conservation maps, the project site and surrounding neighborhood is categorized as "Urban and Built-Up Land." The area is not located on or adjacent to agricultural land or forest land, and thus the proposed project would not involve or result in the conversion of farmland to non-agricultural uses. For these reasons, the project would have no impact with respect to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; conflict with existing agricultural zoning or Williamson Act contract; result in the loss of forest land or conversion of forest land to non-forest use; or other conversion of farmland to non-agricultural use.

**NO IMPACT**

# 3 Air Quality

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☐ | ■ | ☐ |
| b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? | ☐ | ■ | ☐ | ☐ |
| c. Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ■ | ☐ |
| d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? | ☐ | ☐ | ■ | ☐ |

## Air Quality Standards and Attainment

The project site is located within the San Francisco Bay Area Air Basin (the Basin), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). As the local air quality management agency, the BAAQMD is required to monitor air pollutant levels to ensure that National Ambient Air Quality Standards and California Ambient Air Quality Standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the Basin is classified as being in “attainment” or “nonattainment.” In areas designated as non-attainment for one or more air pollutants, a cumulative air quality impact exists for those air pollutants, and the human health impacts associated with these criteria pollutants, presented in Table 3, are already occurring in that area as part of the environmental baseline condition. Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The Basin is designated a nonattainment area for state and federal ozone standards, state and federal particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$) standards, and state particulate matter smaller than 10 microns in diameter ($PM_{10}$) standards; and is in attainment or unclassified for the remaining criteria pollutants (BAAQMD 2017a). This nonattainment status is a result of several factors, including climate and wind as well as high automobile emissions in the Basin.

### Table 3 Health Effects Associated with Non-Attainment Criteria Pollutants

| Pollutant | Adverse Effects |
|---|---|
| Ozone | (1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage. |
| Suspended particulate matter ($PM_{10}$) | (1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).[1] |
| Suspended particulate matter ($PM_{2.5}$) | (1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma. |

Source: U.S. Environmental Protection Agency (USEPA) 2018

## Air Quality Management

Because the Basin currently exceeds state and federal ozone standards, state and federal $PM_{2.5}$ standards, and state $PM_{10}$ standards, the BAAQMD is required to implement strategies to reduce pollutant levels to achieve attainment of these National Ambient Air Quality Standards and California Ambient Air Quality Standards. The Bay Area 2017 Clean Air Plan (the 2017 Plan) provides a plan to improve Bay Area air quality and protect public health as well as the climate. The legal impetus for the 2017 Plan is to update the most recent ozone plan, the 2010 Clean Air Plan, to comply with state air quality planning requirements as codified in the California Health & Safety Code. Although steady progress in reducing ozone levels in the Basin has been made, the region continues to be designated as non-attainment for both the one-hour and eight-hour state ozone standards. In addition, emissions of ozone precursors in the Bay Area contribute to air quality problems in neighboring air basins. Under these circumstances, state law requires the 2017 Plan to include all feasible measures to reduce emissions of ozone precursors and reduce transport of ozone precursors to neighboring air basins. The 2017 Plan determines that, with implementation of the proposed control strategy, the Basin can expect to reach attainment of state ozone standards by approximately 2025 (BAAQMD 2017b).

In 2006, the U.S. Environmental Protection Agency (USEPA) reduced the national 24-hour $PM_{2.5}$ standard regarding short-term exposure to fine particulate matter from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$. Based on air quality monitoring data for the 2006-2008 cycle showing that the region was slightly above the standard, the USEPA designated the Basin as non-attainment for the 24-hour national standard in December 2008. This triggered the requirement for the BAAQMD to prepare a State Implementation Plan (SIP) submittal to demonstrate how the region would attain the standard. However, data for both the 2008-2010 and the 2009-2011 cycles showed that $PM_{2.5}$ levels in the Basin currently meet the standard. On October 29, 2012, the USEPA issued a proposed rule-making to determine that the Basin now attains the 24-hour $PM_{2.5}$ national standard. Based on this, the Basin is required to prepare an abbreviated SIP submittal, which includes an emission inventory for primary (directly-emitted) $PM_{2.5}$, as well as precursor pollutants that contribute to formation of secondary PM in the atmosphere; and amendments to BAAQMD New

Source Review to address $PM_{2.5}$ (adopted December 2012). However, key SIP requirements to demonstrate how a region will achieve the standard (i.e., the requirement to develop a plan to attain the standard) will be suspended as long as monitoring data continues to show that the Basin attains the standard.

In addition to preparing the "abbreviated" SIP submittal, the BAAQMD has prepared a report entitled "Understanding Particulate Matter: Protecting Public Health in the San Francisco Bay Area" (BAAQMD 2012). The report helps guide the BAAQMD's on-going efforts to analyze and reduce PM in the Bay Area in order to better protect public health.[4] The Basin will continue to be designated as nonattainment for the federal 24-hour $PM_{2.5}$ standard until such time as the BAAQMD elects to submit a "redesignation request" and a "maintenance plan" to the USEPA, and the USEPA approves the proposed redesignation.

## Air Emission Thresholds

The BAAQMD has adopted guidelines for quantifying and determining the significance of air quality emissions in its CEQA Air Quality Guidelines (BAAQMD 2017c). The BAAQMD developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether a project could result in potentially significant air quality impacts. If all of the screening criteria are met by a project, then the lead agency or applicant does not need to perform a detailed air quality assessment of their project's air pollutant emissions. These screening levels are generally representative of new development on greenfield sites without any form of mitigation measures taken into consideration. Projects that are mixed-use, infill, and/or proximate to transit service and local services, would generally result in emissions less than the greenfield type project that these screening criteria are based on (BAAQMD 2017c).

### *Screening Criteria*

For university/college developments such as the proposed project, BAAQMD's construction-related screening size is 3,012 students and BAAQMD's operational screening size is 1,760 students. However, if a project includes demolition, the screening criteria for construction may not be used to preclude evaluation of the project's construction-related criteria pollutant emissions. Therefore, the screening criteria for construction cannot be used. Similarly, the proposed project would accommodate 1,760 students by 2027; therefore, operational air emissions screening criteria cannot be used, and air emissions were quantified using the California Emissions Estimator Model (CalEEMod; BAAQMD 2017c; see Appendix AQ). As a result, the BAAQMD significance thresholds for criteria air pollutants were analyzed.

### *Emission Thresholds*

Table 4 presents the significance thresholds for construction-related criteria air pollutant and precursor emissions adopted by BAAQMD. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors during construction would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. If the project's construction-related criteria pollutant emissions exceed the thresholds shown in Table 4, the proposed project would result in a significant construction-related air quality impact.

[4] PM is made up of particles that are emitted directly, such as soot and fugitive dust, as well as secondary particles that are formed in the atmosphere from chemical reactions involving precursor pollutants such as oxides of nitrogen, sulfur oxides, volatile organic compounds, and ammonia.

**Table 4 Criteria Air Pollutant Significance Thresholds for Construction**

| Pollutant | Average Daily Emissions (lbs/day) |
|---|---|
| ROG | 54 |
| $NO_X$ | 54 |
| $PM_{10}$ | 82 (exhaust) |
| $PM_{2.5}$ | 54 (exhaust) |

Source: BAAQMD 2017c

Table 5 presents the significance thresholds for operation-related criteria air pollutant and precursor emissions adopted by BAAQMD. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors during operation would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. If the project's operation-related criteria pollutant emissions exceed the thresholds shown in Table 5, the proposed project would result in a significant operation-related air quality impact.

**Table 5 Criteria Air Pollutant Significance Thresholds for Operation**

| Pollutant | Average Daily Emissions (lbs/day) | Average Annual Emissions (tons/year) |
|---|---|---|
| ROG | 54 | 10 |
| $NO_X$ | 54 | 10 |
| $PM_{10}$ | 82 | 15 |
| $PM_{2.5}$ | 54 | 10 |

Source: BAAQMD 2017c

## Methodology

Air pollutant emissions generated by project construction and operation were estimated using CalEEMod, version 2016.3.2. CalEEMod uses project-specific information, including the project's land uses, square footages for different uses (e.g., Junior College for community college uses), and location, to model a project's construction and operational emissions. The analysis reflects the construction and operation of the project as described in Section 4, *Project Characteristics*.

Construction emissions modeled include emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction, such as worker and vendor trips. CalEEMod estimates construction emissions by multiplying the amount of time equipment is in operation by emission factors. Project construction was analyzed based on the proponent-provided construction schedule and construction equipment list. It is assumed that all construction equipment used would be diesel-powered. Construction includes 1,500 cubic yards of soil export and demolition of the existing 25,000-square foot building. This analysis assumes that the project would comply with all applicable regulatory standards. In particular, the project would comply with BAAQMD Regulation 8 Rule 3, which limits the emissions of volatile organic compounds from architectural coatings.

Operational emissions modeled include mobile source emissions (i.e., vehicle emissions), energy emissions, and area source emissions. Mobile source emissions are generated by vehicle trips to and from the project site. Trip generation rates were sourced from the Transportation Impact Study prepared for the project by CHS Consulting (Appendix TRA). The project would result in no air quality emissions attributed to energy use as the proposed structure would be all electric with no natural gas infrastructure. Area source emissions are generated by landscape maintenance equipment, consumer products and architectural coatings.

CalEEMod does not incorporate water use reductions achieved by 2016 California Green Building Standards Code (CalGreen; Part 11 of Title 24). New development would be subject to CalGreen, which requires a 20 percent increase in indoor water use efficiency. Thus, to account for compliance with CalGreen, a 20 percent reduction in indoor water use was included in the water consumption calculations for the project. Per the College's Sustainability and Resiliency Strategy, low-flow appliances, including toilets, bathroom faucets, and kitchen faucets would be installed in the proposed structure. Additionally, the proposed project does not include any landscaping components, therefore no water would be required for outdoor irrigation.

*a. Would the project conflict with or obstruct implementation of the applicable air quality plan?*

Vehicle use, energy consumption, and associated air pollutant emissions are directly related to population and housing growth. A project would generally conflict with or potentially obstruct implementation of an air quality management plan if it would contribute to population growth in excess of that forecast in the plan. Such growth would generate emissions not accounted for in the applicable air quality plan emissions budget. Therefore, projects need to be evaluated to determine whether they would generate population, housing, or employment growth and, if so, whether that growth would exceed the growth rates included in the applicable air quality plan. The most recent and applicable adopted air quality plan is the 2017 Clean Air Plan. Therefore, the proposed project would result in a significant impact if it would conflict with or obstruct implementation of the 2017 Plan.

BAAQMD uses the Association of Bay Area Governments (ABAG) growth forecast. The latest ABAG projections include a jobs forecast specifically for health, educational, and recreational service jobs. The ABAG estimates that the number of health, educational, and recreational service jobs in the City of Berkeley will be 52,160 in 2040 an increase of 4,465 jobs above 47,695 jobs in 2020 (ABAG 2019). Berkeley City College is anticipated to accommodate 200 new faculty and staff jobs between 2020 and 2040, based on an annual growth rate of 2.4 percent. The addition of 200 jobs associated with the proposed project would be within the estimated increase in the City by 2040. The project's employment growth would be within ABAG projections and therefore also within the 2017 Plan projections.

Furthermore, as discussed in responses to criterion (b) below, the project would not exceed BAAQMD significance thresholds related to air quality emissions. Therefore, the project would not conflict with or obstruct the implementation of an applicable air quality plan. This impact would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

b. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

The project would result in temporary construction emissions and long-term operational emissions.

## Construction

Construction activities such as the operation of construction vehicles and equipment over unpaved areas (on site during site preparation and grading), grading, trenching, and disturbance of stockpiled soils have the potential to generate fugitive dust ($PM_{10}$) through the exposure of soil to wind erosion and dust entrainment. In addition, exhaust emissions associated with heavy-duty construction equipment would potentially degrade regional air quality. Construction emissions were estimated using CalEEMod and are shown in Table 6.

**Table 6 Estimated Average Daily Construction Emissions (lbs/day)**

| Construction Year | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ (exhaust) | $PM_{2.5}$ (exhaust) |
|---|---|---|---|---|---|---|
| 2022 | 2 | 15 | 12 | <1 | 1 | 1 |
| 2023 | 1 | 13 | 12 | <1 | 1 | 1 |
| 2024 | 4 | 8 | 10 | <1 | <1 | <1 |
| 2025 | 4 | 8 | 10 | <1 | <1 | <1 |
| **Maximum Emissions[1]** | **4** | **15** | **12** | **<1** | **1** | **1** |
| BAAQMD Thresholds | 54 | 54 | n/a | n/a | 82 | 54 |
| **Threshold Exceeded?** | **No** | **No** | **n/a** | **n/a** | **No** | **No** |

lbs/day = pounds per day; ROG = reactive organic gases, $NO_X$ = nitrogen oxides, CO = carbon monoxide, $SO_2$ = sulfur dioxide, $PM_{10}$ = particulate matter smaller than 10 microns in diameter, $PM_{2.5}$ = particulate matter smaller than 2.5 microns in diameter

Notes: All emissions modeling was completed made using CalEEMod. Some numbers may not add up due to rounding. Emission data is pulled from “mitigated” results, which account for compliance with regulations (including BAAQMD Regulation 8 Rule 3) and project design features. Emissions presented are the highest of the winter and summer modeled emissions.

Source: Appendix AQ

As shown in Table 6, the proposed project would not exceed the BAAQMD short-term construction thresholds shown in Table 4. However, to control dust and exhaust during construction, the BAAQMD has also identified feasible fugitive dust control measures for construction activities in the *CEQA Air Quality Guidelines* (BAAQMD 2017c). These measures have been included as Mitigation Measure AQ-1 to ensure project compliance. With the implementation of these Basic Construction Mitigation Measures, construction air quality impacts would be less than significant.

## Operation

Long-term emissions associated with operation, as shown in Table 7 and Table 8, would include emissions from vehicle trips (mobile sources); stationary sources (on-site emergency generator); and landscape maintenance equipment (for the rooftop garden), consumer products, and architectural coating associated with on-site development (area sources). Current emissions from the existing structure were not subtracted from project emissions to provide a conservative analysis.

### Table 7 Estimated Average Daily Operational Emissions (lbs/day)

| Emissions Source | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| Area | 1 | <1 | <1 | 0 | <1 | <1 |
| Energy | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile | 1 | 4 | 11 | <1 | 4 | 1 |
| Stationary | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **2** | **4** | **11** | **<1** | **4** | **1** |
| BAAQMD Thresholds | 54 | 54 | n/a | n/a | 82 | 54 |
| **Threshold Exceeded?** | **No** | **No** | **n/a** | **n/a** | **No** | **No** |

lbs/day = pounds per day; ROG = reactive organic gases, $NO_X$ = nitrogen oxides, CO = carbon monoxide, $SO_2$ = sulfur dioxide, $PM_{10}$ = particulate matter smaller than 10 microns in diameter, $PM_{2.5}$ = particulate matter smaller than 2.5 microns in diameter

Notes: All emissions modeling was completed made using CalEEMod. Some numbers may not add up due to rounding. Emission data is pulled from "mitigated" results, which account for compliance with regulations (including BAAQMD Regulation 8 Rule 3) and project design features. Emissions presented are the highest of the winter and summer modeled emissions.

Source: Appendix AQ

### Table 8 Estimated Average Annual Operational Emissions (tons/year)

| Emissions Source | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| Area Sources | <1 | 0 | <1 | 0 | 0 | 0 |
| Energy Sources | 0 | 0 | 0 | 0 | 0 | 0 |
| Mobile Sources | <1 | 1 | 2 | <1 | 1 | <1 |
| Stationary | <1 | <1 | <1 | <1 | <1 | <1 |
| **Total** | **<1** | **1** | **2** | **<1** | **1** | **<1** |
| BAAQMD Thresholds | 10 | 10 | n/a | n/a | 15 | 10 |
| **Threshold Exceeded?** | **No** | **No** | **n/a** | **n/a** | **No** | **No** |

ROG = reactive organic gases, $NO_X$ = nitrogen oxides, CO = carbon monoxide, $SO_2$ = sulfur dioxide, $PM_{10}$ = particulate matter smaller than 10 microns in diameter, $PM_{2.5}$ = particulate matter smaller than 2.5 microns in diameter

Notes: All emissions modeling was completed made using CalEEMod. Some numbers may not add up due to rounding. Emission data is pulled from "mitigated" results, which account for compliance with regulations (BAAQMD Regulation 8 Rule 3) and project design features. Emissions presented are the highest of the winter and summer modeled emissions.

Source: Appendix AQ

Table 7 and Table 8 show that emissions would not exceed BAAQMD daily or annual thresholds for any criteria pollutant. Consequently, operational impacts would be less than significant.

## Mitigation Measure

### *AQ-1 BAAQMD Basic Construction Mitigation*

The District shall ensure that the construction contractor(s) implement the following measures during project construction to reduce dust fall-out emissions:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered or maintain at least 2 feet of freeboard.
- 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.
- Enclose, cover, water daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.)
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure CCR Title 13, 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 manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- Post a publicly visible sign with the telephone number and person to contact at the District or construction contractor regarding dust complaints. This person shall respond and take corrective action within 48 hours. The air district's phone number shall also be visible to ensure compliance with applicable regulations.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*c. Would the project expose sensitive receptors to substantial pollutant concentrations?*

Certain population groups, such as children, the elderly, and people with health problems, are particularly sensitive to air pollution. Therefore, most of the sensitive receptor locations are schools, hospitals, and residences. Sensitive receptors in the project vicinity include multi-family residences located as close as 100 feet to the northeast. Localized air quality impacts to sensitive receptors typically result from carbon monoxide (CO) hotspots and toxic air contaminants (TAC), which are discussed in the following subsections.

## Carbon Monoxide Hotspots

A CO hotspot is a localized concentration of CO that is above a CO ambient air quality standard. Localized CO hotspots can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local CO concentration exceeds the federal one-hour standard of 35.0 ppm or the federal and state eight-hour standard of 9.0 ppm.

The BAAQMD maintains the following screening thresholds for CO hotspots:

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

As described in Section 17, *Transportation*, the project would accommodate a net change in traffic of 1,816 new trips between 2020 and 2040 (Appendix TRA). Traffic counts in the project vicinity range from 5,000 daily trips to 32,000 daily trips (City of Berkeley 2000). The existing low volume of traffic and the small addition of project traffic would not result in greater than 44,000 vph or 24,000 vph at local intersections.

Based on improving vehicle emissions standards for new cars in accordance with state and federal regulations, the project's low level of new vehicle trips, and the project's low level of operational CO emissions, the project would not create new CO hotspots or contribute substantially to existing CO hotspots. Therefore, the proposed project would not expose sensitive receptors to substantial CO concentrations, and localized air quality impacts related to CO hot spots would be less than significant.

## Toxic Air Contaminants

TACs are defined by California law as air pollutants that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. The following subsections discuss the project's potential to result in impacts related to TAC emissions during construction and operation.

### *Construction*

Construction-related activities would result in temporary project-generated emissions of diesel particulate matter (DPM) exhaust emissions from off-road, heavy-duty diesel equipment for site preparation, grading, building construction, and other construction activities. DPM was identified as a TAC by the California Air Resources Board (CARB) in 1998. The potential cancer risk from the inhalation of DPM (discussed in the following paragraphs) outweighs the potential non-cancer health impacts (CARB 2020a) and is therefore the focus of this analysis.

Generation of DPM from construction projects typically occurs in a single area for a short period. Project construction would occur over approximately 30 months. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for an individual receptor. The risks estimated for a receptor is higher if a fixed exposure occurs over a longer period of time. According to the California Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project. Thus, the duration of proposed construction activities (i.e., 30 months) is approximately 8.3 percent of the total exposure period used for 30-year health risk calculations. Current models and methodologies for conducting health-risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities, resulting in difficulties in producing accurate estimates of health risk (BAAQMD 2017c).

The maximum $PM_{10}$ and $PM_{2.5}$ emissions would occur during demolition, site preparation and grading activities. These activities would last for approximately six months. PM emissions would decrease for the remaining construction period because construction activities such as building construction and architectural coating would require less intensive construction equipment. While the maximum DPM emissions associated with demolition, site preparation, and grading activities would only occur for a portion of the overall construction period, these activities represent the worst-case condition for the total construction period. This would represent less than 2 percent of the total 30-year exposure period for health risk calculation. Given the aforementioned discussion, DPM generated by project construction would not create conditions where the probability is greater than one in one million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than one for the Maximally Exposed Individual. Therefore, project construction would not expose sensitive receptors to substantial TAC concentrations, and impacts would be less than significant.

### *Operation*

CARB has identified DPM as the primary airborne carcinogen in the state (CARB 2021). In addition, TACs are a defined set of air pollutants that may pose a present or potential hazard to human health. Common sources of TACs and $PM_{2.5}$ include gasoline stations, dry cleaners, diesel backup generators, truck distribution centers, freeways, and other major roadways (BAAQMD 2017b). The project would not involve construction of gas stations, dry cleaners, highways, or roadways, but would install a diesel backup generator, which is a permitted source of TAC or $PM_{2.5}$. The proposed on-site emergency diesel generator would be approximately 230 kilowatts and powered by an approximately 359-horsepower engine. The emergency generator was modeled in CalEEMod assuming it would operate for 50 hours per year for testing and maintenance purposes in compliance with the BAAQMD's Regulation 9 Rule 8 for stationary internal combustion engines (BAAQMD 2019).[5] The CalEEMod annual (tons per year) $PM_{10}$ exhaust and total $PM_{2.5}$ emissions for the stationary source were then converted into average daily emissions (pounds per day) and used in the BAAQMD's *Risk and Hazards Emissions Screening Calculator*. This screening tool provides conservative estimates for total cancer risk, $PM_{2.5}$ concentration, and hazard index from stationary sources. In the screening tool, the CalEEMod $PM_{10}$ exhaust emission was used to represent diesel exhaust particulates and the total $PM_{2.5}$ emissions represented fine particulate matter. No distance adjustment was used in the screening tool. Based on the screening tool, the unadjusted total cancer risk would be 1.5 per million, the total $PM_{2.5}$ concentration would be less than 0.01 $\mu g/m^3$, and the hazard index value would be less than 0.01. These risks and hazards are below the BAAQMD TAC single-source thresholds of 10 per million for cancer risk, 0.03 $\mu g/m^3$ for $PM_{2.5}$, and 1.0 for hazard index. Therefore, impacts from the proposed emergency generator would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

[5] The College anticipates testing the emergency generator for approximately 30 minutes each month; however, generator usage was modeled at 50 hours per year per the BAAQMD Regulation to provide a conservative air quality emissions analysis.

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

During construction activities, heavy equipment and vehicles would emit odors associated with vehicle and engine exhaust both during normal use and when idling. However, these odors would be temporary and would cease upon completion. Therefore, the proposed project would not generate objectionable odors affecting a substantial number of people. This impact would be less than significant.

Table 3-3 in BAAQMD's 2017 *CEQA Air Quality Guidelines* provides odor screening distances for land uses that have the potential to generate substantial odor complaints. These uses include wastewater treatment plants, landfills or transfer stations, refineries, composting facilities, confined animal facilities, food manufacturing, smelting plants, and chemical plants (BAAQMD 2017c). None of these identified uses would occur within the project site. The proposed project would not generate objectionable odors affecting a substantial number of people during operation, and impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

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# 4 Biological Resources

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | □ | ■ | □ | □ |
| b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | □ | □ | □ | ■ |
| c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | □ | □ | □ | ■ |
| d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | □ | □ | □ | ■ |
| e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | □ | □ | ■ | □ |
| f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | □ | □ | □ | ■ |

The project site is located in a developed commercial and municipal area in incorporated Berkeley. The site is entirely covered by the existing structure and paved areas. The project site and vicinity experiences extensive human disturbance, including regular vehicle movement along adjacent roadways, and pedestrian traffic along adjacent sidewalks. There is no landscaping on the site itself; however, five street trees are located along Milvia Street and Center Street, which are adjacent to the existing structure, within the public right-of-way. These street trees appear to be London plane trees (*Platanus hybrida*).

a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

The project site is in an urbanized area of Berkeley and is currently developed with a three-story structure and pavement. Based on the developed nature of the area and lack of native or riparian habitat located on within it, no federal-or state-listed endangered, threatened, rare, or otherwise sensitive flora or fauna are anticipated to be located within the project site.

Existing street trees adjacent to the site could contain bird nests and birds that are protected under the Migratory Bird Treaty Act. Protected birds include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows, and others, including their body parts (feathers, plumes etc.), nests, and eggs. The proposed project would not involve the removal of existing street trees. However, the project's demolition and construction may affect protected nesting birds in existing trees. Therefore, Mitigation Measure BIO-1 would be required to reduce potential impacts to nesting birds. Implementation of Mitigation Measure BIO-1 would reduce impacts to less than significant levels.

Studies have shown that "the bulk of bird deaths result from the cumulative effects of a lone, confused bird mistaking glass for a safe flight path. The lone bird strike occurs over and over with conservative estimates calculating that each building kills 10 birds per year on average in the United States (Klem 1990). Poorly designed buildings kill hundreds per year (Hager et al. 2008)." The amount, location and design of glass on buildings are the primary factors affecting safety for birds. The proposed project has a low potential to attract substantial bird strikes because the project site is not near suitable bird habitat such as foraging areas, large tracts of open space or stands of mature trees, or wetlands or water features; projects proximate to such areas are of greater concern. Nevertheless, the proposed structure has the potential to result in bird strikes depending on its ultimate design. Mitigation Measure BIO-2, which is modeled on standard City of Berkeley conditions of approval for bird-safe construction, would be required to reduce potential impacts related to bird strikes. Implementation of Mitigation Measure BIO-2 would reduce impacts to a less than significant level.

## Mitigation Measures

### *BIO-1 Pre-Construction Nesting Bird Survey*

The District shall ensure that the construction contractor(s) limits initial site disturbance activities, including demolition and concrete removal, during the general avian nesting season (February 1 to August 30), to the extent feasible. If nesting season cannot be avoided, the District shall retain a qualified biologist to conduct a preconstruction nesting bird survey to determine the presence/absence, location, and activity status of any active nests on or adjacent to the project site. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that direct and indirect effects to nesting birds are avoided. To avoid the destruction of active nests and to protect the reproductive success of birds protected by the Migratory Bird Treaty Act and California Fish and Game Code, nesting bird surveys shall be performed not more than 14 days prior to scheduled demolition and concrete removal. In the event that active nests are discovered, a suitable buffer (typically a minimum buffer of 50 feet for passerines and a minimum buffer of 250 feet for raptors) shall be established around such active nests and no construction shall be allowed inside the buffer areas until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). No ground-disturbing activities shall occur within this buffer until the qualified biologist has confirmed that breeding/nesting is completed and the young have fledged the nest.

#### *BIO-2 Bird-Safe Design*

Project design shall incorporate the following:

- Create visual markers and mute reflections in glass features. Glass treatment (e.g., modifications in transparency, reflectivity, patterns and colors) shall be on at least the first 40 feet, or to the anticipated height of most of the street trees at maturity, whichever is higher. Applying these solutions to the entire building is preferred.
- Reduce light pollution which disorients migrating birds by choosing exterior light fixtures that project light downward rather than toward the sky, and by locating interior plantings away from glass areas that are lit at night.
- For structures such as greenhouses, skyways, free-standing glass walls and some balconies, require that 100 percent of glass be treated.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

*d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

The site does not contain riparian habitat and is not located within a known regional wildlife movement corridor or other sensitive biological area as indicated by the U.S. Fish and Wildlife Service (USFWS) Critical Habitat portal or California Department of Fish and Wildlife (CDFW) Biogeographic Information and Observation System (USFWS 2020a; CDFW 2020a). No impact would occur as a result of the project.

**NO IMPACT**

*c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

The National Wetlands Inventory was reviewed to determine if wetland and/or non-wetland waters had been previously documented and mapped on or in the project vicinity (USFWS 2020b). No such features occur on or adjacent to the project site. There is one potential jurisdictional water or wetland that is in the project vicinity. Strawberry Creek, a riverine wetland resource, is located approximately 0.3-mile east of the site. However, project construction and operation would not involve or require the direct removal, filling, hydrological interruption, or other means to the bed, bank, channel, or adjacent upland area of Strawberry Creek. No impact would occur.

**NO IMPACT**

*e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

Project construction is not expected to require the removal of the street trees located along Milvia Street or Center Street. However, there is a potential that one or more of these trees would need to be trimmed back or removed entirely to accommodate construction equipment ingress and egress from the site. Because these trees are located on City rights-of-way, removal would be subject to City of Berkeley street tree regulations.

If existing street trees adjacent to the project site need to be removed, the District's construction contractor(s) would be required to obtain a Tree Removal Permit from the City of Berkeley Parks Division. The five street trees adjacent to the project site are all London plane trees. General Plan Policy EM-29 requires the City to maintain and enhance street and park trees to improve the environment and provide habitat. On-going policy implementation through site-specific review by the Berkeley Department of Planning and Development and Urban Forestry Unit during the Tree Permit approval process would reduce potential impacts to locally significant trees. Because the construction contractor(s) would be required to obtain a tree removal permit, if needed, the proposed project would not conflict with or hinder implementation of the City's tree protection ordinance or other policies or ordinances for protecting biological resources. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

The project site is not located in an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan (CDFW 2020b). Therefore, the project would not conflict with such a plan and no impact would occur.

**NO IMPACT**

# 5 Cultural Resources

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? | ☐ | ■ | ☐ | ☐ |
| b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | ☐ | ■ | ☐ | ☐ |
| c. Disturb any human remains, including those interred outside of formal cemeteries? | ☐ | ☐ | ■ | ☐ |

This section incorporates the results of a Historical Resource Assessment conducted by Rincon Consultants, Inc. in March 2021 (included as Appendix HR), and a Cultural Resources Report conducted by Pacific Legacy, Inc. in February 2021 (included as Confidential Appendix CR). The conclusions of these studies are briefly summarized in this section; additional details are available in Appendix HR and Appendix CR.

## Historical Resource Assessment

Rincon Consultants reviewed a variety of sources to identify known and potential historical resources in and adjacent to the project site and evaluated the structure at 2118 Milvia Street for its eligibility to be listed as a historical resource. These include the listings of the National Register of Historic Places (NRHP), California Historical Landmarks, California Points of Historic Interest, and the current California Office of Historic Preservation Built Environment Resource Directory (and former California Historical Resources Inventory). In addition, Rincon reviewed local of City of Berkeley listings and historical resources-related documentation, including past surveys encompassing the current project site, which are discussed further below.

These sources confirmed that the subject property at 2118 Milvia Street is neither designated at the federal, state, or local level, nor has it been previously identified as a potentially significant historical resource or property warranting further consideration as such. However, the project site is adjacent to the Berkeley Civic Center Historic District (BCCHD), which is listed in the NRHP and is also a locally designated historic district. Two buildings which are adjacent to the project site and contributors to this historic district are also individually designated City of Berkeley Landmarks: the State Farm Insurance Company Building at 1947 Center Street and the old Federal Land Bank building, which is the current Berkeley City Hall at 2180 Milvia Street. Both the District itself and its contributors qualify as historical resources under PRC Section 21084.1.

In addition to the efforts discussed above, Rincon conducted archival research from December 2020 and January 2021 to identify property-specific information and develop the historic context for the project site and surroundings. Research methodology focused on the review of primary and secondary source materials relating to the history and development of the area surrounding the project site. Sources included, but were not limited to, historic-period maps, aerial photographs, and written histories of the area.

Rincon conducted a field survey of the project site and immediate vicinity on August 7, 2020. The field survey served to identify built environment features in the project site and was documented by digital photography and field notes. The building on the site was examined to assess overall condition and integrity, and to identify and document any potential character-defining features. Access was limited to the public right-of-way; no interior photographs were taken. The building on the project site was recorded on California Department of Parks and Recreation 523 series forms, included in the Rincon report. A reconnaissance survey of the immediately surrounding area was also conducted to characterize the existing conditions of the BCCHD and other surrounding properties.

### *Evaluation*

The existing building at 2118 Milvia Street is recommended ineligible for listing on the NRHP or California Register of Historical Resources (CRHR; Appendix HR). The property was constructed in downtown Berkeley in 1967. Research supports the conclusion that the property is not significant in the development of downtown Berkeley or the city as a whole, and the property is not associated with any events of pattern of events significant in the history of the city, region, state, or nation. As a result, the property is recommended ineligible for listing in the NRHP or CRHR under Criteria A/1.

No available evidence suggested either previous property owner (James Y. Smith and Nora E. Wagner) or property tenants (such as Harvey E. Wagner, founder of Teknekron, Inc.) made any significant historical contributions. The property is recommended ineligible for listing in the NRHP or CRHR under Criteria B/2.

The property does not appear eligible as a distinctive example of an architectural style or the work of a master. The building exhibits elements of Brutalist- and Late Modern-style architecture; however, these features are largely limited to its use of concrete and modular design features and is not a notable example of either style. Because it does not embody the distinctive characteristics of a type, period, or method of construction, or possess high artistic values, it is recommended ineligible for listing in the NRHP and CRHR under Criteria C/3.

A review of available evidence and records search results did not indicate that the property may yield important information about prehistory or history. As such, it is recommended ineligible for listing for the NRHP and CRHR under Criteria D/4.

In 2008, Architectural Resources Group completed the City of Berkeley *Downtown Area Plan Historical Resource Evaluation* in support of the Downtown Area Plan (DAP) (ARG 2008). The study included a reconnaissance-level survey of the DAP, which encompassed the current project site at 2118 Milvia Street. As the 2008 study was a reconnaissance-level survey, no formal NRHP, CRHR, or local eligibility assessments were completed. Rather a matrix was developed which inventoried the approximately 600 properties within the DAP area, provided preliminary integrity assessments and identified properties which were recommended for further study and evaluation on California Department of Parks and Recreation (DPR) 523 series forms. The subject property at 2118 Milvia Street is included in the matrix but was not recommended for further research or evaluation, and no comments on its integrity were noted. The report does identify the locally and federally designated Berkeley Historic Civic Center District and contributors adjacent to the project site.

## Cultural Resources Report

Pacific Legacy requested a search of the California Historical Resources Information System at the Northwest Information Center (NWIC) located at Sonoma State University on January 12, 2021. The search was performed to identify previously recorded cultural resources, as well as previously conducted cultural resources studies within the project site and a 0.25-mile radius. The California Historical Resources Information System search included a review of available records at the NWIC, as well as the NRHP, the CRHR, the Office of Historic Preservation Built Environment Resources Directory for Alameda County, the California Inventory of Historic Resources, the Archaeological Determinations of Eligibility list, and historic maps.

The NWIC records search (NWIC File No. 20-1219) identified 32 cultural resources studies conducted within 0.25-mile radius of the project site, none of which were located within the project site. The records search identified no archaeological resources in the project site; however, 88 previously recorded resources were located within the 0.25-mile radius of the project site.

As part of the process of identifying cultural resources for this project, Pacific Legacy also requested a Sacred Land database search and Local Government Tribal Consultation List from the Native American Heritage Commission (NAHC) on December 21, 2020. The NAHC responded on January 12, 2021 and stated that the Sacred Lands File search results were positive for the presence of known Native American resources within the project site, and advised contact with Amah Mutsun Tribal Band of Mission San Juan Bautista and the North Valley Yokuts Tribe for further information about the resources. A list of 10 tribal representatives with potential interest in and knowledge of the project site was also provided. All individuals on the list were contacted by Pacific Legacy via certified letter on January 15, 2021.

On January 29, 2021, Pacific Legacy archaeologists made follow-up calls and sent follow-up emails to all of the tribal representatives on the list provided by the NAHC. Irenne Zwierlein of the Amah Mutsun Tribal Band of Mission San Juan Bautista requested that a Native American monitor be present during demolition and construction activities, and that construction crews undergo cultural sensitivity training. Kanyon Sayers-Roods of the Indian Canyon Mutsun Band of Costanoan requested that a Native American monitor be present during demolition and construction activities, and that construction crews undergo cultural sensitivity training. She also recommended that the Project include public-facing information “hosting truth in history” about the Native peoples. Ms. Sayers followed up the phone call with an email dated March 23, 2021, re-iterating the previous recommendations and added a request to have Native American and archaeological monitors present on site at all times due to her understanding that the project APE overlaps or is near the boundary of a recorded and potentially eligible cultural site. All correspondence between Pacific Legacy, the NAHC, Native American stakeholders, and potential Native American stakeholders, regarding the project are included in Appendix CR.

Archival research focused on the review of a variety of primary and secondary source materials relating to the history and development of the project site and its surroundings. Sources included, but were not limited to, historic-period maps and photographs, historic-period newspaper articles, building permits, previous historic survey findings in the City of Berkeley, and written histories of the area.

The entire project site is covered by the existing building footprint. The building is surrounded by sidewalks and streets (Center and Milvia) on the east and south sides. The adjacent historical office building at 2180 Center Street to the west is also covered by the building footprint and paved areas. The area to the north is covered by a parking lot. There are no exposed soils to survey and investigate. Therefore, no pedestrian survey was completed for this project site. Instead, more extensive archival research was completed for the parcel to determine what the potential was for discovering historic period or prehistoric archaeological resources and a California Department of Parks and Recreation 523 Series forms were completed and included as an appendix in the Pacific Legacy report.

### *Evaluation*

The site sensitivity study indicates that the project site has the potential for Holocene to historic period occupation. The project site's proximity to Strawberry Creek and the presence of three prehistoric archaeological sites further indicate the potential for surface or buried sites within the project site. Historic period development indicates that the southeastern portion of the parcel was disturbed by the 1940s installation of buried oil and/or gas tanks. If the current office building has a shallow foundation or footings, there is potential for buried archaeological deposits in the west half or northeast portion of the parcel. Historic-era deposits could be associated with the Foss Lumberyard or adjacent early twentieth century households at 2106 and 2108 Milvia Street. Because the parcel was vacant for most of the historical period, it is likely to be difficult to determine a clear association with a particular source for historical-era archaeological deposits. Any intact prehistoric deposits would likely be significant.

Based on the results of the records search, contact with the NAHC and Native American tribal representatives, and a review of archival and environmental data, the project has a low potential to encounter significant historical-period resources and moderate to high potential to encounter surface or buried prehistoric Native American resources within the western and northeastern portions of the project site.

*a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?*

The impact analysis presented here covers built environment resources; archaeological resources that may be considered historical resources are addressed under criterion (b) below. The project site contains one building of 45 or more years of age: a three-story office building with Brutalist- and Late Modern-style architecture (the building was completed in 1967). The building has been occupied by a number of commercial and institutional tenants, starting with Teknekron (a business incubator) until the 1980s, followed by realty and property companies and the Society of Magnetic Resonance, among others (Appendix HR).

The property at 2118 Milvia Street is recommended ineligible for listing in the NRHP or the CRHR. As such, it does not qualify as a historical resource, and its demolition would not result in a significant impact to historical resources as defined by Section 15064.5 of the CEQA Guidelines.

Although the project site does not contain any historical resources, it is immediately adjacent to (but outside the boundaries of) the BCCHD. There are two contributing resources, which are also individually designated landmarks, which are the State Farm Insurance Company Building at 1947 Center Street and the old Federal Land Bank building, which is the current Berkeley City Hall at 2180 Milvia Street. The historic district and its contributing resources are significant as a collection of buildings embodying the political trends of the nation and region (NRHP Criterion A) and exhibiting the influence of Beaux Arts Classicism, Art Deco, and Art Moderne design traditions (NRHP Criterion C).

Although located outside of the project site, potential indirect impacts to these adjacent historical resources are discussed pursuant to Section 15064.5(b) of the CEQA Guidelines, which stipulates a project will result in a significant effect on the environment if it causes a substantial adverse change in the significance of a historical resource. A substantial adverse change “means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.” Material impairment is constituted by an action that “alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for” listing in a historical register.

The proposed project is outside the boundaries of the BCCHD and would not directly alter contributing elements to the district. It would replace the existing three-story office building with a six-story educational building, which would extend to the lot lines of the 0.26-acre parcel. This new building would introduce a new visual element to the surrounding setting of the historic district and its contributing buildings; however, this impact would be minimal given this setting is and has historically been urban in nature. Further, the proposed six-story height of the new building is consistent with those buildings found within and adjacent to the historic district. The proposed building would therefore be generally in the same height range as these buildings and exhibit similar setbacks.

For these reasons, the project would not materially impair the surroundings of adjacent historical resources. Additionally, Mitigation Measures AES-1 through AES-3 (refer to Section 1, *Aesthetics*) would ensure that the project would not result in a substantial adverse change to the setting of the BCCHD and its contributing resources. Impacts would be less than significant with mitigation incorporated.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

The analysis presented here considers both historical and unique archaeological resources. The records search revealed that no previously recorded cultural resources are within the project site, and that 88 are present within a 0.25-mile radius. Of these, 85 are built environment resources and three are prehistoric archaeological sites. The Sacred Land database search was positive for the presence of known Native American resources within the project site. Tribal outreach with Native American tribes did not identify any specific resources.

Archival research indicates that although neighboring parcels were developed as a lumber yard and early twentieth century residences, the project site remained vacant until the 1941 construction of a gas and oil service station. The service station had three underground tanks in the southeast portion of the parcel. In 1966, the current three-story office building replaced the service station. It is not clear whether or not the underground tanks were removed.

As previously indicated, the site sensitivity study indicates that the project site has the potential for Holocene to historic period occupation. The project site’s proximity to water and the presence of prehistoric archaeological sites further indicate the potential for surface or buried sites within the project site. Previous historical development Historic period development indicates that the southeastern portion of the parcel was previously disturbed. Based on the proposed construction activities, there is potential for buried archaeological deposits in the west half or northeast portion of the parcel.

Based on the results of literature review, the records search and Native American outreach, the project has a low potential to encounter significant historical-period resources and moderate to high potential to encounter surface or buried prehistoric Native American resources within the western and northeastern portions of the project site. Post demolition surface survey and limited mechanical trenching/potholing testing in the northeast and western portions of the parcel is recommended to identify stratigraphy and presence or absence of cultural materials to a 5-foot depth. If the final geotechnical investigation determines a deep foundation system is necessary, coring may be necessary to determine stratigraphy, depth of fill or native soils and disturbances.

Due to the sensitivity of the area, impacts to as-yet unrecorded archaeological resources would be potentially significant. Implementation of Mitigation Measures CUL-1 through CUL-3 would be required to reduce potential impacts to archaeological resources to less than significant levels by ensuring that unanticipated finds during construction are evaluated and treated by a qualified archaeologist.

## Mitigation Measures

### *CUL-1 Archaeological Testing Program*

Following demolition and pavement removal and prior to project-related ground disturbance, the District shall require that a surface survey and an Extended Phase I (XPI) archaeological testing program be performed within the project site. A detailed workplan shall be prepared to identify the methods and specific locations of testing units, including limited mechanical trenching/potholing testing in the northeast and western portions of the parcel to identify stratigraphy and presence or absence of cultural materials to at least a 5-foot depth. If the final geotechnical investigation determines a deep foundation system is necessary, the XPI shall include coring to determine stratigraphy, depth of fill or native soils and disturbances below 5 feet. This study shall be conducted by a qualified archaeologist under the direction of a qualified principal investigator and in accordance with CEQA. Should a subsurface resource be found during the testing, additional studies such as a Phase II investigation would be required to determine if the resource is eligible for the CRHR and/or the NRHP. Testing shall be observed by a Native American monitor (refer to Mitigation Measure CUL-3 for Unanticipated Discovery protocol). The District shall review and approve the XPI, workplan, and any additional studies determined to be necessary.

### *CUL-2 Archaeological and Native American Monitoring*

The District shall retain a qualified archaeologist and local Native American representative to monitor project-related ground-disturbing activities. Monitoring shall involve inspection of subsurface construction disturbance. The Native American monitor shall also observe all archaeological excavation. The District shall confirm archaeological monitoring is conducted and review and approve work products produced by the qualified archaeologist in accordance with this measure.

### *CUL-3 Unanticipated Discovery of Archaeological Resources*

In the event that cultural resources are encountered during ground-disturbing activities, the District shall require the construction contractor to halt work within 50 feet of the find and the District shall retain an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) immediately to evaluate the significance of the find. If the discovery proves to be eligible for listing on the CRHR and/or NRHP, the qualified archaeologist shall complete the following conditions to mitigate impacts to the eligible resource:

1. **Evaluate Cultural Resource.** If cultural resources are encountered during construction activities, the District shall require the construction contractor to halt work within 50 feet of the find. Lathe staking or flagging tape may be utilized to designate the area. The District shall retain an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) immediately to evaluate the significance of the resource before allowing construction in the area to continue. Depending on if the resources meets the eligibility criteria for listing on the CRHR and/or NRHP, the archaeologist may simply document the find and allow work to continue with monitoring. If the discovery is determined to be eligible for either register, an archaeological treatment plan shall be prepared and implemented to recover data necessary to assist in answering question of interest to the broader cultural and scientific communities. Resources that do not meet the criteria for either register will be presumed not eligible and construction activities with an archaeological monitor present can continue in the affected area.
2. **Archaeological Treatment Plan.** If eligible resources under either register are exposed during construction activities, an archaeological treatment plan may be warranted. The main goals of the treatment plan are to reduce adverse effects to California and National register eligible resources within the project site to less than significant. The level of effort required for data recovery is directly proportional to the anticipated impacts (adverse effect) associated with the proposed undertaking. There are a multitude of options of mitigation available with avoidance and/or preservation being preferred mitigation. This plan will include background information on the project site, regulatory context, environmental and cultural context, and then directions guiding the processes such as monitoring, evaluation, testing and data recovery, artifact curation and conclusions. If archaeological monitoring is warranted during the project, a section documenting the monitoring results will be included.
3. **Testing or Data Recovery.** If a resource was previously evaluated and determined to meet the criteria for eligibility for the CRHR and/or NRHP and avoidance or preservation are not possible, data recovery is warranted. The data recovery process will be guided by the archaeological treatment plan as well as research questions developed during evaluation. A sampling strategy of excavation is acceptable if excavation and full exposure of the resource would result in redundant data. Presence/absence testing methods such as shovel test units will be utilized to determine the extent of the resource. With the extent documented, data recovery excavations will focus on test units. However, archaeologists have numerous excavation methodologies that are based on the characteristics of the individual site. Data recovery is intended to provide a sufficient sample of the resource to exhaust the research potential and answer any research questions posed in the archaeological treatment plan. The extent of excavations will be determined by the type of resource.
4. **Preparation and Curation.** All artifacts recovered during project related construction activities will be curated at a facility meeting California and national standards.

Upon completion of ground disturbing activity (and curation of artifacts if necessary) the qualified archaeologist shall prepare a final report describing the results of the archaeological monitoring efforts associated with the project, if warranted. The report shall include a summary of the field methods, an overview of the project cultural background, a list of artifacts recovered, an analysis of artifacts recovered (if any) and their scientific significance, and recommendations. The report shall be submitted to the District for review and approval and provided to the California Historical Resources Information System at the NWIC located at Sonoma State University.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*c. Would the project disturb any human remains, including those interred outside of formal cemeteries?*

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance may occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD would complete the inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access. With adherence to existing regulations, impacts to human remains will be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

# 6 Energy

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | □ | □ | ■ | □ |
| b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | □ | □ | ■ | □ |

## Electricity Setting

In 2019, California's in-state electricity generation totaled 277,704 gigawatt-hours (GWh; CEC 2020a). Primary fuel sources for the state's electricity generation in 2019 included natural gas, hydroelectric, solar photovoltaic, wind, nuclear, geothermal, biomass, and solar thermal. According to the 2019 Integrated Energy Policy Report, California's electric grid relies increasingly on clean sources of energy such as solar, wind, geothermal, hydroelectricity, and biomass. In addition, by 2025 the use of electricity sourced from out-of-state coal generation will be eliminated. As this transition advances, the grid is also expanding to serve additional loads produced by building and vehicle electrification among other factors. California produces more renewable energy than any other state in the U.S. with 23,313 megawatts of installed renewable capacity (CEC 2020b).

### *East Bay Community Energy*

EBCE supplies electricity to the City of Berkeley using transmission infrastructure operated and maintained by PG&E. EBCE is a community-governed, local power supplier that provides cleaner electricity to Alameda County residents and businesses. As of 2019, EBCE's energy intensity factor for its base plan (Bright Choice) consists of a minimum of 60 percent eligible renewable energy resources (EBCE 2020). PG&E is one of the nation's largest electric and gas utility companies, and it maintains 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines (PG&E 2020a). According to PG&E's 2020 Integrated Resource Plan, PG&E anticipates meeting a 2030 gross system usage of 82,306 GWh (PG&E 2020b).

As shown in Table 9, Alameda County consumed approximately 10,687 GWh in 2019, which was approximately 13.7 percent of electricity consumption by PG&E customers and approximately 4 percent of statewide electricity consumption (CEC 2019a).

**Table 9 2019 Electricity Consumption**

| Energy Type | Alameda County (GWh) | PG&E (GWh) | California (GWh) | Proportion of PG&E Consumption | Proportion of Statewide Consumption |
|---|---|---|---|---|---|
| Electricity | 10,687 | 78,072 | 279,402 | 13.7% | 3.82% |

GWH = gigawatt-hours
Source: CEC 2019a

## Natural Gas Setting

Berkeley Municipal Code Chapter 12.80 prohibits the use of natural gas infrastructure in all new construction. The proposed project would comply with this requirement.

## Petroleum Setting

California is one of the top producers of petroleum in the nation with drilling operations occurring throughout the state but concentrated primarily in Kern and Los Angeles counties. A network of crude oil pipelines connects production areas to oil refineries in the Los Angeles area, the San Francisco Bay area, and the Central Valley. California oil refineries also process Alaskan and foreign crude oil received at ports in Los Angeles, Long Beach, and the San Francisco Bay area (CEC 2020c). According to the U.S. Energy Information Association, California's field production of crude oil totaled 161.5 million barrels in 2019 (U.S. Energy Information Association 2020).

As shown in Table 10, Alameda County consumed an estimated 591 million gallons of gasoline and 55 million gallons of diesel fuel in 2019, which was approximately 4 percent of statewide gasoline consumption and approximately three percent of statewide diesel fuel consumption (CEC 2019b).

**Table 10 2019 Annual Gasoline and Diesel Consumption**

| Fuel Type | Alameda County (million gallons) | California (billion gallons) | Proportion of Statewide Consumption |
|---|---|---|---|
| Gasoline | 591 | 15.365 | 3.8% |
| Diesel | 55 | 1.756 | 3.1% |

Source: CEC 2019b

## Methodology

Energy consumption is analyzed herein in terms of construction and operational energy. Construction energy demand accounts for anticipated energy consumption during project construction, such as fuel consumed by construction equipment and construction workers' vehicles traveling to and from the project site. Operational energy demand accounts for the anticipated energy consumption during project operation, such as fuel consumed by cars, trucks, and public transit; natural gas consumed for on-site power generation, and heating building space; and electricity consumed for building power needs, including, but not limited to lighting, water conveyance, and air conditioning.

The CalEEMod outputs for the air quality and greenhouse gas (GHG) modeling (Appendix AQ) and the vehicle miles traveled (VMT) calculations (Appendix TRA) were used to estimate energy consumption associated with operation of the proposed project. The CalEEMod results provide the average travel distance and trip numbers during construction, and the vehicle fleet mix during operation. The CalEEMod results also provide the estimated gross electricity by land use during project operation.

a. *Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

## Construction

During project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. The proposed project would require demolition; site preparation and grading; pavement and asphalt installation; building construction; architectural coating; and hardscaping.

As shown in Table 11 below, project construction would require approximately 7,460 gallons of gasoline and 66,052 gallons of diesel fuel. Energy use would be temporary, and construction equipment used would be typical of similar-sized construction projects in the region. In addition, construction contractors would be required to comply with the provisions of CCR Title 13 Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes and would minimize unnecessary fuel consumption. Construction equipment would be subject to the USEPA Construction Equipment Fuel Efficiency Standard, which would also minimize inefficient, wasteful, or unnecessary fuel consumption.

**Table 11 Project Construction Energy Usage**

| | Fuel Consumption (Gallons) | |
|---|---|---|
| **Source** | **Gasoline** | **Diesel** |
| Construction Equipment & Hauling Trips | – | 66,052 |
| Construction Worker Vehicle Trips | 7,460 | – |

See Appendix AQ for CalEEMod default values for fleet mix and average distance of travel, and Appendix NRG for energy calculation sheets.

In addition, per applicable regulatory requirements such as 2019 CalGreen, the project would comply with construction waste management practices to divert a minimum of 65 percent of construction and demolition debris. These practices would result in efficient use of energy necessary to construct the project. Furthermore, in the interest of cost-efficiency, construction contractors would not utilize fuel in a manner that is wasteful or unnecessary. Therefore, project construction would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy, and impacts would be less than significant.

## Operation

Project operation would require energy use in the form of electricity and gasoline consumption. Electricity would be used for heating and cooling systems, lighting, appliances, water use, and the overall project operation. As described in the *Natural Gas Setting* section above, operation of the new structure would be all-electric, consistent with the requirements of Berkeley Municipal Code Chapter 12.80. Gasoline consumption would be attributed to vehicular travel from students, staff, and visitors traveling to and from the project site. Table 12 shows the project's estimated total annual gasoline and diesel fuel consumption, as well as electricity use.

### Table 12 Project Operational Energy Usage

| Source | Energy Consumption | |
|---|---|---|
| **Vehicle Trips** | | |
| Gasoline | 73,895 gallons | 8,113 MMBtu |
| Diesel | 16,463 gallons | 2,098 MMBtu |
| **Built Environment** | | |
| Electricity | 539 MWh | 1,838 MMBtu |

MWh = megawatt-hours; MMBtu = million British thermal units

Source: Appendix NRG

As shown in Table 12, project operation would consume approximately 539 megawatt-hours of electricity per year. The project would comply with standards set in California Building Code (CBC) Title 24, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation. CalGreen (as codified in CCR Title 24, Part 11) requires implementation of energy-efficient light fixtures and building materials into the design of new construction projects. Furthermore, the 2019 Building Energy Efficiency Standards (CBC Title 24, Part 6) requires newly constructed buildings to meet energy performance standards set by the CEC. These standards are specifically crafted for new buildings to achieve energy efficient performance. The standards are updated every three years, and each iteration increases energy efficiency standards. Furthermore, the project would be served by EBCE, and per the College's Sustainability and Resiliency Strategy, would enroll in the Brilliant 100 energy package offered by EBCE.

In addition, the project's vehicle trips would require approximately 73,864 gallons of gasoline and 16,470 gallons of diesel fuel annually. The project site is located in close proximity to existing transit facilities and facilities supporting alternative transportation modes such as walking and biking. The site is within walking distance of several bus stops for AC Transit, including stops for routes 18, 51B, 52, 65, 67, 79, 88, 800, and F, as well as the Downtown Berkeley BART station. As a result, as discussed in Section 17, *Transportation*, the project is located in a low-VMT area, in a transportation analysis zone (TAZ) that is below the 15 percent minus the citywide average or countywide average VMT thresholds, and is located within 0.5 mile of a major transit stop. Therefore, the project would continue to generate vehicle trips with relatively low VMT. These factors would minimize the project's potential to result in the wasteful, inefficient, or unnecessary consumption of vehicle fuels. Therefore, project operation would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

b. *Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

The City's Climate Action Plan (CAP) contains recommended goals intended to increase energy efficiency and expand the use of renewable energy. As a State entity, the District is not required to comply with the City's CAP. Additionally, Berkeley City College maintains a Sustainability and Resiliency Strategy, which includes various policies and measures related to the District's sustainability goals. As described in Section 4, *Project Characteristics*, subsection *Green Building Features*, the project would implement sustainability measures consistent with the Berkeley City College Sustainability and Resiliency Strategy, including measures E-1, E-2, E-3, E-4, E-5, TR-2, TR-3, TR-4, TR-8, TR-10, TR-11, WR-2, SW-2, SW-5, SW-9, and SW-11, as described in Section 4, *Project Characteristics*, subsection *Green Building Features*, which would reduce the project's electricity demand, transportation energy demand, water demand, and solid waste generation.

Table 13 summarizes the project's consistency with the applicable policies of the City's CAP related to energy efficiency and renewable energy for informational purposes. Goals 1, 5, and 7 would reduce fuel consumption by prioritizing and incentivizing the use of alternative modes of transportation, reducing total transportation energy demand. As shown therein, the proposed project would be consistent with applicable policies. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.

### Table 13 Project Consistency with City of Berkeley Climate Action Plan Policies

| Goals and Policies | Project Consistency |
|---|---|
| **1. Goal:** Increase density along transit corridors. Direct new development to locations that are close to transit and have retail and other services within walking distance (such as the Downtown) | **Consistent.** The project would increase the density of use on the site and would provide educational and community-serving services in Downtown Berkeley, in an area dense with retail and other services and within a block of the Berkley BART station and numerous AC Transit bus routes. |
| **5. Goal:** Accelerate Implementation of the City's Bicycle & Pedestrian Plans<br>**a. Policy:** Continue to expand and improve Berkeley's bicycle and pedestrian infrastructure | **Consistent.** While the project would not result in modifications of local roadways or bicycle and pedestrian facilities, it would include on-site bicycle parking on the first floor of the proposed structure, improving Berkeley's bicycle infrastructure. The project would maintain the existing pedestrian infrastructure (sidewalks located along the site frontage with Milvia Street and Center Street). |
| **7. Goal:** Enhance and expand car sharing and ridesharing programs<br>**a. Policy:** Make car sharing convenient and available to all Berkeley residents by providing additional incentives and by removing disincentives to car sharing<br>**b. Policy:** Provide incentives and remove disincentives to ridesharing | **Consistent.** As noted in Section 4, *Project Characteristics*, subsection *Green Building Features*, the project would expand car sharing programs by offering a carpool matching program and vanpooling program for employees. This would promote ridesharing as a viable means of transportation for staff and faculty to the project site. The lack of vehicle parking would incentivize car- and ridesharing for those users not traveling via bicycle or transit. |
| **4. Goal:** Increase residential and commercial renewable energy use<br>**c. Policy:** Consider Community Choice Energy | **Consistent.** The project would include the installation of solar panels on the structure's roof and would connect to 100 percent renewable energy through EBCE. |

Source: City of Berkeley 2009a

**LESS THAN SIGNIFICANT IMPACT**

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# 7 Geology and Soils

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| 1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? | ☐ | ☐ | ☐ | ■ |
| 2. Strong seismic ground shaking? | ☐ | ■ | ☐ | ☐ |
| 3. Seismic-related ground failure, including liquefaction? | ☐ | ■ | ☐ | ☐ |
| 4. Landslides? | ☐ | ☐ | ■ | ☐ |
| b. Result in substantial soil erosion or the loss of topsoil? | ☐ | ■ | ☐ | ☐ |
| c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? | ☐ | ■ | ☐ | ☐ |
| d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? | ☐ | ☐ | ■ | ☐ |
| e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? | ☐ | ☐ | ☐ | ■ |
| f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ■ | ☐ | ☐ |

Much of the analysis in this section is based on the information in the Geotechnical Investigation prepared for the proposed project by Terraphase Engineering Inc. in June 2017. The report is included as Appendix GEO. The purpose of the investigation was to determine the nature of the surface and subsurface soil conditions and potential constraints at the project site. The report presents an evaluation of existing soil conditions and recommendations for earthwork and foundation design to adapt the proposed development to the existing soil conditions.

## Geologic Setting

Berkeley is situated within the Coast Ranges geomorphic province of California (California Geological Survey 2003). A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and geologic history (Norris and Web 1990). The Coast Ranges extend about 600 miles from the Oregon border south to the Santa Ynez River in Santa Barbara County. The Coast Ranges are composed of a complex assemblage of geologic units, including Mesozoic metasedimentary and metavolcanic rock of the Franciscan Complex, marine and nonmarine sedimentary rock of the Cretaceous Great Valley Complex, and Cenozoic marine and nonmarine shale, sandstone, and conglomerate (Norris and Webb 1990).

Specifically, Berkeley is located on the East Bay Plain (the Plain), a flat area that extends 50 miles from Richmond in the north to San Jose in the south. The Plain is about 3 miles wide in the Berkeley area. At its eastern edge, the plain transitions into hills, rising to approximately 1,683 feet at Barberry Peak, the highest point in Berkeley's Claremont Hills neighborhood. On its western edge, the Plain slopes down to San Francisco Bay, the largest estuary on the California coast (City of Berkeley 2003; Maplogger.com 2018).

Berkeley is located in the U.S. Geological Survey's (USGS) Richmond and Oakland West Quadrangle 7.5-minute topographic map areas. The area is typified by low topographic relief, with gentle slopes to the west in the direction of San Francisco Bay. By contrast, the Berkeley Hills that lie directly east of Berkeley have more pronounced topographic relief, with elevations that exceed 1,000 feet above mean sea level (City of Berkeley 2003).

As mapped by the U.S. Department of Agriculture, Natural Resource Conservation Service, the project site features Tierra complex slopes that have from 2 to 5 percent slopes. Soils in the Tierra complex present a high rate of surface runoff and high shrink-swell potential (U.S. Department of Agriculture 1981, 2020).

## Seismic Setting

Similar to much of California, the project site is located in a seismically active region. The USGS defines active faults as those that have had surface displacement within the Holocene period (about the last 11,000 years). Surface displacement can be recognized by the existence of cliffs in alluvium, terraces, offset stream courses, fault troughs and saddles, the alignment of depressions, sag ponds, and the existence of steep mountain fronts. Potentially active faults are those that have had surface displacement during the last 1.6 million years, and inactive faults have not had surface displacement within that period. Several faults are near the project site, including those listed below:

- **The San Andreas Fault**, the most likely source of a major earthquake in California, is located approximately 17.4 miles west of the project site. The San Andreas Fault is the primary surface boundary between the Pacific and the North American plates. There have been numerous historic earthquakes along the San Andreas Fault, and it generally poses the greatest earthquake risk to California. In general, the San Andreas Fault is likely capable of producing a Maximum Earthquake Magnitude of 7.9 (Appendix GEO).

- **The Hayward Fault**, one of ten major faults that make up the San Andreas Fault Zone, runs east of the along the eastern portion of Berkeley and links with the Rodgers Creek Fault to the north. Although the last major earthquake generated by the Hayward Fault was in 1868, pressure is slowly building again and will begin to overcome the friction and other forces that cause the fault zone to stick. The Hayward Fault can generate a Maximum Earthquake Magnitude of 6.9 (Appendix GEO). The Hayward Fault would likely cause extensive damage throughout Berkeley area due to its close proximity to urban communities and infrastructure. The Hayward Fault and surrounding area is a designated Alquist-Priolo Zone. The project site is approximately 1 mile west of the Hayward Fault.
- **Other active faults** near the site include the Calaveras, Concord-Green Valley, Rodgers Creek, Greenville, San Gregorio, West Napa, Great Valley, and Monte Vista-Shannon faults, within 30 miles of the project site. These faults have the potential to create earthquakes with a Maximum Earthquake Magnitude up to 7.3 (Appendix GEO).

#### *Liquefaction and Seismically Induced Settlement*

Liquefaction can be induced by cyclic loading (shaking) from an earthquake, which can cause granular materials to lose their inherent shear strength due to increased pore water pressures. Some of the factors that typically contribute to liquefaction risk include a shallow water table, low relative density of granular materials below the groundwater table, low soil cohesion or plasticity, low percentage of fine-grained material in soil, relatively long seismic shaking duration, and high ground acceleration during earthquakes. The project site is not mapped in a liquefaction hazard zone (Appendix GEO).

#### *Landslides*

Landslides result when the driving forces that act on a slope (i.e., the weight of the slope material, and the weight of objects placed on it) are greater than the slope’s natural resisting forces (i.e., the shear strength of the slope material). Slope instability may result from natural processes, such as the erosion of the toe of a slope by a stream, or by ground shaking caused by an earthquake. Slopes can also be modified artificially by grading, or by the addition of water or structures to a slope. Development that occurs on a slope can substantially increase the frequency and extent of potential slope stability hazards. Areas susceptible to landslides are typically characterized by steep, unstable slopes in weak soil/bedrock units which have a record of previous slope failure. As the project site is essentially flat, no significant landslide risk exists (Appendix GEO).

#### *Subsidence*

Land subsidence, generally caused by excessive groundwater withdrawal, is unlikely to occur in downtown Berkeley. Because of environmental concerns the groundwater in Berkeley is not a resource likely to be tapped. The potential for land subsidence to affect the project site is considered to be low (Appendix GEO).

#### *Expansive Soils*

Expansive soils can change dramatically in volume depending on moisture content. When wet, these soils can expand; conversely, when dry, they can contract or shrink. Sources of moistures that can trigger this shrink-swell phenomenon include seasonal rainfall, landscape irrigation, utility leakage, and/or perched groundwater. Expansive soil can develop wide cracks in the dry season, and changes in soil volume have the potential to damage concrete slabs, foundations, and pavement. Special building/structure design or soil treatment are often needed in areas with expansive soils. The geotechnical investigation indicates that surficial soils have a low expansion potential, while soils between 5 and 6 feet below ground surface have a very high expansion potential at the site.

### *Erosion*

Erosion is the wearing away of the soil mantle by running water, wind or geologic forces. It is a naturally occurring phenomenon and ordinarily is not hazardous. However, excessive erosion can contribute to landslides, siltation of streams, undermining of foundations, and ultimately the loss of structures. Removal of vegetation tends to heighten erosion hazards.

## Paleontological Setting

The project site is underlain by one mapped geologic unit: late to middle Holocene alluvial fan and fluvial deposits (Qhaf) (Appendix GEO, Figure 4). Holocene-aged alluvial fan and fluvial deposits consist of medium dense to dense, gravelly sand or sandy gravel of valleys and stream channels.

The potential for the project to result in significant impacts to paleontological resources was evaluated based on its potential to disturb paleontologically sensitive geologic units during construction. The analysis involved a review of pertinent geologic maps and geologic literature, and a paleontological locality search to identify any known fossil localities within the area, or from geologic units mapped in the area. Fossil collections records from the Paleobiology Database and University of California Museum of Paleontology (UCMP) online database were reviewed to identify known fossil localities in Alameda County (Paleobiology Database 2020; UCMP 2020). Following the geologic map review, literature review, and UCMP database search, a paleontological sensitivity was assigned to the geologic units mapped within the area based on Society of Vertebrate Paleontology (SVP) guidelines (SVP 2010). The SVP has developed a system for assessing paleontological sensitivity and describes sedimentary rock units as having high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources (SVP 2010). This system is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present.

Late to middle Holocene deposits (Qhaf) are too young (i.e., less than 5,000 years old) to preserve paleontological resources at or near the surface, and are considered to have a low paleontological sensitivity at the surface as defined by SVP (2010) standards; however, late to middle Holocene deposits may grade downward into more fine-grained deposits of early Holocene to late Pleistocene age that could preserve fossil remains at shallow or unknown depths. The depths at which these units become old enough to contain fossils is highly variable, and depend on the location of the site within a geologic basin (e.g., near or far from basin margins), the sedimentary relationship of the surface units underlying geologic units, and the erosional history of the region. The project is located near the base of the hills where older geologic units are exposed. Early Holocene to late Pleistocene alluvial sediments have a well-documented record of abundant and diverse vertebrate fauna throughout California. Localities have produced fossil specimens of mammoth (*Mammuthus columbi*), horse (*Equus*), camel (*Camelops*), and bison (*Bison*), as well as various birds, rodents, and reptiles (Jefferson 1985, 2010; Paleobiology Database 2020; UCMP 2020). Therefore, areas mapped as Late to middle Holocene deposits (Qhaf) alluvial deposits are assigned a high paleontological sensitivity at depths greater than 3 feet (SVP 2010).

*a.1. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*

According to the geotechnical investigation, the project site is not located within an identified earthquake fault zone as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map (Appendix GEO). No known fault lines are located on the site. The closest active fault is the Hayward Fault, which is located approximately 1 mile east of the site. Thus, the likelihood of surface rupture occurring from active faulting at the site is remote. No impact would occur.

**NO IMPACT**

*a.2. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?*

As with any site in the Bay Area region, the project site is susceptible to strong seismic ground shaking in the event of a major earthquake. As described in the *Seismic Setting* section above, nearby active faults include the San Andreas Fault and the Hayward Fault. These faults are capable of producing strong seismic ground shaking within and near the project site.

Several applicable regulations and policies would reduce hazards related to seismic ground shaking. The proposed project would involve replacement of an older structure more subject to seismic damage with a new one built to current seismic standards that could better withstand the adverse effects of strong ground shaking. The project would be required to conform to the CBC (as amended at the time of DSA approval) as required by law. The CBC includes requirements for foundation and structural design to resist seismic hazards. In addition, the CBC outlines specific instances of when geotechnical investigations are required based on soil conditions and proposed construction methods. Such investigations are required to include, among other information, recommendations for foundation type and design criteria to address identified geological constraints. To ensure that building design addresses seismic ground shaking, Mitigation Measure GEO-1 would be required.

The geotechnical investigation would include recommended design measures to mitigate geologic hazards, which the project would be required to implement. Impacts related to seismic shaking would be less than significant with implementation of Mitigation Measure GEO-1.

## Mitigation Measure

### *GEO-1 Final Geotechnical Investigation*

The District shall retain a registered civil engineer and certified engineering geologist to complete a final geotechnical investigation of the project site and all proposed areas of excavation. The geotechnical evaluation shall include, but not be limited to, an estimation of both vertical and horizontal anticipated peak ground accelerations and potential for liquefaction, soil expansion, and landslides. The geotechnical investigation shall determine appropriate means of mitigating both structural as well as potential health hazards that could be associated with such development activities.

Suitable measures to reduce liquefaction impacts could include one or more of the following techniques, as determined by a registered geotechnical engineer:

- Specialized design of foundations by a structural engineer

- Removal or treatment of liquefiable soils to reduce the potential for liquefaction
- Drainage to lower the groundwater table to below the level of liquefiable soil
- In-situ densification of soils or other alterations to the ground characteristics
- Other alterations to the ground characteristics

The final geotechnical investigation shall also:

- Identify depth to groundwater throughout the project site (including estimated variability over the life of the project) and provide methods to avoid adverse effects associated with encountering groundwater during project-related excavations, including but not limited to dewatering as necessary.
- Include recommendations to accommodate a differential settlement of 0.3 inches.

The final geotechnical report shall be reviewed and approved by the District and DSA. All recommendations provided in the geotechnical report shall be followed during grading and construction at the site.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*a.3. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?*

*c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

As described above, the project site is not located in a mapped liquefaction zone, would not be susceptible to landslide due to its flat topography, and is not likely to be affected by subsidence. The geotechnical investigation found potentially liquefiable soils from 30 to 33 feet below ground surface; however, given the depth of this layer, a significant differential settlement at the ground surface is not anticipated (Appendix GEO). However, per Mitigation Measure GEO-1, the final geotechnical investigation would include recommendations to ensure that the proposed structure is designed to accommodate a differential settlement of 0.3 inches. Therefore, structure design consistent with the final geotechnical investigation would ensure that potential impacts would be less than significant with mitigation.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*a.4. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?*

As noted in the *Seismic Setting* Section above, landslides are typically a hazard on or near slopes or hillside areas, rather than generally level areas like the project site and the surrounding area. According to the geotechnical investigation, the site is not located in an earthquake-induced landslide hazard zone (Appendix GEO). The area is generally flat and is not surrounded by hillsides. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*b. Would the project result in substantial soil erosion or the loss of topsoil?*

The project site is developed and generally level, which limits the potential for substantial soil erosion. Soils are exposed to the highest potential for erosion during the grading and excavation phases of construction. Project-related ground-disturbing activities would include excavation and grading primarily for foundations, building pads, and utility trenches. Temporary erosion could occur during project construction, such as increased erosion and sediment transport by stormwater and wind. Therefore, the proposed project’s erosion impacts would be potentially significant, and Mitigation Measure GEO-2 would be required to reduce impacts.

During project operation, the site would be fully developed with the proposed structure. Topsoil would not be exposed to erosion forces such as precipitation and wind. Therefore, project impacts would be less than significant with mitigation.

## Mitigation Measure

### *GEO-2 Erosion Control Plan*

The project contractor shall prepare and implement an Erosion Control Plan for construction activities to minimize soil erosion. The Erosion Control Plan shall contain best management practices (BMP) that include the following components:

- Excavation shall be limited to the dry season of the year (i.e., April 15 to November 1).
- Exposed soils shall be watered twice daily to prevent wind erosion.
- Silt fencing, straw bales composed of rice straw (that are certified to be free of weed seed), fiber rolls, gravel bags, mulching erosion control blankets, soil stabilizers, and storm drain filters shall be used, in conjunction with other methods, to prevent erosion throughout the entire project site.
- Temporary berms and sediment basins shall be constructed to avoid unnecessary siltation into local stormwater drainage facilities during construction activities.
- Erosion controls that protect and stabilize stockpiles and exposed soils shall be used to prevent movement of materials. Potential erosion control devices include plastic sheeting held down with rocks or sandbags over stockpiles, silt fences, or berms of hay bales.
- Temporary stockpiling of excavated material shall be minimized. Excavated material shall be stockpiled in areas where it cannot enter adjacent stormwater drainage facilities.
- Frequency of sediment removal, location of spoil disposal, locations and types of erosion and sediment control structures, and materials that would be used on-site during construction activities shall be specified.
- Upon completion of project construction, all exposed soils present in and around the project site shall be stabilized within seven days. Exposed soils shall be mulched to prevent sediment runoff and transport. All mulches, except hydro-mulch, shall be applied in a layer not less than 2 inches deep. Where feasible, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills shall be revegetated with deep-rooted, native, drought-tolerant species to minimize slope failure and erosion potential. Geotextile binding fabrics shall be used if necessary to hold slope soils until vegetation is established.

- An adequate supply of erosion control materials (gravel, straw bales, shovels, etc.) shall be maintained on-site to facilitate a quick response to unanticipated storm events or emergencies.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*d. Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

Expansive soils are characterized by high clay content which expands when saturated with water and shrinks when dry, potentially threatening the integrity of buildings and infrastructure foundations. Expansive soils are described as having high shrink-swell potential. The geotechnical investigation indicates that while some soils below the site have a very high expansion potential, because the water table is very shallow and the entire site is paved, the foundation soil moisture content would not be expected to change significantly and expansion or shrinkage of the clay soils is unlikely. The geotechnical investigation also found no indications of building distress at the existing structure indicative of differential settlements (e.g., diagonal cracks in masonry walls). Additionally, the CBC includes requirements for building construction on expansive soils, including conducting additional studies, if needed, and special design features to ensure no adverse effects to new structures from soil expansion. Impacts associated with expansive soils would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

The project site would be served by the municipal sewer system and would not require the installation of an on-site septic tank or alternate wastewater treatment systems. Therefore, no impacts from septic systems or alternative wastewater disposal systems would occur.

**NO IMPACT**

*f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Project construction would involve ground disturbance during demolition and site preparation. As described in the *Paleontological Setting* Section above, because the site is underlain by geologic units assigned a high paleontological sensitivity at depths of 3 feet and deeper, paleontological resources may be encountered during ground-disturbing activities. Construction activities may result in the destruction, damage, or loss of undiscovered scientifically important paleontological resources; this would be a potentially significant impact, and Mitigation Measure GEO-3 would be required. Implementation of Mitigation Measure GEO-3 would reduce potential impacts to significant paleontological resources to less than significant levels.

## Mitigation Measure

### *GEO-3 Paleontological Resources*

The District shall retain a qualified paleontologist prior to excavations or ground disturbance that will exceed 3 feet in depth. The qualified paleontologist shall direct all mitigation measures related to paleontological resources. A qualified professional paleontologist is defined by the SVP standards as an individual preferably with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least two years (SVP 2010).

In the event of a fossil discovery by the paleontological monitor or construction personnel, all work within 50 feet of the find shall cease. A qualified paleontologist shall evaluate the find before restarting construction activity in the area. If it is determined that the fossil(s) is (are) scientifically significant, the qualified paleontologist shall complete the following conditions to mitigate impacts to significant fossil resources:

1. **Salvage of Fossils.** If fossils are discovered, the qualified paleontological shall have the authority to halt or temporarily divert construction equipment within 50 feet of the find until the monitor and/or lead paleontologist evaluate the discovery and determine if the fossil may be considered significant. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case, the construction contractor may be requested to supply heavy equipment and an operator to assist in the rapid removal of a large fossil specimen(s) or sediment sample(s). Bulk matrix sampling may be necessary to recover small invertebrates or microvertebrates from within paleontologically-sensitive Quaternary old alluvial deposits.
2. **Preparation and Curation of Recovered Fossils**. Once salvaged, significant fossils shall be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection (such as the UCMP), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the qualified paleontologist.

Upon completion of ground disturbing activity (and curation of fossils if necessary) the qualified paleontologist shall prepare a final report describing the results of the paleontological monitoring efforts associated with the project. The report shall include a summary of the field and laboratory methods, an overview of the project geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. The report shall be submitted to the District. If the monitoring efforts produced fossils, then a copy of the report shall also be submitted to the designated museum repository.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

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# 8 Greenhouse Gas Emissions

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | □ | □ | ■ | □ |
| b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | □ | □ | ■ | □ |

## Overview of Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. Climate change is the result of numerous, cumulative sources of GHG emissions contributing to the "greenhouse effect," a natural occurrence which takes place in Earth's atmosphere and helps regulate the temperature of the planet. The majority of radiation from the sun hits Earth's surface and warms it. The surface, in turn, radiates heat back towards the atmosphere in the form of infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping into space and re-radiate it in all directions.

GHG emissions occur both naturally and as a result of human activities, such as fossil fuel burning, decomposition of landfill wastes, raising livestock, deforestation, and some agricultural practices. GHGs produced by human activities include carbon dioxide ($CO_2$), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Anthropogenic activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the concentration of GHGs in the atmosphere that trap heat. Since the late 1700s, estimated concentrations of $CO_2$, methane, and nitrous oxide in the atmosphere have increased by over 43 percent, 156 percent, and 17 percent, respectively, primarily due to human activity (USEPA 2020). Emissions resulting from human activities are thereby contributing to an average increase in Earth's temperature. Potential climate change impacts in California may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (State of California 2018).

## Regulatory Framework

### *State Regulations*

In response to climate change, California implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 required the reduction of statewide GHG emissions to 1990 emissions levels (essentially a 15 percent reduction below 2005 emission levels) by 2020 and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. On September 8, 2016, the Governor signed Senate Bill (SB) 32 into law, extending AB 32 by requiring the State to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) of carbon dioxide equivalents ($CO_2e$) by 2030 and two MT of $CO_2e$ by 2050 (CARB 2017).

Other relevant state laws and regulations include:

- **SB 375**: The Sustainable Communities and Climate Protection Act of 2008 (SB 375), signed in August 2008, enhances the state's ability to reach AB 32 goals by directing the CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. Metropolitan Planning Organizations are required to adopt a Sustainable Communities Strategy, which allocates land uses in the Metropolitan Planning Organization's Regional Transportation Plan. On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The ABAG and Metropolitan Transportation Commission (MTC) was assigned targets of a 10 percent reduction in per capita GHG emissions from passenger vehicles from 2005 levels by 2020 and a 19 percent reduction in per capita GHG emissions from passenger vehicles from 2005 levels by 2035. ABAG adopted the Plan Bay Area 2040 in July 2017, which meets the requirements of SB 375.
- **SB 100**: Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.
- **California Building Standards Code (CCR Title 24)**: The California Building Standards Code consists of a compilation of several distinct standards and codes related to building construction including plumbing, electrical, interior acoustics, energy efficiency, and handicap accessibility for persons with physical and sensory disabilities. The current iteration is the 2019 Title 24 standards. Part 6 is the Building Energy Efficiency Standards, which establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy demand. Part 12 is CalGreen, which includes mandatory minimum environmental performance standards for all ground-up new construction of residential and non-residential structures.

### *Regional and Local Regulations*

BAAQMD is responsible for enforcing standards and regulating stationary sources in its jurisdiction. BAAQMD regulates GHG emissions through specific rules, regulations, and project and plan level emissions thresholds for GHGs to ensure that the Bay Area contributes to its fair share of emissions reductions. In 2013, BAAQMD adopted a resolution that builds on state and regional climate protection efforts by:

- Setting a goal for the Bay Area region to reduce GHG emissions by 2050 to 80 percent below 1990 levels
- Developing a Regional Climate Protection Strategy to make progress towards the 2050 goal, using BAAQMD's Clean Air Plan to initiate the process
- Developing a 10-point work program to guide the BAAQMD's climate protection activities in the near-term

The BAAQMD is developing the Regional Climate Protection Strategy, but has outlined the 10-point work program, which includes policy approaches, assistance to local governments, and technical programs that will help the region make progress toward the 2050 GHG emissions goal.

### PLAN BAY AREA 2040

*Plan Bay Area 2040* is a state-mandated, integrated long-range transportation, land-use, and housing plan adopted by MTC and ABAG in July 2017 that supports a growing economy, provides more housing and transportation choices, and reduces transportation-related pollution in the nine-county San Francisco Bay Area. *Plan Bay Area 2040* builds on earlier efforts to develop an efficient transportation network and grow in a financially and environmentally responsible way. *Plan Bay Area 2040* will be updated every four years to reflect new priorities. The goals of *Plan Bay Area 2040* related to GHG emissions include (MTC and ABAG 2017a, 2017b):

1. **Climate Protection.** Reduce per capita $CO_2$ emissions.
2. **Healthy and Safe Communities.** Reduce adverse health impacts.
3. **Open Space and Agricultural Preservation.** Direct development within urban footprint.
4. **Transportation.** Increase non-auto mode share.

*Plan Bay Area 2040* also identifies nearly 200 Priority Development Areas, which are existing neighborhoods served by public transit that MTC, ABAG, and local governments have identified as suitable for additional, compact development to focus future growth.

### CITY OF BERKELEY CLIMATE ACTION PLAN

The City of Berkeley adopted a CAP in 2009 with the goal of reducing community GHG emissions by 80 percent below 2000 levels by 2050. As a State entity, the District is not required to comply with the City's CAP. The core recommendation strategies and actions of the CAP center around the following topics (City of Berkeley 2009a):

1. Sustainable Transportation and Land Use
2. Building Energy Use
3. Waste Reduction and Recycling
4. Community Outreach and Empowerment
5. Preparing for Climate Change Impacts

While the CAP is not considered a "qualified greenhouse gas reduction plan" for the purposes of streamlining GHG emissions analysis under CEQA, it is actively used by the City for GHG reductions. Since publication of the CAP, the City has outlined several additional climate commitments:

- 80 percent GHG reductions by 2050 (from 2000)
- 100 percent renewable electricity by 2035
- Net-Zero Carbon Emissions by 2050
- Become a Fossil Fuel Free City

#### *Berkeley Resiliency Strategy*

In 2016, the City released is Resilience Strategy to advance the City's resilience, or the ability of the individuals, institutions, businesses, and systems within the community to survive, adapt, and grow no matter what chronic stress or acute shock it experiences. Berkeley interconnected resilience challenges include earthquakes, wildfires, climate change impacts such as drought and flooding, and racial inequity. The City's Resilience Strategy emphasizing building community resilience by facilitation stronger connections between neighbors; between public, private, nonprofit, and academic institutions; between departments within the City government; and between Bay Area local and regional governments. As a State entity, the District is not required to comply with the City's Resilience Strategy. The six goals of the Resilience Strategy are (City of Berkeley 2016):

1. Build a Connected and Prepared Community
2. Accelerate Access to Reliable and Clean Energy
3. Adapt to the Changing Climate
4. Advance Racial Equity
5. Excel at Working Together within City Government to Better Serve the Community
6. Build Regional Resilience

#### CITY OF BERKELEY NATURAL GAS PROHIBITION

Berkeley Municipal Code Chapter 12.80 prohibits the use of natural gas infrastructure in all new construction. As a State entity, the District is not required to comply with the City's Municipal Code; however, the proposed project would comply with this requirement.

### *Berkeley City College Sustainability and Resiliency Strategy*

As described in Section 4, *Project Characteristics*, subsection *Green Building Features*, the College maintains a Sustainability and Resiliency Strategy (2018), which assesses the College's GHG emissions inventory and establishes sustainability goals and measures for the College's campus. The Strategies main goals include achieving zero net energy, reducing VMT by 40 percent, reducing potable water use to 242 gallons per person per year, achieving zero waste, reducing food-related emissions by 30 percent, obtain a 90 percent "high quality" rating from campus users, conform 100 percent of purchases to the procurement policy, graduate 10 percent of students with a sustainability-related degree, and implement campus-specific adaptation actions. Most of these goals have a deadline of 2050, with a 2030 deadline for the procurement policy goal.

## Methodology

GHG emissions associated with project construction and operation were estimated using CalEEMod, version 2016.3.2, with the assumptions described under Section 3, *Air Quality*, in addition to the following:

- **Utility Energy Intensity Factors.** The project would be served by EBCE via PG&E transmission lines. Because the project would enroll in EBCE's Brilliant 100 plan, 100 percent carbon-free electricity would be provided to the project. The utility energy intensity factors were adjusted to reflect this, result in no $CO_2e$ emissions from electricity in the CalEEMod output files.
- **Energy Reductions.** Non-residential energy usage was reduced by 30 percent to account for the requirements of 2019 Title 24 standards (CEC 2019c). The project would not use natural gas as an energy source; therefore, the natural gas energy intensity inputs into CalEEMod were set to zero, and the emissions associated with electricity that would replace the natural gas energy demand were calculated outside of CalEEMod (refer to Appendix AQ).
- **Nitrous Oxide Emissions from Mobile Sources.** Because CalEEMod does not calculate nitrous oxide emissions from mobile sources, nitrous oxide emissions were quantified using guidance

from the CARB and the Emission Factor (EMFAC) 2017 Emissions Inventory for the BAAQMD region for the year 2030 (the next State milestone target year for GHG emission reductions) using the EMFAC2011 categories (CARB 2018 and 2020b; see Appendix AQ).

- **Service Population.** The project's per person GHG emissions were calculated by dividing total GHG emissions by the project's service population (residents plus employees). The project does not include residential land uses; therefore, the service population attributed to this project is based on projected staff and faculty data. However, because CalEEMod incorporates trips generated by students as well as faculty and staff, students are also included in the service population for the project. As such, the project would be associated with an increase of 200 faculty and staff (employees) and 905 students by 2040. Therefore, the project's service population would be 1,105 persons.

## Significance Thresholds

Individual projects do not generate sufficient GHG emissions to influence climate change directly. However, physical changes caused by a project can contribute incrementally to significant cumulative effects, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines Section 15064[h][1]).

According to CEQA Guidelines Section 15183.5(b), projects can tier from a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals (AEP; 2016) in its white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions impact on the environment (2016). CEQA Guidelines Section 15183.5 defines the requirements for a plan to qualify as a comprehensive plan for the reduction of GHG emissions:

1. Quantify existing and projected GHG emissions within the plan area
2. Establish a reduction target based on substantial evidence, where GHG emission are not cumulatively considerable)
3. Identify and analyze sector specific GHG emissions from Plan activities
4. Specify policies and actions (measures) that local jurisdictions will enact and implement over time to achieve the specified reduction target
5. Establish a tool to monitor progress and amend if necessary
6. Adopt in a public process following environmental review

A key aspect of a "qualified" GHG reduction plan's ability to provide "substantial evidence" is that the identified reduction target establishes a threshold at which GHG emissions would not be cumulatively considerable. The AEP Beyond Newhall white paper identifies this criterion as being a local target that aligns with statewide legislative targets. While the College and District do not have adopted CAPs, the City of Berkeley's CAP is discussed herein for informational purposes. The project would not be subject to the City's CAP. The City of Berkeley adopted CAP sets a 2020 year target to achieve a 33 percent absolute reduction below 2000 community-wide emissions and identifies actions to achieve the target with the ultimate goal of 80 percent emissions reductions by 2050 (City of Berkeley 2009a). The City of Berkeley's CAP is not a qualified GHG reduction strategy because the CAP does not establish a pathway to achieving the City's long-term goal for 2050 or the State's long-term goal of carbon neutrality by 2045. Therefore, the CAP does not qualify as a GHG reduction plan for projects with horizon years beyond 2020 and consistency with the CAP cannot be used as the basis of the CEQA analysis for the proposed project.

Instead, this analysis evaluates the project's estimated GHG emissions against a locally-appropriate, project-specific efficiency threshold derived from the SB 32 target, the City's 2050 goal, and the City's GHG inventory from 2005, which is consistent with current best practices in the industry (AEP 2016). This provides a quantitative assessment of the project's GHG emissions compared to a project-specific threshold. The locally-appropriate, project-specific efficiency threshold used in this analysis was created to comply with the CEQA Guidelines and interpretative GHG case law. An efficiency threshold is calculated by dividing the allowable GHG emissions inventory in a selected calendar year by the service population in that year. This calculation identifies the quantity of emissions that can be generated on a per-service population basis without significantly impacting the environment. This approach is appropriate for the proposed project because it measures the project's emissions on a local per capita basis to determine its overall GHG emissions efficiency relative to regulatory GHG emission reduction goals.

For the proposed project, an efficiency threshold was calculated based on the target GHG emission levels that would be consistent with the State's 2030 target and the City's 2050 goal using the service population of the City of Berkeley in year 2040. This locally-appropriate, project-specific quantitative threshold is derived, in part, from the City's 2005 GHG inventory in line with CARB's recommendations in the 2008 Climate Change Scoping Plan and the 2017 Scoping Plan (CARB 2008, 2017). Consistent with the legal guidance provided in the Golden Door (2018) and Newhall Ranch (2015) decisions, regarding the correlation between state and local conditions, the City's 2005 GHG inventory was used to calculate a locally-appropriate, evidence-based, project-specific threshold consistent with California's SB 32 target and the City's 2050 goal. Accordingly, the threshold established in this Initial Study is a locally-applicable, project-specific threshold, as opposed to a threshold for general use.

The City completed a 2000 GHG inventory that calculated communitywide emissions of 631,863 MT of $CO_2$e per year and a 2005 GHG inventory that calculated communitywide emissions of 575,889 MT of $CO_2$e per year (Table 14). Because the proposed project only involves educational uses, the Commercial Energy and a portion of the Transportation sector emissions are appropriate to use in developing a project-specific threshold because future students, teachers, and visitors would consume energy and generate on-road vehicle trips. Therefore, the Residential Energy and a portion of the Transportation sector emissions were conservatively excluded for the emissions total for project-applicable sectors. Because these sector emissions would not be applicable to the proposed project, these emissions were subtracted from the total emissions to calculate a project-applicable emissions total of 322,300 MT of $CO_2$e for 2000 and 293,173 MT of $CO_2$e for 2005.

AB 32 set a statewide target of reducing GHG emissions to 1990 levels by 2020. Therefore, for the City of Berkeley to be consistent with AB 32, annual GHG emissions levels from project-applicable sectors would need to be reduced by 15 percent below 2005 levels by 2020 to approximately 249,197 MT of $CO_2$e per year. In addition, SB 32 set a statewide GHG emission reduction target of 40 percent below 1990 levels. Therefore, annual GHG emissions levels from project-applicable sectors would need to be reduced by 40 percent below 1990 levels to approximately 149,518 MT of $CO_2$e per year to be consistent with SB 32. Accordingly, the 2030 project-specific efficiency threshold can be calculated by dividing total communitywide GHG emissions by the communitywide service population for year 2030. The City's 2030 residential population would be approximately 135,680 persons (ABAG 2019). Therefore, the 2030 locally-appropriate, project-specific threshold would be approximately 1.1 MT of $CO_2$e per year (Table 15).

### Table 14 City of Berkeley Baseline Inventories

| Source | 2000 Total (MT of $CO_2$e) | 2005 Total (MT of $CO_2$e) |
|---|---|---|
| Residential Energy | 175,777 | 152,599 |
| Commercial Energy | 183,053 | 157,746 |
| Transportation | 273,033 | 265,544 |
| **Total Emissions** | **631,863** | **575,889** |
| Emissions from Project-Applicable Sectors[1] | 322,300 | 293,173 |

[1] Includes commercial and 51 percent of transportation emissions. Transportation emissions were allocated proportionally between residential and commercial sectors based on energy consumption emission estimates (183,053 MT / [175,777 MT + 183,053 MT]; 157,746 MT / [152,599 MT + 157,746 MT]).

Source: City of Berkeley 2009a

### Table 15 Locally-Applicable Project-Specific Efficiency Threshold

| Target Year | Value |
|---|---|
| 2000 Baseline Levels[1] | 322,300 MT of $CO_2$e/year |
| 2005 Baseline Levels[1] | 293,173 MT of $CO_2$e/year |
| 2020 Target (AB 32)[2] | 249,197 MT of $CO_2$e/year |
| 2030 Target (SB 32)[3] | 149,518 MT of $CO_2$e/year |
| 2030 Residential Population[4] | 135,680 persons |
| **2030 Project-Specific Efficiency Threshold** | **1.1 MT of $CO_2$e per service person per year** |

[1] 2005 emission levels from project-applicable sectors (Table 14)

[2] AB 32 sets a target of reducing GHG emissions to 1990 levels (i.e., 15 percent below 2005 levels) by 2020. The Efficiency Thresholds account for a 15 percent reduction per AB 32 targets.

[3] SB 32 sets a target of reducing GHG emissions 40 percent below 1990 levels by 2030.

[4] Source: ABAG 2019

*a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?*

Project construction would generate temporary GHG emissions primarily as a result of construction equipment on-site as well as from vehicles transporting construction workers to and from the project site and heavy trucks to transport building materials and soil export. BAAQMD has not adopted a threshold of significance for construction-related GHG emissions. However, the BAAQMD recommends quantifying and disclosing GHG construction emissions. As shown in Table 16, project construction would generate an estimated total of 572 MT of $CO_2$e.

Project operation would generate GHG emissions associated with area sources (e.g., landscape maintenance), energy and water usage, vehicle trips, stationary sources (e.g., emergency generator), and wastewater and solid waste generation. As shown in Table 17, the project's combined annual emissions would total approximately 610 MT of $CO_2$e per year, or approximately

0.6 MT of $CO_2e$ per service person per year, which would not exceed the locally-applicable, project-specific threshold of 1.1 MT of $CO_2e$ per year. Therefore, impacts would be less than significant.

### Table 16 Estimated Construction GHG Emissions

| Year | Emissions (MT of $CO_2e$) |
|---|---|
| 2022 | 70 |
| 2023 | 207 |
| 2024 | 228 |
| 2025 | 67 |
| **Total** | **572** |

MT = metric tons; $CO_2e$ = carbon dioxide equivalent

Notes: Emissions modeling was completed using CalEEMod.

Source: Appendix AQ

### Table 17 Combined Annual GHG Emissions

| Emission Source | Annual Emissions (MT of $CO_2e$ per year) |
|---|---|
| **Operational** | |
| Area | <1 |
| Energy | 0 |
| Solid Waste | 39 |
| Water | 3 |
| Stationary | 7 |
| Mobile | |
| $CO_2$ and $CH_4$ | 548 |
| $N_2O$ | 13 |
| **Total Emissions** | **610** |
| Service Population[1] | 1,105 |
| **Emissions per Service Person** | **0.6** |
| Threshold | 1.1 |
| **Threshold Exceeded?** | **No** |

[1] Service population for this project includes students, faculty, and staff. This is appropriate for the project, as CalEEMod incorporates trips generated by students as well as employees (faculty and staff).

Notes: Emissions modeling was completed using CalEEMod, except for $N_2O$ mobile emissions. $N_2O$ mobile emissions completed consistent with the description in *Methodology*.

Source: Appendix AQ

## LESS THAN SIGNIFICANT IMPACT

b. *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Several plans and policies have been adopted to reduce GHG emissions in the project region, including the State's 2017 Scoping Plan, the City's CAP, and the College's Sustainability and Resiliency Strategy. The proposed project's consistency with these plans is discussed in the following subsections. As discussed therein, the proposed project would not conflict with plans and policies aimed at reducing GHG emissions. Impacts would be less than significant.

### *2017 Scoping Plan*

The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020 and the goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. Pursuant to the SB 32 goal, the 2017 Scoping Plan was created to outline goals and measures for the state to achieve the reductions. The 2017 Scoping Plan's strategies that are applicable to the proposed project include using low-carbon energy, reducing VMT and transportation energy use, reducing solid waste generation and increasing recycling and composting efforts, and increasing water use efficiency. The project would be consistent with these goals through project design, which includes installing solar panels, obtaining 100 percent carbon-free electricity from EBCE, complying with the City's electrification ordinance, incentivizing alternative modes of transportation, providing recycling services, and installing low-flow fixtures. Therefore, the project would be consistent with the 2017 Scoping Plan.

### *City of Berkeley CAP*

The City's CAP contains recommended goals intended to reduce GHG emissions in the City consistent with the City's GHG reduction targets. While the project would not be subject to the City's CAP, the project's consistency with the City's CAP is discussed for informational purposes in Table 18. As summarized therein, the project would be consistent with measures of the City's CAP. The project's consistency with CAP goals related to energy use and energy efficiency are addressed in Section 6, *Energy*.

**Table 18 Plan Consistency for GHG Emissions**

| Goals and Policies | Project Consistency |
|---|---|
| **2. Goal:** Increase and enhance urban green and open space, including local food production, to improve the health and quality of life for residents, protect biodiversity, conserve natural resources, and foster walking and cycling<br>**b. Policy:** Promote tree planting, landscaping, and the creation of green and open space that is safe and attractive and that helps to restore natural processes | **Consistent.** The project site currently contains no green space, except City-maintained street trees in the public rights-of-way. The project would install a rooftop garden, which would increase the green space available at the site. The project would also provide bicycle parking on the first floor of the proposed structure, which would encourage bicycling to the project site. |
| **3. Goal:** Increase recycling of construction & demolition (C&D) debris | **Consistent.** The project would ensure construction and demolition debris is recycled to the extent feasible, per Measure SW-9 of the College's Sustainability and Resiliency Strategy. |
| **7. Goal:** Increase recycling, composting, and waste reduction in public institutions | **Consistent.** The project would provide dedicated recycling receptacles on the project site and zero waste stations, per Measures SW-2 and SW-11 of the College's Sustainability and Resiliency Strategy. |

Source: City of Berkeley 2009a

### *Berkeley City College Sustainability and Resiliency Strategy*

Berkeley City College maintains a Sustainability and Resiliency Strategy, which includes various policies and measures related to the District's sustainability goals. As described in Section 4, *Project Characteristics*, subsection *Green Building Features*, the project would implement sustainability measures consistent with the Berkeley City College Sustainability and Resiliency Strategy, including measures E-1, E-2, E-3, E-4, E-5, TR-2, TR-3, TR-4, TR-8, TR-10, TR-11, WR-2, SW-2, SW-5, SW-9, and SW-11, as described in Section 4, *Project Characteristics*, subsection *Green Building Features,* which would reduce the project's electricity demand, transportation energy demand, water demand, and solid waste generation.

**LESS THAN SIGNIFICANT IMPACT**

# 9 Hazards and Hazardous Materials

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | □ | □ | ■ | □ |
| b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | □ | □ | ■ | □ |
| c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school? | □ | □ | ■ | □ |
| d. Be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | □ | □ | ■ | □ |
| e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? | □ | □ | □ | ■ |
| f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | □ | □ | □ | ■ |
| g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires? | □ | □ | ■ | □ |

A Phase I Environmental Site Assessment (ESA) was prepared for the project site by Terraphase Engineering Inc. in January 2015, included in Appendix HAZ to this Initial Study. As part of the Phase I ESA, Environmental Data Resources, Inc. (EDR) was contracted to provide a database search of public lists of sites that generate, store, treat, or dispose of hazardous materials or sites for which a release or incident has occurred for the project site and surrounding area. Federal, state, and county lists were reviewed as part of the research effort.

Four up-gradient, nearby properties were listed in the databases searched by EDR:

- **2011 Addison Street** is 294 feet north-northeast of the project site. The property is listed in the Historic Cortese and Leaking Underground Storage Tank (LUST) databases. This site was granted regulatory closure in 1999, and this property would not pose a significant risk to the project site.
- **2040 Addison Street** is 434 feet northeast of the project site. This property is listed on the Historic Cortese and LUST databases. This site is listed as "Completed – Case Closed;" however, given the site's location in proximity to the project site, a potential soils vapor encroachment issue could occur at the project site.
- **2020 Addison Street** is 523 feet east-northeast of the project site. This listing is identified on the Resource Conservation and Recovery Act (RCRA) small quantity generators, Facility Index System, Historic Cortese, LUST, and HAZNET databases. While the site was granted regulatory closure in 1994, its proximity may cause a potential soils vapor encroachment issue at the project site.
- **2000 Milvia Street** is 573 feet north of the project site. This property is listed on the Historic Cortese and LUST databases. This site is listed as "Completed – Case Closed" and given the distance from the project site, this listing would not pose a significant risk to the site.

Based on the EDR report and a review of available documents, the project site is listed as a prior gas station, under the address 1999 Center Street. Additionally, the following five nearby sites are also listed on EDR's historic auto and historic cleaners databases: 2135 Milvia Street (0.01 mile east), 2125 Milvia Street (0.02 mile north-northeast), 2000 Center Street (0.02 mile southeast), 2145 Milvia Street (0.02 mile southeast), and 2020 Milvia Street (0.01 mile northeast).

The Phase I ESA determines the potential for recognized environmental conditions (REC) to be associated with the project site. A REC is the presence or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or the material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The following RECs were identified for the project site:

- A gasoline station was formerly located on the property. Because of the age of the gasoline station and the date of its closure (1966), prior to the enactment of the RCRA, the gasoline station would not have been closed under regulatory oversight and it is likely that petroleum products were released into the subsurface at the site.
- There were also gasoline stations on the northeast and southeast corners of the intersection of Center Street and Milvia Street which are upgradient of the site. Because of the age of the gasoline stations and the dates of their closure, prior to the enactment of RCRA, it is likely that petroleum products were released into the subsurface at their locations. Groundwater is fairly shallow at the site, and hence, if petroleum products were released at the adjacent former

gasoline stations, it is likely that the petroleum products would have migrated under the site, creating a potential vapor encroachment condition.

- A property, located at 2020 Addison Street, approximately 400 feet northwest of the site, reported a release of gasoline that impacted both soil and groundwater. Because of this property's proximity and up-gradient location with respect to groundwater flow, to the site and the possibility that contaminated groundwater from this property may have migrated beneath the site, a potential vapor encroachment issue cannot be ruled out.

In March 2015, Terraphase Engineering Inc. conducted a Soil Gas Survey at 2118 Milvia Street to follow up on the potential soils vapor issues identified above. This study collected and analyzed soil gas samples at the site and, while traces of some chemicals and substances were detected, none were above established health risk levels. Soil was analyzed for volatile organic compounds (VOC) and helium. VOCs include para xylene, benzene, ethanol, and acetone, which were detected in soil gas samples. Ethanol and acetone were determined to be laboratory contaminants. Benzene and para xylene are indicative of a release of petroleum hydrocarbons in the vicinity of the site, but due to the amounts detected, not associated with a petroleum release at the site. The highest concentration of benzene was detected at 33 percent of the California Human Health Screening Level for residential exposure. Chlorinated VOCs, such as perchloroethylene (PCE) and trichloroethylene (TCE), were not detected. The concentration of detected helium was less than 5 percent of the level considered to be a significant risk. Oxygen levels were detected at 20 percent, indicating that the atmosphere is not oxygen deficient and significant biodegradation was not occurring in site soils. The study concluded that a significant threat to building occupants is unlikely.

*a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

*b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

## Construction

Project construction may include the temporary transport, storage, and use of potentially hazardous materials including fuels, lubricating fluids, cleaners, or solvents. Demolition of the existing building could result in upset and release of hazardous materials into the environment.

Demolition and construction activities may include the temporary transport, storage, use, or disposal of potentially hazardous materials including fuels, lubricating fluids, cleaners, solvents, or contaminated soils. If spilled, these substances could pose a risk to the environment and to human health. However, the transport, storage, use, or disposal of hazardous materials is subject to various federal, state, and local regulations designed to reduce risks associated with hazardous materials, including potential risks associated with upset or accident conditions. Hazardous materials would be required to be transported under U.S. Department of Transportation regulations (U.S. Department of Transportation Hazardous Materials Transport Act, 49 Code of Federal Regulations), which stipulate the types of containers, labeling, and other restrictions to be used in the movement of such material on interstate highways. In addition, the use, storage, and disposal of hazardous materials are regulated through RCRA. The California Department of Toxic Substances Control (DTSC) is responsible for implementing the RCRA program, as well as California's own hazardous waste laws. DTSC regulates hazardous waste, cleans up existing contamination, and looks for ways to control and reduce the hazardous waste produced in California. It does this primarily under the authority of RCRA and in accordance with the California Hazardous Waste Control Law (California Health and Safety Code Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (CCR Title 22, Divisions 4 and 4.5). DTSC also oversees permitting, inspection, compliance, and corrective action programs to ensure that hazardous waste managers follow federal and State requirements and other laws that affect hazardous waste specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. Compliance with existing regulations would reduce the risk of potential release of hazardous materials during construction.

The existing structure was constructed in 1966, and due to its age, may contain asbestos, Polychlorinated biphenyls (PCB), and/or lead-based paint. Demolition could result in health hazard impacts to workers if not remediated prior to construction activities. Demolition of the structure could result in health hazard impacts to workers if not remediated prior to construction activities. However, demolition and construction activities would be required to adhere to BAAQMD Regulation 11, Rule 2, which governs the proper handling and disposal of asbestos containing material for demolition, renovation, and manufacturing activities in the Bay Area, and California Occupational Safety and Health Administration (CalOSHA) regulations regarding lead-based materials. CCR Section 1532.1 requires testing, monitoring, containment, and disposal of lead-based materials, such that exposure levels do not exceed CalOSHA standards. DTSC has classified PCBs as a hazardous waste when concentrations exceed 50 parts per million in non-liquids, and the DTSC requires that materials containing those concentrations of PCBs be transported and disposed of as hazardous waste. Light ballasts to be removed would be evaluated for the presence of PCBs and managed appropriately. With required adherence to BAAQMD, CalOSHA, and DTSC regulations regarding asbestos containing material, lead-based paint, and PCBs impacts would be less than significant.

Furthermore, project construction would require heavy construction equipment, the operation of which could result in a spill or accidental release of hazardous materials, including fuel, engine oil, engine coolant, and lubricants. The transport of any hazardous materials would be subject to federal, state, and local regulations, which would minimize risk associated with the transport hazardous materials. Construction activities that involve hazardous materials would be required to transport such materials along roadways designated for that purpose in the County and greater Bay Area, thereby limiting risk of upset during transportation.

The disturbance of project site soils during construction is not anticipated to result in a release of hazardous soil vapors, as soil vapor sampling on the site did not detect VOCs or helium above human health screening levels.

## Operation

Project operation could involve the use of various hazardous materials, including chemical reagents, solvents, fuels, paints, and cleansers. These materials would be used for building maintenance and would be stored on site. Many of the hazardous materials used would be considered household hazardous wastes, common wastes, or universal wastes by the USEPA, which regards these types of wastes to be common to businesses and households and to pose a lower risk to people and the environment than other hazardous wastes when they are properly stored, transported, used, and disposed of. Adherence to federal, state, and local laws for the proper use, disposal, and transport of operational hazardous materials would reduce impacts associated with hazardous materials to a less than significant level.

Project operation could involve the use of hazardous materials in the form of routine cleaning products. These materials would not be substantially different from commercial and industrial chemicals already in general and wide use throughout the region and project area. As with any institutional activities that involve the storage and use of hazardous materials, on-site activity involving hazardous substances (such as the cleaning products as described above), and the transport, storage, handling of these substances, must adhere to applicable local, state, and federal safety standards, ordinances, or regulations. CalOSHA is responsible for developing and enforcing workplace safety regulations. Both federal and state laws include special provisions/training in safe methods for handling any type of hazardous substance. These regulations ensure that potential hazards associated with operational activities do not create a significant hazard to the public. Future uses would be required to store hazardous materials in designated areas designed to prevent accidental release into the environment. Potentially hazardous waste produced during operation would also be collected, stored and disposed of in accordance with applicable laws and regulations.

Compliance with existing laws and regulations governing the transport, use, release, and storage of hazardous materials would reduce impacts related to exposure of the public or environment to hazardous materials to less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?*

The project site is within 0.25 miles of Berkeley High School, located 420 feet south of the site. As outlined above under criteria (*a*) and (*b*) above, demolition of the existing structure would require removal and movement of materials containing asbestos and lead-based paint, and excavation and construction activities could involve removal and movement of contaminated soils. Hauling of such materials may occur within 0.25 mile of school facilities. However, given required compliance with the rules and regulations described above criteria (*a*) and (*b*) above, impacts to schools would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*d. Would the project be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

Per Government Code Section 65962.5, the following lists were searched for the project site address:

- Hazardous Waste and Substances site "Cortese" list (65962.5[a])
- GeoTracker: List of LUST Sites (65962.5[c][1])
- List of solid waste disposal sites identified by the Water Board (65962.5[c][2])
- List of "active" Cease and Desist Order and Cleanup Abatement Order sites (65962.5[c][3])

The project site is not listed on any of these databases, which were compiled pursuant to Government Code 65962.5 (California Environmental Protection Agency 2020a, 2020b; DTSC 2020; State Water Resources Control Board [SWRCB] 2020).

Additionally, per the Soil Gas Survey (Appendix ESA), development on the project site would not expose individuals to hazardous soil gas vapors, as soil gas sampling did not detect VOCs or helium above human health screening levels. The study concluded that a significant threat to building occupants is unlikely. Therefore, the project would not create a hazard to the public or the environment, and impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

The Oakland International Airport is the closest airport to the project site, approximately 11.2 miles south of the site. There are no private airstrips in the vicinity. The project site is located entirely outside the airport safety and traffic pattern zones (County of Alameda 2010). Therefore, no impact related to airport safety would occur.

**NO IMPACT**

*f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Project construction is expected to require the use of adjacent on-street parking spaces and closure of adjacent pedestrian sidewalks to provide adequate space and maneuvering for construction vehicles and equipment. It is not anticipated that lane closures along Milvia Street or Center Street would be required, as the temporary closure of on-street parking spaces and potential temporary realignment of driving lanes if additional space for construction equipment is determined necessary. Temporary lane realignment would keep both travel lanes open and would not interfere with the use emergency evacuation routes or require vehicle detours.

The proposed structure would be located on private property and would not obstruct existing roadways or require the construction of new roadways or access points. Therefore, the proposed structure would not block emergency response or evacuation routes. In addition, local requirements and review procedures would ensure that project would not interfere with emergency response or evacuation. The project would therefore not result in structures that would block emergency response or evacuation routes or interfere with adopted emergency response and emergency evacuation plans. No impact would occur.

**NO IMPACT**

*g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?*

As described below in Section 20, *Wildfire*, while the project site is in a highly developed urban area and is not within a wildland fire hazard area, it is located approximately 0.8 mile west of a very high fire hazard severity zone (California Department of Forestry and Fire Protection 2008). The project would be constructed in compliance with building code fire safety requirements, which would ensure that the project would not expose people or structures to a significant loss, injury or death involving wildland fires. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

# 10 Hydrology and Water Quality

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significan t Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? | ☐ | ■ | ☐ | ☐ |
| b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | ☐ | ☐ | ■ | ☐ |
| c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: | | | | |
| (i) Result in substantial erosion or siltation on- or off-site; | ☐ | ☐ | ■ | ☐ |
| (ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; | ☐ | ☐ | ■ | ☐ |
| (iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or | ☐ | ☐ | ■ | ☐ |
| (iv) Impede or redirect flood flows? | ☐ | ☐ | ■ | ☐ |
| d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? | ☐ | ☐ | ■ | ☐ |
| e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? | ☐ | ☐ | ■ | ☐ |

The project site within the Cerrito Creek-Frontal San Francisco Bay Estuaries Watershed, which drains to the San Francisco Bay. The Watershed is the largest watershed in the City and includes the project site and surrounding areas. The watershed begins in the hills at the east limit and directs flows to the west through natural open channels, and through manmade storm drains.

Water supply for the City of Berkeley is provided by EBMUD. Most of the water delivered by EBMUD originates from the Mokelumne River watershed, and the remaining water originates as runoff from the protected watershed lands and reservoirs in the East Bay Hills. Supplemental groundwater projects would allow EBMUD to be flexible in response to changing external conditions, such as single-year or multiple-year droughts. For example, the Bayside Groundwater Project will allow EBMUD to bank water during wet years for extraction, treatment, and use during dry years. Project construction was completed in 2010, but subsequent dry conditions and the need to obtain the necessary approvals have prevented EBMUD from injecting water into the project (EBMUD 2016).

## Regulatory Setting

### *Federal Clean Water Act*

In 1972, Congress passed the Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA), with the goal of "restor[ing] and maintain[ing] the chemical, physical, and biological integrity of the Nation's waters" (33 United States Code Section 1251[a]). The CWA directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. Section 319 mandates specific actions for the control of pollution from non-point sources. The USEPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program, to the SWRCB and the Regional Water Quality Control Boards (RWQCB).

Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for all surface waters of the United States based on the water body's designated beneficial use. Water quality standards applicable to the proposed project are contained in the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan).

### *National Pollutant Discharge Elimination System*

The project site lies within the jurisdiction of San Francisco Bay RWQCB (Region 2) and is subject to the waste discharge requirements of the Municipal Regional Stormwater Permit (MRP) (Order No. R2-2015-0049) and NPDES Permit No. CAS612008, which was issued on November 19, 2015 and went into effect on January 1, 2016. A new version of the MRP is currently in negotiation between the Regional Water Board and the Clean Water Program. The new MRP will likely go into effect in mid-2021.

Under Provision C.3 of the MRP, the District is required to use its planning authority to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address stormwater runoff pollutant discharges and address increases in runoff flows from new development and redevelopment projects. These requirements are generally reached through the implementation of Low Impact Development (LID) techniques. Some requirements (i.e., demolitions and special use rules) may become more stringent with implementation of the new version of the MRP expected in 2021.

The NPDES permit requires appropriate LID and Stormwater Treatment technologies in new development and redevelopment projects, in order to mimic the natural hydrology of the lands prior to disturbance. The objective of LID and post-construction BMPs for stormwater is to reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source. LID employs principles such as preserving and recreating natural landscape features and minimizing imperviousness to create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product. Practices used to adhere to these LID principles include measures such as rain barrels and cisterns, green roofs, permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention units, bioswales, and planter/tree boxes.

#### *State Updated Model Water Efficient Landscape Ordinance (AB 1881)*

The updated Model Water Efficient Landscape Ordinance (WELO) required agencies to adopt landscape water conservation ordinances by January 31, 2010 or to adopt a different ordinance that is at least as effective in conserving water as the updated WELO. In May of 2015, the governor issued Executive Order B-29-15 requiring the state to revise the model WELO to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite stormwater capture, and by limiting the portion of landscapes that can be covered in turf.

a. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

## Construction

Project construction could cause soil erosion from exposed soil, an accidental release of hazardous materials used for equipment such as vehicle fuels and lubricant, or temporary siltation from storm water runoff. Soil disturbance would occur during demolition and site preparation. Because the proposed project would disturb less than one acre, the project would not be subject to the National Pollutant Discharge Elimination System Construction General Permit. However, as discussed in Section 7, *Geology and Soils*, implementation of Mitigation Measure GEO-2 would reduce erosion-related impacts to water quality. This measure requires the preparation of an erosion control plan, which would ensure the implementation of BMPs during project construction to reduce potential erosion. With this mitigation, water quality impacts would be reduced to less than significant levels.

## Operation

The District is responsible for enforcing the requirements of the MRP. Compliance with the MRP includes both operational and maintenance BMPs and construction related BMPs. Provisions specified in MRP that affect construction projects generally include but are not limited to Provision C.3 (New Development and Redevelopment), Provision C.6 (Construction Site Control), and Provision C.15 (Exempted and Conditionally Exempted Discharges). The project would be required to comply with these provisions, which are described in further detail below:

- **Provision C.3** requires that LID techniques be utilized to employ appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects; to address stormwater runoff pollutant discharges; and to prevent increases in runoff flows from new development and redevelopment projects by mimicking a site's predevelopment hydrology. This is to be accomplished by employing principles such as minimizing disturbed areas and imperviousness, and preserving and recreating natural landscape features, in order to "create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product" (San Francisco Bay RWQCB 2015). These LID practices, as well as other provisions and BMPs specified in the MRP, may require long-term operational inspections and maintenance activities to ensure the effective avoidance of significant adverse impacts associated with water quality degradation.

- **Provision C.6** requires implementation of a construction site inspection and control program at all construction sites and an Enforcement Response Plan to prevent construction-related discharges of pollutants into storm drains. Inspections confirm implementation of appropriate and effective erosion and other BMPs by construction site operators/developers, and Permittee reporting is used to confirm and demonstrate the effectiveness of its inspections and enforcement activities to prevent polluted construction site discharges into storm drains.
- **Provision C.15** exempts specified unpolluted non-stormwater discharges and to conditionally exempt non-stormwater discharges that are potential sources of pollutants. In order for non-stormwater discharges to be conditionally exempted, the Permittees must identify appropriate BMPs, monitor the non-stormwater discharges where necessary, and ensure implementation of effective control measures to eliminate adverse impacts to waters of the state consistent with the discharge prohibitions of the Order.

Compliance with the applicable state and local requirements described above would ensure that project operation would increase infiltration of stormwater, decrease stormwater runoff, and reduce the risk of water contamination to the maximum extent practicable. The project would result in no net change in on-site impermeable surfaces from existing conditions, but would incorporate a rooftop landscaped area, which would capture and use some stormwater runoff that would normally be discharged off site. Therefore, project operation would not violate water quality standards or waste discharge requirements or substantially degrade water quality. Impacts would be less than significant.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

The proposed project would not use or deplete groundwater resources. Water supply for the project site is provided by EBMUD. The groundwater aquifer beneath Berkeley is not currently used for water storage or drinking water supply. Therefore, the project would not involve installation of new groundwater wells or use of groundwater from existing wells.

The project site is in a fully urbanized area, and project implementation would redevelop the site with a similar amount of impervious areas as existing conditions. Because the project would result in no net change to impervious surface area within the project site, it would not increase the amount of surface runoff at the site. Therefore, the proposed project would not result in a net deficit in aquifer volume or a lowering of the groundwater table. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*c.(i) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?*

*c.(ii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

*c.(iii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

*c.(iv) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?*

The area surrounding the project site is urbanized and largely consists of impervious surfaces, including structures, parking lots, and roadways. Stormwater runoff generated by the proposed project would be collected by drainage inlets and conduits and conveyed to the San Francisco Bay, as under current conditions. A culverted portion of Strawberry Creek travels beneath Center Street and beneath a portion of the Civic Center Building south of the project site. The culverted creek does not flow through the project site itself, and project construction would not alter the course of this culverted creek or any other streams or rivers.

The proposed project would not modify the on-site drainage pattern, as runoff would continue to flow to existing stormwater drains. The project site is entirely covered by impervious surfaces, and the proposed project would maintain the total area of impervious surfaces, as the existing structure would be demolished and replaced with the proposed structure. Therefore, the project would not introduce new impermeable areas such that the rate or amount of surface runoff would increase in a manner which would result in substantial erosion or siltation or flooding on or off the project site.

Given the information described above, the proposed project would not substantially alter the existing drainage pattern of the site or area or alter the course of any stream or river, would not result in erosion or siltation, and would not substantially increase the rate of surface runoff in a manner which would result in flooding on- or off-site or exceed capacity of a stormwater system. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

The project site is located approximately 1.7 miles from the San Francisco Bay and approximately 15 miles from the coast of the Pacific Ocean. The site is not located within a Federal Emergency Management Agency (FEMA) designated flood hazard area (FEMA 2020). The site is also not located in a dam or tsunami inundation area and is not located near a large water body or in proximity to the San Francisco Bay such that a seiche could affect the proposed project (City of Berkeley 2003). Therefore, the project would not result in the placement of structures within FEMA-designated flood hazard areas, would not impede or redirect flood flows, would not expose people or structures to significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam, and would not result in inundation by seiche, tsunami, or mudflow. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

Berkeley is under the jurisdiction of the San Francisco Bay RWQCB, which prepared the Basin Plan, designating beneficial uses of water in the region and establishing narrative and numerical water quality objectives. As discussed under criteria (*a*) and (*b*) above, the project would not use groundwater, violate water quality standards, or degrade water quality during construction or operation. Therefore, the proposed project would not interfere with the objectives and goals in the Basin Plan. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

# 11 Land Use and Planning

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Physically divide an established community? | □ | □ | □ | ■ |
| b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? | □ | □ | □ | ■ |

*a. Would the project physically divide an established community?*

The proposed project would involve demolition of an existing structure and construction of a new structure in its place. The project would not separate connected neighborhoods or land uses from each other. No new roads, linear infrastructure, or other development features are proposed that would divide an established community or limit movement, travel, or social interaction between established land uses. No impact would occur.

**NO IMPACT**

*b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?*

This section describes the project's consistency with Berkeley City College's Facilities Master Plan and Sustainability and Resiliency Strategy. District properties are extensions of State land and are not subject to local land use regulatory controls. Therefore, the project's consistency with the City of Berkeley's DAP is provided for informational purposes.

## Berkeley City College Facilities Master Plan

The College's Facilities Master Plan identifies anticipated student enrollment growth and the associated square footage requirements to accommodate growth through 2022. The Plan identifies a net need for 191,000 square feet of space by 2022. While enrollment growth has not precisely followed that anticipated in the Facilities Master Plan, the proposed project would provide additional educational facilities and classroom space that would address a portion of this identified need. Consistent with the Master Plan, the project provides a new art studio and new laboratory spaces. The Plan also identifies the College's values, which include a commitment to multiculturalism and diversity. The project includes a multicultural resource center and undocumented community resource center, which directly aligns with this value. Therefore, the proposed project would not conflict with the College's Facilities Master Plan. There would be no impacts.

## Berkeley City College Sustainability and Resiliency Strategy

As described in Section 4, *Project Characteristics*, subsection *Green Building Features*, and Section 6, *Energy*, the project would implement sustainability measures consistent with the Berkeley City College Sustainability and Resiliency Strategy, including measures E-1, E-2, E-3, E-4, E-5, TR-2, TR-3, TR-4, TR-8, TR-10, TR-11, WR-2, SW-2, SW-5, SW-9, and SW-11, as described in Section 4, *Project Characteristics*, subsection *Green Building Features,* which would reduce the project's electricity demand, transportation energy demand, water demand, and solid waste generation. There would be no impacts.

## City of Berkeley Downtown Area Plan

The City's DAP includes goals related to environmental sustainability, land use, and access. As described in Section 4, *Project Characteristics*, subsection *Green Building Features*, the project incorporates a number of sustainable building features, including the installation of rooftop solar panels and compliance with the College's Sustainability and Resiliency Strategy. DAP Goal ED-1 encourages educational uses in Downtown, which is consistent with the project. The project includes the provision of on-site bicycle parking on the first floor, which is consistent with DAP access goals. There would be no impacts.

**NO IMPACT**

# 12 Mineral Resources

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☐ | ■ |
| b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | ☐ | ☐ | ☐ | ■ |

*a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

*b. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

The project site is within an urbanized area with no current oil or gas extraction. According to the Environmental Management Element of the City's General Plan, Berkeley does not contain mineral deposits of regional significance (City of Berkeley 2003). Therefore, no mineral resource activities would be altered or displaced by the proposed project and there would be no impact.

**NO IMPACT**

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# 13 Noise

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project result in: | | | | |
| a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | ☐ | ■ | ☐ | ☐ |
| b. Generation of excessive groundborne vibration or groundborne noise levels? | ☐ | ■ | ☐ | ☐ |
| c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ■ |

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs (e.g., the human ear). Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Crocker 2007).

The unit of measurement used to describe a noise level is the decibel (dB). However, the human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, a method called “A-weighting” is used to filter noise frequencies that are not audible to the human ear. A-weighting approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the “A-weighted” levels of those sounds. Therefore, the A-weighted noise scale is used for measurements and standards involving the human perception of noise. In this analysis, all noise levels are A-weighted, and the abbreviation “dBA” identifies the A-weighted decibel.

Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. A 10 dB increase represents a 10-fold increase in sound intensity, a 20 dB increase is a 100-fold intensity increase, a 30 dB increase is a 1,000-fold intensity increase, etc. Similarly, a doubling of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the noise source would result in a 3 dB decrease.

Human perception of noise has no simple correlation with acoustical energy. The perception of noise is not linear in terms of dBA or in terms of acoustical energy. Two equivalent noise sources combined do not sound twice as loud as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA (increase or decrease); that a change of 5 dBA is readily perceptible; and that an increase or decrease of 10 dBA sounds twice (half) as loud (Caltrans 2013).

### *Descriptors*

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this analysis are the one-hour equivalent noise level ($L_{eq}$) and the community noise equivalent level (CNEL).

The $L_{eq}$ is the level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound. For example, $L_{eq(1h)}$ is the equivalent noise level over a 1-hour period, and $L_{eq(8h)}$ is the equivalent noise level over an 8-hour period. $L_{eq(1h)}$ is a common metric for limiting nuisance noise, whereas $L_{eq(8h)}$ is a common metric for evaluating construction noise.

The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional +5 dBA penalty to noise occurring during evening hours (i.e., 7:00 p.m. to 10:00 p.m.) and an additional +10 dBA penalty to noise occurring during nighttime hours (i.e., 10:00 p.m. to 7:00 a.m.). These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night.

There is no precise way to convert a peak hour $L_{eq}$ to CNEL – the relationship between the peak hour $L_{eq}$ value and the CNEL value depends on the distribution of traffic volumes during the day, evening, and night. However, in urban areas near heavy traffic, the peak hour $L_{eq}$ is typically 2 to 4 dBA lower than the CNEL. In less heavily developed areas, such as suburban areas, the peak hour $L_{eq}$ is often roughly equal to the CNEL. For rural areas with little nighttime traffic, the peak hour $L_{eq}$ will often be 3 to 4 dBA greater than the CNEL value (SWRCB 1999). The project site is located in an urban area; therefore, the CNEL in the area would be approximately 2 to 4 dBA higher than the peak hour $L_{eq}$.

### *Propagation*

Sound from a small, localized source (approximating a “point” source) decreases or drops off at a rate of 6 dBA for each doubling of distance. Traffic noise is not a single, stationary point source of sound. Over a time interval, the movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point. The drop-off rate for a line source is 3 dBA for each doubling of distance.

## Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of hertz (Hz). The frequency of a vibrating object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body is from a low of less than 1 Hz up to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise may result in adverse effects, such as building damage, when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz). Vibration may also damage infrastructure when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (Federal Transit Administration [FTA] 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

### *Descriptors*

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root-mean-square vibration (RMS) vibration velocity. Particle velocity is the velocity at which the ground moves. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the greatest magnitude of particle velocity associated with a vibration event. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Caltrans 2020a).

Vibration limits used in this analysis to determine a potential impact to local land uses from construction activities, such as blasting, pile-driving, vibratory compaction, demolition, drilling, and excavation, are based on information contained in Caltrans' *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020a). Maximum recommended vibration limits are identified in Table 19.

**Table 19 Guideline Vibration Damage Potential Threshold Criteria**

| Structure and Condition | Maximum PPV (in/sec) – Transient Sources | Maximum PPV (in/sec) – Continuous/Frequent Intermittent Sources |
|---|---|---|
| Extremely fragile historic buildings, ruins, ancient monuments | 0.12 | 0.08 |
| Fragile buildings | 0.2 | 0.1 |
| Historic and some old buildings | 0.5 | 0.25 |
| Older residential structures | 0.5 | 0.3 |
| New residential structures | 1.0 | 0.5 |
| Modern industrial/commercial buildings | 2.0 | 0.5 |

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: Caltrans 2020a, Table 19

Based on Caltrans recommendations, limiting vibration levels to below 0.25 in/sec PPV at nearby structures would prevent structural damage regardless of building construction type. However, should any adjacent buildings be considered fragile, vibration levels should be limited to below 0.1 in/sec PPV.

Potential human annoyance associated with vibration is shown in Table 20 and Table 21, depending on if it's a steady state or transient vibration source . As shown in Table 20, the vibration level threshold at which steady vibration sources are considered to be distinctly perceptible is 0.035 in/sec PPV. However, as shown in Table 21, the vibration level threshold at which transient vibration sources (such as construction equipment passbys) are considered to be distinctly perceptible is 0.24 in/sec PPV. This analysis uses the distinctly perceptible threshold for purposes of assessing vibration impacts.

**Table 20 Human Response to Steady State Vibration**

| in/sec PPV | Human Response |
|---|---|
| 3.6 (at 2 Hz)–0.4 (at 20 Hz) | Very disturbing |
| 0.7 (at 2 Hz)–0.17 (at 20 Hz) | Disturbing |
| 0.10 | Strongly perceptible |
| 0.035 | Distinctly perceptible |
| 0.012 | Slightly perceptible |

Source: Caltrans 2020a

**Table 21 Human Response to Transient Vibration**

| in/sec PPV | Human Response |
|---|---|
| 2.0 | Severe |
| 0.9 | Strongly perceptible |
| 0.24 | Distinctly perceptible |
| 0.035 | Barely perceptible |

Source: Caltrans 2020a

Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never substantially perceptible to people who are outdoors and the vibration level threshold for human perception is assessed at occupied structures (FTA 2018). Therefore, vibration impacts are assessed at the structure of an affected property.

## Regulatory Setting

### *Berkeley Municipal Code*

While the project would not be subject to the Berkeley Municipal Code, noise at surrounding land uses from the project site is subject to the Code requirements. Section 13.40, Community Noise, of the Berkeley Municipal Code sets the City's standards for on-site operational noise and construction noise. As shown in Table 22, Section 13.40.050, Exterior Noise Standards, provides the exterior noise limits not to be exceeded for more than 30 minutes in any hour in various zoning districts. If the measured ambient noise level exceeds these limits, the allowable noise exposure standard would be the ambient noise level.

**Table 22 City of Berkeley Exterior Noise Limits**

| Zone | Time Period | $L_{50}$[1] Noise Level, dBA |
|---|---|---|
| R-1, R-2, R-1A, R-2A, ESR | 7:00 AM – 10:00 PM | 55 |
| | 10:00 PM – 7:00 AM | 45 |
| R-3 and Above | 7:00 AM – 10:00 PM | 60 |
| | 10:00 PM – 7:00 AM | 55 |
| Commercial | 7:00 AM – 10:00 PM | 65 |
| | 10:00 PM – 7:00 AM | 60 |
| Industry | Anytime | 70 |

[1]$L_{50}$ is the noise level that cannot be exceeded for more than 30 minutes in any hour.

Source: Berkeley Municipal Code Section 13.40.050

Berkeley Municipal Code Section 13.40.060, Interior Noise Standards, sets interior noise limits for all zoning districts. Between 7:00 a.m. and 10:00 p.m. interior noise is restricted to 45 dBA $L_{eq}$ and between 10:00 p.m. and 7:00 a.m. interior noise is restricted to 40 dBA $L_{eq}$.

Berkeley Municipal Code Section 13.40.070 sets standards for construction noise. This section prohibits construction activity between the hours of 7:00 PM to 7:00 AM on weekdays, 8:00 PM to 9:00 AM on weekends and holidays such that the resulting noise creates a noise disturbance across a residential or commercial property line. Table 23 lists the City's maximum sound levels for mobile and stationary equipment that apply to construction activity "where technically and economically feasible" during permitted hours of construction (Berkeley Municipal Code Section 13.40.070.B).

**Table 23 Construction Noise Standards**

| Equipment Type | Day/Times | Residential (R-1, R-2) | Multi-Family Residential (R-3, R-4) | Commercial/ Industrial |
|---|---|---|---|---|
| Mobile[1] | Weekdays<br>7:00 AM to 7:00 PM | 75 dBA | 80 dBA | 85 dBA |
| | Weekends and Holidays<br>9:00 AM to 8:00 PM | 60 dBA | 65 dBA | 70 dBA |
| Stationary[2] | Weekdays<br>7:00 AM to 7:00 PM | 60 dBA | 65 dBA | 70 dBA |
| | Weekends and Holidays<br>9:00 AM to 8:00 PM | 50 dBA | 55 dBA | 60 dBA |

[1] Berkeley Municipal Code Section 13.40.070 defines mobile equipment as "nonscheduled, intermittent, short-term operation (less than 10 days)."

[2] Berkeley Municipal Code Section 13.40.070 defines stationary equipment as "repetitively scheduled" and for "relatively long term operation (period of 10 days or more)."

Source: Berkeley Municipal Code Section 13.40.070

## Existing Noise Setting

The most common source of noise in the project vicinity is vehicular traffic (e.g., automobiles, buses, and trucks) on Milvia Street and Center Street adjacent to the project site. Ambient noise levels are generally highest during the daytime and rush hour unless congestion substantially slows speeds.

Motor vehicle noise is characterized by a high number of individual events, which creates sustained noise levels. According to the City of Berkeley's noise contour map, the ambient noise at the project site is approximately 70 dBA Day-Night Level (City of Berkeley 2003).

## Sensitive Receivers

Noise exposure standards for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Noise sensitive receivers include residences, childcare centers, hospitals, and nursing homes (City of Berkeley 2003). Noise-sensitive receivers nearest to the project site are multi-family residences located 185 feet to the northeast and Martin Luther King. Jr. Civic Center Park located as close as 125 feet to the south (from the center of the project site). The park is zoned R-3 and therefore multi-family residential noise standards would apply. Additional residential receivers (such as Berkeley Central Apartments at 2055 Center Street), schools (such as Berkeley High School), and child care centers and related uses (such as Habitot Children's Museum and the Downtown Berkeley YMCA Child Care) are located at greater distances from the project site than the receivers used for the purposes of this analysis and thus impacts at those locations would be less than for those studied in this Initial Study. Additionally, the municipal building immediately west of the project site is considered to be a historic structure (see Section 5, *Cultural Resources*).

## Methodology

### *Construction Noise*

Construction noise was estimated using the Federal Highway Administration Roadway Construction Noise Model (RCNM) (FTA 2018). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at noise sensitive receivers near the project site. RCNM provides reference noise levels for standard construction equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment.

Variation in power imposes additional complexity in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the $L_{eq}$ of the operation (FTA 2018). Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some would have higher continuous noise levels than others, and some have high-impact noise levels. In typical construction projects, grading activities generate the highest noise levels because grading involves the largest equipment and covers the greatest area.

Project construction is expected to occur over 30 months. Construction phases would include demolition, site preparation, grading, building construction, architectural coating, and paving of the project site. It is assumed that diesel engines would power all construction equipment. For general construction activities, the loudest construction activities typically occur during earthmoving activities for grading. Due to the small size of the site, it is not likely that more than one or two pieces of equipment could be in use simultaneously. Therefore, noise levels are based on a potential construction scenario of one concrete saw and one bulldozer operating simultaneously during the grading phase. At a distance of 125 feet, one concrete saw and one bulldozer would generate a noise level of approximately 76 dBA $L_{eq}$ (RCNM Calculations are included in Appendix NOI). At 50 feet, the same equipment would generate a noise level of 84 dBA $L_{eq}$ (Appendix NOI).

Depending on the outcome of geotechnical investigations, a deep foundation system may be required. Deep foundation system can be installed using several methods, such as pile driving or drilled piers. Pile driving involves hammering foundation piles into the ground using an impact pile driver; drilled piers are typically performed by drilling the hole for the foundation and filling the hole with concrete or similar material. As pile driving must occur in a stationary location, with equipment setbacks it is assumed the potential pile driving would occur as close as 20 feet from the adjacent municipal building, and 100 feet from Martin Luther King. Jr. Civic Center Park and the nearest multi-family residences. At 20 feet, an impact pile driver would generate a noise level of approximately 102 dBA $L_{eq}$. At 100 feet, the pile driver would generate a noise level of 88 dBA $L_{eq}$. An auger drill rig would involve similar operation and noise to a device used for drilled piles; at 20 feet, an auger drill rig would generate a noise level of approximately 85 dBA $L_{eq}$. At 100 feet, the auger drill rig would generate a noise level of 71 dBA $L_{eq}$.

### *Groundborne Vibration*

Berkeley City College has not established criteria for vibration impacts, and the City's General Plan and Municipal Code do not contain criteria for vibration impacts or analysis. Therefore, the threshold for structure damage applied to the project is from Caltrans' *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020a), which lists 0.25 in/sec PPV at residential structures as the limit that would prevent structural damage regardless of building construction type, 0.1 in/sec PPV for fragile buildings, and 0.24 in/sec PPV as the distinctly perceptible vibration annoyance potential criteria for human receivers.

*a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

## Construction

### *General Construction*

As construction equipment would move throughout the site during a normal construction day (e.g., from between 20 to 100 feet from adjacent property lines), a reasonable estimate of the average distance during a day of the equipment use was calculated (i.e., the approximate center of construction activity) for the purposes of estimating a typical noise level that sensitive receivers would experience. The nearest noise-sensitive receivers from general construction activities would include multi-family residences located 185 feet to the northeast, park uses 125 feet to the south, and commercial uses located 50 feet west of the project site (measured from the center of the site). As the construction equipment would operate for more than 10 days, the stationary noise limits in Table 23 would apply. However, the standards do not specifically define where the noise level should be analyzed; i.e., the Berkeley Municipal Code does not state if the limits apply to the property line, exterior use areas, etc. Caltrans identifies "frequent human use areas" as a primary consideration for exterior noise impacts; these are exterior areas where frequent human use occurs that would benefit from a lowered noise level (Caltrans 2020b). As an example, a parking lot is not considered to be an area of frequent human use that would benefit from a lowered noise level because people only spend a few minutes there getting in and out of their cars and there would be no benefit to a lowered noise level. Examples of a frequent human use area include backyards, outdoor seating areas at restaurants or outdoor use areas at hotels, if those are areas where people spend an extended period of time on a regular basis. Areas of frequent human use would also include the interior locations of nearby buildings such as offices or residences.

The nearest exterior frequent human use area is the plaza area of Martin Luther King. Jr. Civic Center Park. The closest multi-family residential areas have exterior frequent human use areas on rooftops at 2002 Addison Street and 1935 Addison Street, and balconies at 1950 Addison Street, which is under construction. 1935 Addison Street and 1950 Addison Street have structures intervening in between those properties and the project site, such as the adjacent municipal structure at 2100 Milvia Street. Given the height of the intervening structures compared to the height of construction equipment, construction noise to 1935 Addison Street and 1950 Addison Street would be heavily shielded by existing structures and would experience negligible construction noise.

One concrete saw and one bulldozer would generate a noise level of approximately 76 dBA $L_{eq}$ at 125 feet and 72 dBA $L_{eq}$ at 185 feet (see Appendix NOI). This would exceed the 65 dBA $L_{eq}$ limit for stationary equipment for R-3 zones such as the Martin Luther King. Jr. Civic Center Park and the rooftop balcony of 2002 Addison Street.

Interior noise levels from general construction activities, with a typical 20 dBA exterior-to-interior noise attenuation, would result in noise levels of 64 dBA $L_{eq}$ at the commercial structure and 56 dBA $L_{eq}$ at the nearest multi-family residences, which would not exceed the 70 dBA commercial limit and 65 dBA $L_{eq}$ multi-family residential limit for stationary equipment.

As described above in the *Regulatory Setting* section, the Berkeley Municipal Code limits construction noise from stationary equipment at affected properties to 60 dBA $L_{eq}$ on weekdays and 50 dBA $L_{eq}$ on weekends and holidays in the R-3 zoning district. It is anticipated that noise from construction of the proposed project would exceed these limits without implementation of noise reduction measures.

However, implementation of Mitigation Measure N-1 would require reduced construction hours and additional measures that would reduce construction noise. Adherence to the requirements of Mitigation Measure N-1 would ensure that construction noise occurs within reduced daytime hours and that that noise levels would be reduced to the extent feasible. Therefore, construction would not occur during normal sleeping hours for residents, which are the most sensitive time for exposure to noise. In addition, construction activities associated with the project would be temporary and consistent with typical construction projects in an urban area such as the project site. Therefore, impacts from general construction activities would be less than significant with mitigation.

### *Foundation Pile Construction*

The nearest exterior area frequently used by humans to foundation pile construction activities would be the plaza area of Martin Luther King. Jr. Civic Center Park. An impact pile driver would generate a noise level of approximately 88 dBA $L_{eq}$ at 100 feet (see Appendix NOI). This would exceed the 65 dBA $L_{eq}$ limit for stationary equipment for R-3 zones. Therefore, impacts from impact pile driving to exterior areas would be potentially significant. Additionally, interior noise levels from impact pile driver construction activities, with a typical 20 dBA exterior-to-interior noise attenuation, would result in an interior noise level of 82 dBA $L_{eq}$. This would exceed the 70 dBA commercial limit and Mitigation Measure N-2 would be required. Impacts from foundation pile construction activities would be less than significant with implementation of Mitigation Measure N-

2, as the use of drilled piles or other activity verified by a qualified acoustician would ensure construction noise would not exceed the applicable standards.

An auger drill rig would generate a noise level of 71 dBA $L_{eq}$ at 100 feet; this would exceed the 65 dBA $L_{eq}$ limit and impacts from drilled piles to Martin Luther King. Jr. Civic Center Park and to the rooftop area of 2002 Addison Street would be potentially significant. Interior noise from use of an auger drill rig would generate an interior noise level of 65 dBA $L_{eq}$ at 20 feet; this would not exceed the 70 dBA $L_{eq}$ limit and impacts from drilled piles to interior areas would be less than significant.

### *Traffic Noise*

According to the CalEEMod outputs for air quality and GHG emissions (Appendix AQ), the 200 days when building construction and architectural coating phases would overlap would generate the greatest number of daily vehicle trips, with a total of 30 worker trips that would occur per day and 10 total vendor trips, or less than one per day, assuming that vendor trips would be spread evenly over the 523 days of the building construction phase. Therefore, the building construction phase would involve up to 31 daily trips. Milvia Street has a reported volume of 5,440 daily trips (City of Berkeley 2000). Project construction would result in a less than one percent increase in daily trips, which would be less than a doubling of existing traffic (i.e., a 3 dBA barely perceptible noise increase), resulting in a negligible increase in in traffic noise from construction trips. Therefore, noise impacts from construction traffic would be less than significant.

## Operation

Project operation would generate noise similar to and consistent with neighboring uses in downtown Berkeley, such as traffic, loading, and mechanical equipment noise.

### *Traffic Noise*

As described in Section 17, *Transportation*, the project site would generate an increase of 564 daily trips[6] (Appendix TRA). Generally, a doubling of traffic volume results in a 3 dBA increase, which is considered barely perceptible to humans. Based on existing traffic volumes in the vicinity (5,440 daily trips on Milvia Street; City of Berkeley 2000), the project would cause a 10 percent increase in the existing traffic.[7] The resultant noise increase in the vicinity would be less than 1 dBA. Therefore, project trips would not result in perceptible increases in traffic noise levels. Impacts would be less than significant.

### *Stationary Noise*

The project's primary stationary noise generator would be mechanical equipment and the emergency generator proposed on the roof level. The emergency generator would be located within a Level 2 Sound Attenuation enclosure, resulting in a noise level of 78 dBA at 23 feet. The generator would be tested for 30 minutes each month, per National Fire Protection Association 110 standards. In addition, the generator would only be tested during the daytime hours. The generator would have a noise level of 60 dBA at 175 feet (the distance between the approximate location of the generator and the nearest multi-family residences), which is below the 60 dBA daytime noise threshold for multi-family residential uses. The generator would have a noise level of 73 dBA at 40 feet (the distance between the approximate location of the generator and the site's western

[6] 1,282 daily trips to the project site multiplied by 44 percent, which accounts for the estimated 41 percent transit and 15 percent bicycle or pedestrian modes of travel.
[7] 564 project trips divided by 5,440 existing trips is a 10 percent increase in trips.

property line), which is above the 65 dBA daytime noise threshold for commercial receptors. However, as shown on Figure 10, the mechanical equipment area, including where the emergency generator would be stored, is surrounded by walls, which would reduce the generator's noise by at least 15 dBA (World Health Organization 1999), to 58 dBA, which would be below the 65 dBA daytime noise threshold for commercial receptors. Impacts would be less than significant.

## Mitigation Measures

### *NOI-1 Construction Noise Reduction Measures*

**Construction Hours**. Construction activity shall be limited to between the hours of 7:00 a.m. and 6:00 p.m. on Monday through Friday, and between 9:00 a.m. and 5:30 p.m. on Saturday. No construction-related activity shall occur on Sunday or any Federal Holiday.

**Construction Noise Reduction Program**. The applicant shall develop a site-specific noise reduction program prepared by a qualified acoustical consultant to reduce construction noise impacts to the extent feasible, subject to review and approval of the District and DSA. The noise reduction program shall include the time limits for construction listed above, and measures needed to ensure that construction noise does not exceed the thresholds identified in Berkeley Municipal Code Section 13.40.070, which are applicable to off-site receptors within the City. The noise reduction program should include, but shall not be limited to, the following available controls to reduce construction noise levels as low as practical:

- Construction equipment shall be well maintained and used judiciously to be as quiet as practical.
- Internal combustion engine-driven equipment shall be equipped with mufflers, which are in good condition and appropriate for the equipment.
- "Quiet" models of air compressors and other stationary noise sources shall be used, where technology exists. Hydraulically- or electrically-powered equipment shall be selected and pneumatically-powered equipment shall be avoided where feasible.
- Stationary noise-generating equipment shall be located as far as possible from sensitive receptors when adjoining construction sites. Temporary noise barriers or partial enclosures shall be constructed to acoustically shield such equipment where feasible.
- Unnecessary idling of internal combustion engines shall be prohibited.
- Solid plywood fences shall be constructed around construction sites adjacent to noise-sensitive land uses where the noise control plan analysis determines that a barrier would be effective at reducing noise.
- Temporary noise control blanket barriers, if necessary, shall be erected along building facades facing construction sites. This measure would only be necessary if conflicts occurred which were irresolvable by proper scheduling. Noise control blanket barriers can be rented and quickly erected.
- Construction-related traffic shall be routed along major roadways and away from sensitive receptors where feasible.

The District shall ensure that all feasible noise reduction measures are used during construction by including language in the construction contract that requires implementation of the above measures.

### *NOI-2 Foundation Pile Noise and Vibration Reduction Measures*

The District shall require the construction contractor to implement one of the following measures to ensure that foundation pile construction activities do not exceed construction noise limits in Berkeley Municipal Code Section 13.40.070, and 0.24 in/sec PPV at adjacent buildings and nearby sensitive receivers:

- Use of an impact or sonic pile driver shall not occur;
- Use of drilled piles only with temporary noise barriers and/or blankets; or
- If an alternative method for foundation piles is proposed other than drilled piles (e.g., micro piles), the method shall be reviewed by a qualified acoustician to ensure that noise and vibration levels do not exceed the City's noise and vibration standards. The analysis shall be performed prior to project approval from the DSA.

The District shall ensure that all feasible noise and vibration reduction measures are used during construction by including language in the construction contract that requires implementation of the above measures.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?*

## General Construction

The greatest anticipated source of vibration during general project construction activities (note this does not include pile driving) would be from a large bulldozer, which may be used within 20 feet of the nearest structures when accounting for setbacks. A dozer creates approximately 0.089 in/sec PPV at a distance of 25 feet (Caltrans 2020a). This would equal a vibration level of 0.114 in/sec PPV at a distance of 20 feet.[8] This would be lower than what is considered a distinctly perceptible impact for humans of 0.24 in/sec PPV, and the structural damage impact for "historic and some old buildings" of 0.25 in/sec PPV. However, this would be greater than the 0.1 in/sec PPV threshold for fragile buildings. While the adjacent municipal structure to the west is considered to be historic (see Section 5, *Cultural Resources*), the structure does not appear to be in a fragile condition, as it is six stories tall with no visible damage or deterioration present from the exterior of the building, and is listed as having a high integrity (City of Berkeley 2009b). Therefore, temporary vibration impacts associated with general construction activities would be less than significant.

## Foundation Pile Construction

The FTA provides vibration levels for pile driving and drilling as shown in Table 24. As shown therein, vibration levels from pile driver can vary widely depending on the type of pile driving, from as low as 0.170 in/sec PPV for typical sonic pile driving to 1.518 in/sec PPV for the upper range of impact pile driving (FTA 2018). Caisson drilling as referenced by the FTA is the same technique as drilled piles for the project foundations (i.e., it involves drilling holes into the ground and filling the holes with concrete to use as the foundation).

For the most conservative pile driving scenario of the upper range of an impact pile driver, the pile driving would generate a vibration level of 1.942 in/sec PPV at 20 feet. For the upper range of sonic

[8] $PPV_{Equipment} = PPV_{Ref} (25/D)^n$ (in/sec); $PPV_{Ref}$ = reference PPV at 25 feet, D = distance, and n = 1.1

pile driving, this would generate a vibration level of 0.938 in/sec PPV at 20 feet. These would both exceed the distinctly perceptible impact for humans of 0.24 in/sec PPV, and the structural damage impact for "historic and some old buildings" of 0.25 in/sec PPV. Therefore, if impact or sonic pile driving is used, impacts from vibration would be potentially significant and Mitigation Measure N-2 would be required.

**Table 24 Vibration Levels Measured during Construction Activities**

| Equipment | | PPV at 25 feet (inches/second) |
|---|---|---|
| Pile Driver (impact) | Upper range | 1.518 |
| | Typical | 0.644 |
| Pile Driver (sonic) | Upper range | 0.734 |
| | Typical | 0.170 |
| Caisson Drilling | | 0.089 |
| Source: FTA 2018 | | |

A caisson drill at 20 feet would generate a vibration level of 0.114 in/sec PPV at a distance of 20 feet.[9] This would be lower than what is considered a distinctly perceptible impact for humans of 0.24 in/sec PPV, and the structural damage impact for "historic and some old buildings" of 0.25 in/sec PPV. Therefore, temporary vibration impacts associated with drilled piles would be less than significant.

## Operation

Project operation would not include substantial vibration sources. Therefore, operational vibration impacts would be less than significant.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

The nearest public airport to the project is the Oakland International Airport located approximately 10 miles south. The project site is not located in the Airport Influence Area or noise compatibility zones (County of Alameda 2010). Because the project is located outside the noise contours of the Oakland International Airport, and no other airports are located nearby, the project would not expose people residing or working in the project area to excessive aircraft-related noise. There would be no impact.

**NO IMPACT**

[9] $PPV_{Equipment} = PPV_{Ref} (25/D)^n$ (in/sec); $PPV_{Ref}$ = reference PPV at 25 feet, D = distance, and n = 1.1

# 14 Population and Housing

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)? | ☐ | ☐ | ■ | ☐ |
| b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ■ |

*a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

The project would support the projected 2.4 percent annual student enrollment increase at Berkeley City College through 2040 but would not directly result in population growth through the construction of housing. The project would serve the existing campus community and future enrollment projections and would not impact housing availability or demand. The project would not include or require new roads and other infrastructure that could facilitate growth, because it is located on a site already served by existing infrastructure. Therefore, the proposed project would not induce population growth. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

The project would involve demolition of the existing vacant non-residential structure. The project would not displace existing residents or housing. It should be noted that persons experiencing homelessness sometimes use the alcoves in the existing building's street frontage for shelter. As these alcoves are not housing units, and their use is temporary, removal of the alcoves through building demolition and replacement would not displace existing residents or housing. Nevertheless, the District would work with the City of Berkeley's Health, Housing & Community Services Division if services for these individuals are needed prior to demolition. No impact would occur.

**NO IMPACT**

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# 15 Public Services

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| 1 Fire protection? | □ | □ | ■ | □ |
| 2 Police protection? | □ | □ | ■ | □ |
| 3 Schools? | □ | □ | □ | ■ |
| 4 Parks? | □ | □ | □ | ■ |
| 5 Other public facilities? | □ | □ | ■ | □ |

*a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?*

The Berkeley Fire Department (BFD) provides emergency response and public safety services to the project site and vicinity. BFD is located at 2100 Martin Luther King Jr Way, one block west of the project site. Project construction and operation would increase the demand for fire protection and emergency medical services through the increase in traffic, density, and building heights associated with the proposed project. However, the project is required to meet standard California building and fire code requirements, which would be confirmed during DSA review and approval of the project. These requirements would reduce the demand on fire protection services through enhanced on-site fire safety features, including sprinklers and alarm systems.

The project would not modify existing roadways or emergency access routes although temporary closure of on-street parking and temporary realignment of driving lanes may be required during construction. The new structure would replace an existing one, would be required to comply with applicable building and fire codes, and therefore could be served by BFD in the event of an emergency. The project would not require BFD to physically alter or construct new facilities that could result in an environmental impact. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?*

The project site is within the service area of and is currently serviced by the Berkeley Police Department. The project would not create excessive demand for police services or introduce development to areas outside of normal service range that would necessitate new police protection facilities. Moreover, as described in Section 14, *Population and Housing*, the project would not induce population growth. The proposed project would thus not create the need for new or expanded police protection facilities and impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?*

*a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?*

The project would not involve the construction of housing or other facilities and would not induce population growth. The project would not result in the need for new schools or parks or result in the physical deterioration of existing schools or parks. No impact would occur.

**NO IMPACT**

*a.5. Would the project result in substantial adverse physical impacts associated with the provision of other new or physically altered public facilities, or the need for other new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?*

The environmental impacts associated with the project are discussed throughout the Initial Study. The project would not involve the construction of housing or other facilities. No population growth would be induced by the project; however, the increase in students accommodated by the project may use City or other local libraries, in addition to existing library facilities located on Floor 1 of the main campus building at 2050 Center Street. Students also have the option to pay for a six-month library card to access materials at the University of California, Berkeley library (Berkeley City College 2021). The Berkeley Public Library serves a population of more than 121,240 (Berkeley Public Library 2021). The project would support the projected 2.4 percent annual student enrollment increase, and considering the College's existing enrollment of 1,491, this increase in enrollment would not result in a substantial increase in library usage and the project would not result in the need for new public library facilities or the physical deterioration of existing library facilities. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

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# 16 Recreation

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | ☐ | ☐ | ☐ | ■ |
| a. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | ☐ | ☐ | ☐ | ■ |

*a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

*b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

The project would not involve the construction of new housing, nor would it involve new businesses. Therefore, the proposed project would not lead directly or indirectly to an increase in population that would generate greater demand for regional parks or other recreational facilities. No new recreational facilities are proposed. There would be no impacts related to recreation from the proposed project.

**NO IMPACT**

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# 17 Transportation

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? | □ | □ | ■ | □ |
| b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? | □ | □ | ■ | □ |
| c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)? | □ | □ | ■ | □ |
| d. Result in inadequate emergency access? | □ | □ | ■ | □ |

*a. Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

The project would support the projected 2.4 percent annual student enrollment increase at the College by 2040. Increases in vehicle, transit, bicycle, and pedestrian trips would result from anticipated enrollment increases that would be accommodated by the project. The project would slightly modify travel patterns, as trips that are associated with the existing annex at 2000 Center Street would be relocated to the 2118 Milvia Street location. The project's estimated trip generation and the anticipated growth is provided in Table 25. However, these numbers do not take into account the use of transit, bicycling, walking, and other modes of transportation. Table 26 provides the College's trip generation by mode of transportation.

The project is not directly adjacent to existing or planned transit facilities on Center or Milvia streets and would not conflict with nearby transit routes that could result in hazardous conditions or transit delays. While there would be a net increase of 189 AM and 179 PM peak hour vehicle trips, these trips would be dispersed throughout Downtown Berkeley, and thus would not conflict with existing or planned transit operations. The cumulative net increase of 194 AM and 183 PM peak hour transit riders constitute approximately 6 percent of the existing seating capacity on AC Transit bus routes and BART lines serving the project area (Appendix TRA). This increase would likely be accommodated by the existing transit capacity, which typically includes seats and standees. For these reasons, the proposed project would have a less than significant impact to transit.

### Table 25 Berkeley City College Trip Generation

| Scenario | Daily Trips | Total AM Peak Hour Trips | Total PM Peak Hour Trips |
|---|---|---|---|
| **Existing (2020)** | **2,993** | **779** | **736** |
| **Existing Plus Project (2020)** | | | |
| 2050 Center Street | 2,195 | 572 | 539 |
| 2118 Milvia Street | 798 | 207 | 197 |
| *Total* | *2,993* | *779* | *736* |
| **Cumulative Year (2040) Total** | | | |
| 2050 Center Street | 3,527 | 918 | 866 |
| 2118 Milvia Street | 1,282 | 334 | 315 |
| *Total* | *4,810* | *1,252* | *1,182* |
| **Net Change from 2020 to 2040 Total** | | | |
| 2050 Center Street | 534 | 139 | 130 |
| 2118 Milvia Street | 1,282 | 334 | 315 |
| *Total* | *1,816* | *473* | *445* |

Source: Appendix TRA

### Table 26 Berkeley City College Trip Generation by Mode of Transportation

| | | Year 2020 | | | Year 2040 | | | Net Change | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mode of Travel | Percent | Daily | AM | PM | Daily | AM | PM | Daily | AM | PM |
| Drive and Park | 36 | 1,733 | 280 | 265 | 2,784 | 451 | 425 | 1,052 | 170 | 161 |
| Pick-up/Drop-off | 4 | 193 | 31 | 29 | 309 | 50 | 47 | 117 | 19 | 18 |
| Transit | 41 | 1,973 | 319 | 301 | 3,171 | 513 | 484 | 1,198 | 194 | 183 |
| Bike or Walk | 15 | 722 | 117 | 110 | 1,160 | 188 | 177 | 438 | 71 | 67 |
| Other | 4 | 193 | 31 | 29 | 309 | 50 | 47 | 117 | 19 | 18 |
| **Total** | **100** | **4,814** | **778** | **734** | **7,734** | **1,252** | **1,180** | **2,922** | **473** | **447** |
| ***Vehicle Trips*** | | ***1,926*** | ***311*** | ***294*** | ***3,093*** | ***501*** | ***472*** | ***1,169*** | ***189*** | ***179*** |

Source: Appendix TRA

The proposed project is located directly adjacent to a Class III bike route on Milvia Street and near Class II bike lanes on Center Street (east of Milvia Street). The project would not include on-site parking that would otherwise concentrate vehicle traffic to a specific driveway, and thus would not increase potential conflicts with nearby bicycle access. To encourage and accommodate alternative modes of travel, the proposed project would provide secure bicycle parking on the building's first floor adjacent to the main entrance. There would be increased pedestrian trips between the project site and 2050 Center Street. These pedestrian trips would be adequately and safely accommodated by the existing pedestrian facilities at the Center Street/Milvia Street intersection, which has high visibility crosswalks and pedestrian signal heads on all four legs of the intersection. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

b. *Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?*

Effective July 1, 2020, SB 743 requires all CEQA lead agencies to establish VMT as the metric replacing level of service for evaluating CEQA traffic and transportation impacts. The District has not established VMT per capita thresholds for its uses as there is no available data, and any assumptions would be speculative. The Governor's Office of Planning and Research (OPR) guidance establishes that a project that is located in a TAZ generating VMT per capita at least 15 percent below regional averages would have a less than significant impact (OPR 2018). It also recommends that lead agencies screen out VMT impacts for projects located within 0.5 mile of an existing major transit stop or an existing stop along a high-quality transit corridor.[10]

The Transportation Memorandum (Appendix TRA) used the ACTC Countywide Travel Demand Model to determine the average VMT per capita consistent with SB 743 guidance from the OPR. Since the model does not provide VMT for educational land uses, the analysis utilized its office designation as a proxy land use to determine an average VMT per employee. As shown in Table 27, the average daily VMT per employee in TAZ 59 where the project site is located is 9.5, which is below the citywide average less 15 percent or countywide average less 15 percent thresholds under both existing (2020) and cumulative (2040) conditions. Because the proposed project would generate vehicle trips in an area with relatively low VMT, it would not have an adverse effect related to VMT. Furthermore, the proposed project would be located within 0.5 mile of a major transit stop, which would reduce the proposed project's vehicle trips and associated VMT.

**Table 27 Year 2020 VMT per Employee**

| Region | Regional Average Existing (Cumulative) | Regional Average Less 15% Existing (Cumulative) | TAZ 59 |
|---|---|---|---|
| City of Berkeley | 22.9 (24.4) | 19.5 (20.7) | 9.5 |
| Alameda County | 28.5 (29.1) | 24.2 (24.6) | |

Source: Appendix TRA

The project site is in a low-VMT zone and within 0.5 mile from a major transit stop, and it would not generate net new trips under the Existing plus Project condition. Therefore, the proposed project would result in less than significant impacts related to VMT.

**LESS THAN SIGNIFICANT IMPACT**

c. *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?*

d. *Would the project result in inadequate emergency access?*

The project would not modify access to the project site or otherwise obstruct emergency vehicles attempting to access the site or surrounding area, although temporary closure of on-street parking and temporary realignment of driving lanes may be required during construction. As described in Section 9, *Hazards and Hazardous Materials*, criterion (f), temporary lane realignment would keep both travel lanes open and would not interfere with the use of emergency evacuation routes or

[10] Major transit stop includes an existing rail transit station or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods (PRC Section 21064.3). A high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (PRC Section 21155).

require vehicle detours. The project would not modify existing roadways or introduce a geometric design feature that would pose a substantial safety hazard to vehicles, bicyclists, or pedestrians. While the project would result in a net increase of 189 AM and 179 PM peak hour vehicle trips, these trips would be dispersed throughout Downtown Berkeley, and thus would not obstruct the movement of emergency vehicles in the project area. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

# 18 Tribal Cultural Resources

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: | | | | |
| a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or | ☐ | ■ | ☐ | ☐ |
| b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | ☐ | ■ | ☐ | ☐ |

On July 1, 2015, AB 52 was enacted. The law expands CEQA by defining a new resource category, tribal cultural resources. AB 52 establishes that “a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment” (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and is:

1. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

*a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?*

*b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?*

No tribes have requested consultation from the District pursuant to Public Resources Code Section 21080.3.1. Although no tribal cultural resources are expected to be present on the site, there is the possibility of encountering undisturbed subsurface tribal cultural resources. Grading the project site could potentially result in significant impacts on unanticipated tribal cultural resources. Mitigation Measure TCR-1 would reduce impacts on unidentified tribal cultural resources to a less than significant level.

## Mitigation Measure

### *TCR-1 Unanticipated Discovery of Tribal Cultural Resources*

In the event that cultural resources of Native American origin are identified during construction, all earth-disturbing work within 50 feet of the find must be temporarily suspended or redirected until an archaeologist has evaluated the nature and significance of the find and an appropriate Native American representative, based on the nature of the find, is consulted. If the District, in consultation with local Native Americans, determines the resource is a tribal cultural resource and thus significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with Native American groups. The plan would include avoidance of the resource or, if avoidance of the resource is infeasible, the plan would outline the appropriate treatment of the resource in coordination with the archeologist, if applicable, and the appropriate Native American tribal representative.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

# 19 Utilities and Service Systems

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | ☐ | ☐ | ■ | ☐ |
| b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? | ☐ | ☐ | ■ | ☐ |
| c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ■ | ☐ |
| d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? | ☐ | ☐ | ■ | ☐ |
| e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? | ☐ | ☐ | ■ | ☐ |

The site is served by the EBMUD for water supply, and the City of Berkeley for wastewater, stormwater, and solid waste services. PG&E provides natural gas service, PG&E and EBCE provide electricity service, and AT&T and Comcast provide telecommunications services.

a. *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?*

## Water

EBMUD would provide potable water to the project, as it does to other commercial, institutional, and residential customers in the project area. A total of 90 percent of EBMUD's water supply is sourced from the Mokelumne River Watershed, and the remaining 10 percent comes from protected watershed lands and reservoirs in the East Bay Hills (EBMUD 2016). EBMUD's water supply system was designed and constructed to deliver 325 million gallons per day (MGD), and has a surplus capacity of 95 MGD in the highest water demand year. The proposed project would increase demand for water above existing conditions on the project site. The project's estimated water generation would be approximately 6.96 million gallons per year (Appendix AQ), or approximately 19,061 gallons per day (GPD), which is approximately 0.02 percent of EBMUD's surplus water capacity during the highest water demand year. Therefore, EBMUD's water supply system has sufficient capacity to serve the project from existing entitlements and resources and no new or expanded water facilities would be required as a result of the project. This would be a less than significant impact.

## Wastewater

The City of Berkeley would provide wastewater conveyance services for wastewater generated on the project site. The City's collection system includes approximately 254 miles of sanitary sewers that convey wastewater to EBMUD's interceptor system and treatment plant (City of Berkeley 2019). EBMUD services approximately 685,000 customers along the eastern shore of the San Francisco Bay. Wastewater from East Bay communities goes to EBMUD's treatment plant in Oakland which can provide primary treatment for up to 320 MGD. The plant has a maximum flow of 168 MGD and an average of about 63 MGD (EBMUD 2021). The project's estimated wastewater generation would be approximately 5.56 million gallons per year (assuming water use is approximately 120 percent of wastewater generation), or approximately 15,233 GPD. This would represent less than one percent of EBMUD's remaining treatment capacity. Therefore, the proposed project would not require the construction of new municipal wastewater treatment facilities or impact the treatment capacity of existing municipal wastewater treatment providers. Impacts to wastewater treatment facilities would be less than significant.

## Stormwater

As discussed under Section 10, *Hydrology and Water Quality*, modifications to existing stormwater drainage facilities serving the project site would not be required as a result of the project. The area surrounding the project site is urbanized and largely consists of impervious surfaces, including structures, parking lots, and roadways. Stormwater runoff generated by the proposed project would be collected by drainage inlets and conduits and conveyed to the San Francisco Bay, as under current conditions. The proposed project would modify the on-site drainage pattern; however, project drainage alterations would not result in a substantial change, as runoff would continue to flow to existing stormwater drains. The project site is entirely covered by impervious surfaces, and the proposed project would maintain the total area of impervious surfaces, as the existing building would be demolished and replaced with the proposed building with approximately the same lot coverage. The proposed project would not substantially alter the existing drainage pattern of the site or area and would not substantially increase the rate of surface runoff in a manner which would exceed capacity of the existing stormwater system. The proposed project would not require the construction of new off-site stormwater drainage facilities or expansion of existing facilities. Impacts would be less than significant.

## Electricity, Natural Gas, and Telecommunications

A significant impact to electricity, natural gas, and telecommunications facilities may occur if a project's demand for these services exceeds the capacity of local providers. The proposed structure would not use natural gas, as described in Section 4, *Project Characteristics*, operation of the new structure would be all electric, consistent with the College's Sustainability and Resiliency Strategy and the Berkeley Municipal Code Chapter 12.80. EBCE would provide electricity to the site using transmission infrastructure operated and maintained by PG&E. EBCE would provide carbon-free and renewable energy to the project through the Brilliant 100 program (EBCE 2020). The project would include the installation of solar panels on the roof, which would decrease the total electricity demand. The project would also include an on-site diesel emergency generator on the sixth floor of the building, in the mechanical equipment area. The generator would not be run daily and would only be utilized during power outages and for routine testing.

Telecommunication facilities are readily available in the area. Companies such as AT&T or Comcast would serve the project site. The site occurs in a developed and urban area where AT&T and Comcast have existing infrastructure that has adequate capacity to service the proposed project. The project would not require extension or construction of new telecommunication facilities.

Therefore, the project would not result in the relocation or construction of an electricity, natural gas, or telecommunications facility. Impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

*b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

As described above, EBMUD would provide water service to the project. EBMUD's 2015 Urban Water Management Plan addresses the district's water system and includes descriptions of water supply sources, water use, comparisons of supply and demand during dry years. Per the Urban Water Management Plan, normal year, single dry year, and multiple dry year supply and demand comparisons are shown in Table 28.

Table 28 shows that EBMUD's projected water supplies are sufficient to meet projected demands during normal, dry, and second dry year conditions, with planned rationing (between 5 and 7 percent in the single dry year scenario and 20 percent in the second dry year). During a severe drought condition, under the third dry year scenario, EBMUD will not have adequate supplies and would need to impose mandatory water use restrictions (EBMUD 2016). To address this unmet water demand in the third dry year scenario, EBMUD has identified several strategies, including obtaining supplemental supplies, developing a water transfer program to secure dry-year water supply, investigating the potential for a desalination project, developing the bayside groundwater project, investigating long-range groundwater banking and exchange, expanding surface water storage, and partnering with other agencies to develop integrated water management strategies to supplement supplies (EBMUD 2016). These strategies, coupled with EBMUD's Water Shortage Contingency Plan, conservation policies, and other programs implemented by EBMUD, would ensure EBMUD is able to provide water even in multiple dry year scenarios. Therefore, there would be adequate water supply to server the project in normal, dry, and multiple dry years. This impact would be less than significant.

**Table 28 EBMUD Supply and Demand in Million Gallons Per Day for a Normal, Single**

| | Year | | | | |
|---|---|---|---|---|---|
| **Dry Years** | **2020** | **2025** | **2030** | **2035** | **2040** |
| **Normal Year** | | | | | |
| Supply Totals | 217 | 218 | 222 | 229 | 230 |
| Demand Totals | 217 | 218 | 222 | 229 | 230 |
| Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| **Single Dry Year** | | | | | |
| Supply Totals | 204 | 205 | 209 | 214 | 214 |
| Demand Totals | 203 | 204 | 208 | 213 | 214 |
| Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| **Second Dry Year** | | | | | |
| Supply Totals | 174 | 174 | 178 | 183 | 184 |
| Demand Totals | 174 | 174 | 178 | 183 | 184 |
| Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| **Third Dry Year** | | | | | |
| Supply Totals | 174 | 173 | 166 | 162 | 145 |
| Demand Totals | 174 | 174 | 178 | 183 | 184 |
| Unmet Demand | 0 | 2 | 13 | 24 | 48 |

Source: EBMUD 2016

**LESS THAN SIGNIFICANT IMPACT**

c. *Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

As described in response to criterion (a), above, the project's estimated wastewater generation would be approximately 5.56 million gallons per year (assuming water use is approximately 120 percent of wastewater generation), or approximately 15,255 GPD. This would represent less than 1 percent of EBMUD's remaining treatment capacity. Therefore, the proposed project would be served by wastewater facilities that have adequate capacity to serve the project in addition to the City's existing wastewater treatment commitments. There would be a less than significant impact.

**LESS THAN SIGNIFICANT IMPACT**

d. *Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*

e. *Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

The City's Zero Waste Division provides all commercial refuse, recycling, and compost collection service for Berkeley businesses. Solid waste from the project site would be directed from the City's Transfer Station to the Altamont Landfill located approximately 45 miles east. The Altamont Landfill has a maximum permitted capacity of 124,400,000 cubic yards and an estimated ceased operation date of December 2070. As of June 2016, the remaining capacity was roughly 65,400,000 cubic yards with a maximum permitted throughput of 11,150 tons/day.

Using an estimated solid waste generation rate provided by CalEEMod for a junior college (2 year) land use, the proposed project would result in an increase of approximately 430 pounds of solid waste per day, or 78 tons per year (Appendix AQ). This represents approximately 0.002 percent of the permitted daily throughput of the landfill. This does not represent a substantial increase in waste at for the Altamont Landfill and the project would not be served by a site without sufficient capacity.

Berkeley City College maintains a Sustainability and Resiliency Strategy (2018), which the proposed project would comply with. This Strategy includes measures that would achieve the College's sustainability goals. These include goal SW-2 which seeks to convert from single stream to dedicated recycling and provide dedicated recycling and compost receptacles on campus to increase waste diversion rates. It also includes goal SW-11 which establishes zero waste stations and provides facilities that allow for the proper sorting of waste, including bins for trash, recycling and compost, with visually compelling signage in high-traffic areas.

Therefore, the project would not generate solid waste beyond the capacity of local infrastructure and complies with Berkeley waste reduction regulations. The project would have a less than significant impact.

**LESS THAN SIGNIFICANT IMPACT**

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# 20 Wildfire

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project: | | | | |
| a. Substantially impair an adopted emergency response plan or emergency evacuation plan? | □ | □ | ■ | □ |
| b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? | □ | □ | ■ | □ |
| c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? | □ | □ | □ | ■ |
| d. Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? | □ | □ | ■ | □ |

The project site is not located in a state responsibility area or very high fire hazard severity zone for wildland fires. However, the site is located approximately 0.8 mile west of a very high fire hazard severity zone (California Department of Forestry and Fire Protection 2008).

*a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?*

The project site is within Zone 41 of the City's Wildfire Evacuation Plan, and outside the City's designated Hillside Fire Zone (City of Berkeley 2020). No roads would be permanently closed because of the proposed project although temporary closure of on-street parking and temporary realignment of driving lanes may be required during construction, and no structures would be developed that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The proposed project would be accessible from Milvia Street and Center Street, which are listed as emergency access and evacuation routes, in addition to other streets surrounding the project site. These roadways provide sufficient ingress/egress for typical passenger vehicles that would access the project site and surrounding areas. Project implementation would not interfere with existing emergency evacuation plans or emergency response plans in the area. Therefore, impacts would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

b. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*

The project site is relatively flat, with an elevation of approximately 170 feet above mean sea level. Surrounding areas are also relatively flat, or gently sloped, with steeper hillsides located east of the project site and east of Gayley Road. In the project vicinity, prevailing wind blows to the southwest (National Oceanic and Atmospheric Administration 2020). Due to the presence of nearby slopes and wind direction, which could carry fires down slopes toward the site, the project could expose project occupants to wildfire impacts. However, building code fire safety requirements and project design review by the DSA would require the provision of fire suppression water, promote early warning fire alarm systems, require building maintenance to protect against fire risk, and require smoke detector and fire extinguisher installation. Required compliance with building code fire safety requirements would reduce this impact to a less than significant level.

**LESS THAN SIGNIFICANT IMPACT**

c. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

The project would not involve the construction of new roads or the extension of utilities that could exacerbate wildfire risk or result in temporary or ongoing impacts to the environment. The project would be required to comply with building code and fire safety requirements. No impact would occur.

**NO IMPACT**

d. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

The project would introduce people to the project site, which is located near a very high fire hazard severity zone. The site is relatively flat and not located adjacent to steep slopes; therefore, the risk of downslope flooding or landslides at the site is minimal. Additionally, the site is currently fully paved and developed with a structure, which would be demolished and replaced with a new structure that has a similar footprint on the site. Therefore, runoff and drainage on the site would not be substantially altered by the project. Therefore, this impact would be less than significant.

**LESS THAN SIGNIFICANT IMPACT**

# 21 Mandatory Findings of Significance

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| Does the project: | | | | |
| a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☐ | ■ | ☐ | ☐ |
| b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | ☐ | ■ | ☐ | ☐ |
| c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ■ | ☐ | ☐ |

*a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

As noted in Section 5, *Cultural Resources*, and Section 7, *Geology and Soils*, no historical, archeological, or paleontological resources were identified on the project site. Nevertheless, the potential for the discovery of buried cultural materials during development activities remains. Implementation of Mitigation Measures CUL-1 through CUL-3 would reduce impacts to previously undiscovered archaeological resources to a less than significant level and Mitigation Measure GEO-2 would reduce impacts to previously undiscovered paleontological resources to a less than significant level by providing a process for evaluating and, as necessary, avoiding impacts to resources found during construction. Mitigation Measures BIO-1 and BIO-2 in Section 4, *Biological Resources*, would reduce impacts to wildlife to less than significant levels.

As noted throughout the Initial Study, most other potential environmental impacts related to the quality of the environment would be less than significant or less than significant with implementation of mitigation measures.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

*b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

The City of Berkeley maintains a list of approved and pending projects in the project vicinity, which were considered as part of this cumulative impact analysis. This includes approximately 1,900 dwelling units, 64,000 square feet of commercial and retail uses, and hotels and recreational uses across 26 total pending and approved projects within 1 mile of the project site. Cumulative projects would be required to comply with the City's planning documents and Berkeley Municipal Code, in addition to standard City conditions of approval and required mitigation measures. As discussed in this Initial Study, the project would have no impact, a less than significant impact, or a less than significant impact after mitigation with respect to all environmental issues. As discussed in Section 3, *Air Quality*, and Section 8, *Greenhouse Gas Emissions,* the program would not exceed BAAQMD thresholds and implementation of Mitigation Measure AQ-1 would reduce potential construction fugitive dust impacts to a less than significant level. As discussed in Section 17, *Transportation,* the project would result in less than significant impacts to traffic flow and transportation systems in the vicinity of the site. The project would not result in substantial long-term environmental impacts and, therefore, would not contribute to cumulative environmental changes that may occur due to planned and pending development. Potential impacts of the project would not be cumulatively considerable.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Effects on human beings are generally associated with impacts related to issue areas such as air quality, geology and soils, noise, traffic safety, and hazards. As discussed in this Initial Study, with mitigation incorporated, the project would result in a less than significant impact in each of these resource areas. As discussed in Section 3, *Air Quality,* the project would not generate air quality pollutants below BAAQMD thresholds with implementation of Mitigation Measure AQ-1. As discussed in Section 7, *Geology and Soils,* with implementation of Mitigation Measure GEO-1, the project would not result in substantial soil erosion or loss of topsoil. As discussed in Section 9, *Hazards and Hazardous Materials*, the project would not create a significant hazard to the public or emit hazardous materials. As discussed in Section 13, *Noise*, with implementation of Mitigation Measures NOI-1 and NOI-2, noise and vibration impacts from project construction would be less than significant, and operational noise impacts would not exceed noise thresholds for adverse effects on human beings. As discussed in Section 17, *Transportation,* the project would not alter existing transportation infrastructure or have adverse impacts on traffic safety. The project would

not cause substantial adverse effects on human beings, either directly or indirectly. Impacts would be less than significant with mitigation.

**LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED**

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# References

## Bibliography


Alameda, County of. 2010. Oakland International Airport: Airport Land Use Compatibility Plan. September 2010. https://www.acgov.org/cda/planning/landuseprojects/documents/Draft_OAK_ALUCP_091510.pdf (accessed December 2020).

Association of Bay Area Governments (ABAG). 2019. Projections 2040 by Jurisdiction. http://projections.planbayarea.org/ (accessed December 2020).

Association of Environmental Professionals (AEP). 2016. Final White Paper Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California. October 18, 2016. https://califaep.org/docs/AEP-2016_Final_White_Paper.pdf (accessed December 2020).

Bay Area Air Quality Management District (BAAQMD). 2012. Understanding Particulate Matter: Protecting Public Health in the San Francisco Bay Area. November 2012. https://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Plans/PM%20Planning/ParticulatesMatter_Nov%207.ashx (accessed December 2020).

______. 2017a. Air Quality Standards and Attainment Status. January 5, 2017. https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status (accessed December 2020).

______. 2017b. 2017 Clean Air Plan. Adopted April 19, 2017. https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en (accessed December 2020).

______. 2017c. CEQA Air Quality Guidelines. May 2017. https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en (accessed December 2020).

______. 2019. Regulation 9, Rule 8 Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines. October. https://www.baaqmd.gov/rules-and-compliance/rules/reg-9-rule-8-nitrogen-oxides-and-carbon-monoxide-from-stationary-internal-combustion-engines (accessed March 2021).

Berkeley City College. 2009. Facilities Master Plan.

______. 2018. Berkeley City College Sustainability and Resiliency Strategy.

______. 2020. Berkeley City College Campus Expansion Diagram Plans.

______. 2021. UC Berkeley & Other Libraries. https://www.berkeleycitycollege.edu/wp/library/faculty-support/uc-berkeley-other-libraries/ (accessed April 2021).

Berkeley, City of. 2000. Average Total Daily Traffic Volume. Milvia Street. https://www.cityofberkeley.info/uploadedFiles/Public_Works/Level_3_-_General/TrafficVolumeMajor_Collector.pdf (accessed February 2021).

______. 2001. Berkeley Draft General Plan EIR. February 2001. https://www.cityofberkeley.info/Planning_and_Development/Home/BERKELEY_DRAFT_GENERAL_PLAN_EIR_-_Table_of_Contents.aspx (accessed December 2020).

______. 2003. City of Berkeley General Plan: A Guide for Public Decision Making (2003). https://www.cityofberkeley.info/Planning_and_Development/Home/General_Plan__A_Guide_for_Public_Decision-Making.aspx (accessed December 2020).

______. 2009a. Climate Action Plan. June 2009. https://www.cityofberkeley.info/climate/ (accessed December 2020).

______. 2009b. Downtown Historic Reconnaissance Survey. https://www.cityofberkeley.info/Planning_and_Development/Downtown_Area_Plan/dap_-_maps.aspx (accessed February 2021).

______. 2012. Downtown Berkeley Design Guidelines. https://www.cityofberkeley.info/ContentDisplay.aspx?id=14260 (accessed March 2021).

______. 2016. Berkeley Resilience Strategy. April 1, 2016. https://www.cityofberkeley.info/Resilience/ (accessed December 2020).

______. 2019. City of Berkeley Sewer System Management Plan. May 2019 https://www.cityofberkeley.info/uploadedFiles/Public_Works/Level_3_-_Sewers_-_Storm/2019-May%20Berkeley_SSMP%20Update_No%20App_05302019_WandC.pdf (accessed January 2021).

______. 2020. Hillside Fire Zones Map. https://www.arcgis.com/home/webmap/viewer.html?webmap=c83555684940467b9c103c12eb3ac3bf&extent=-122.3095,37.851,-122.2084,37.8925 (accessed December 2020).

Berkeley Public Library. 2021. About. https://www.berkeleypubliclibrary.org/about (accessed April 2021).

California Air Resources Board (CARB). 2008. Climate Change Scoping Plan. Sacramento, CA. December 2008.

______. 2017. California's 2017 Climate Change Scoping Plan. December 14, 2017. https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf (accessed September 2020).

______. 2018. EMFAC2017 Volume III – Technical Documentation v.1.0.2. July 20, 2018. https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf (accessed February 2021).

______. 2020a. "Overview: Diesel Exhaust & Health." https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health (accessed February 2021).

______. 2020b. EMFAC2017 Web Database v1.0.3. Available at: https://arb.ca.gov/emfac/emissions-inventory (accessed January 2021).

______. 2021. Summary: Diesel Particulate Matter Health Impacts. https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts (accessed February 2021).

California Department of Conservation. 2016. California Important Farmland Finder. https://maps.conservation.ca.gov/DLRP/CIFF/ (accessed December 2020).

California Department of Fish and Wildlife (CDFW). 2020a. Biogeographic Information and Observation System. https://wildlife.ca.gov/data/BIOS (accessed December 2020).

______. 2020b. NCCP Plan Summaries. Webpage. Last modified October 2017. https://www.wildlife.ca.gov/conservation/planning/nccp/plans (accessed December 2020).

California Department of Forestry and Fire Protection. 2008. Berkeley: Very High Fire Hazard Severity Zones in LRA. September 3, 2008. https://osfm.fire.ca.gov/media/5604/berkeley.pdf (accessed December 2020).

California Department of Toxic Substances Control (DTSC). 2020. Hazardous Waste and Substances Site List. https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST (accessed December 2020).

California Department of Transportation (Caltrans). 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol (CT-HWANP-RT-13-069.25.2). September 2013. https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf (accessed September 2020).

______. 2019. List of eligible and officially designated State Scenic Highways (XLSX). August 2019. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways (accessed March 2021).

______. 2020a. Transportation and Construction Vibration Guidance Manual (CT-HWANP-RT-20-365.01.01). April 2020. https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf (accessed September 2020).

______. 2020b. Traffic Noise Analysis Protocol. April 2020. https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/traffic-noise-protocol-april-2020-a11y.pdf (accessed March 2021).

California Energy Commission (CEC). 2019a. "California Energy Consumption Database." http://ecdms.energy.ca.gov/ (accessed December 2020).

______. 2019b. 2010-2019 CEC-A15 Results and Analysis. https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting (accessed December 2020).

______. 2019c. "2019 Building Energy Efficiency Standards." March 2018. https://www.energy.ca.gov/sites/default/files/2020-06/Title24_2019_Standards_detailed_faq_ada.pdf (accessed February 2021).

______. 2020a. "Electric Generation Capacity & Energy." https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation (accessed March 2021).

______. 2020b. Final 2019 Integrated Energy Policy Report. February 2020. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report (accessed December 2020).

______. 2020c. Oil Supply Sources to California Refineries. https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/oil-supply-sources-california-refinerie (accessed December 2020).

California Environmental Protection Agency. 2020a. List of solid waste disposal sites identified by Water Board. https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CurrentList.pdf (accessed December 2020).

______. 2020b. List of "active" CDO and CAO. https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5c/ (accessed December 2020).

California Geological Survey. 2003. Earthquake Zones of Required Investigation. Oakland West Quadrangle 2003. http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/OAKLAND_WEST_EZRIM.pdf

Crocker, Malcolm J. Crocker (Editor). 2007. Handbook of Noise and Vibration Control Book, ISBN: 978-0-471-39599-7, Wiley-VCH, October.

East Bay Community Energy (EBCE). 2019. 2020. "Our Power Mix." https://ebce.org/our-power-mix/ (accessed December 2020).

East Bay Municipal Utility District (EBMUD). 2016. 2015 Urban Water Management Plan. Adopted Jun 28, 2016. https://www.ebmud.com/water/about-your-water/water-supply/urban-water-management-plan/ (accessed December 2020).

______. 2021. Wastewater Treatment. https://www.ebmud.com/wastewater/collection-treatment/wastewater-treatment/ (accessed March 2021).

Federal Emergency Management Agency (FEMA). 2020. FEMA Flood Map Service Center: Search By Address. https://msc.fema.gov/portal/search?AddressQuery=2118%20milvia%20street%2C%20berkeley#searchresultsanchor (accessed December 2020).

Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf (accessed February 2020).

Jefferson, G.T. 1985. Review of the Late Pleistocene avifauna from Lake Manix, central Mojave Desert, California. Contributions in Science, Natural History Museum of Los Angeles County, 362, p. 1-13.

______. 2010. A catalogue of late Quaternary vertebrates from California. Natural History Museum of Los Angeles County Technical Report 7, p. 5-172.

Maplogger.com. 2018. Worldwide Elevation Map finder: Claremont Hills, Oakland California. https://elevation.maplogs.com/poi/berkeley_ca_usa.35431.html (accessed December 2020).

Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG). 2017a. Play Bay Area 2040. Adopted July 26, 2017. http://2040.planbayarea.org/reports (accessed December 2020).

______. 2017b. Final Environmental Impact Report for Play Bay Area 2040. SCH#2016052041. July 2017. http://2040.planbayarea.org/reports (accessed December 2020).

National Oceanic and Atmospheric Administration. 2020. U.S. Wind Climatology. August 2020. https://www.ncdc.noaa.gov/societal-impacts/wind/v-comp/202008 (accessed December 2020).

National Park Service. 1983. Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. National Park Service, Washington D.C.

Noll and Tam Architects. 2020. 2118 Milvia Street Berkeley City College Criteria Documents.

Norris, R.M., and Webb, R.W. 1990. Geology of California. John Wiley & Sons, New York.

Office of Planning and Research (OPR). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. December 2018.

Pacific Gas & Electric (PG&E). 2020a. "Company Profile." https://www.pge.com/en_US/about-pge/company-information/profile/profile.page (accessed December 2020).

_____. 2020b. Integrated Resource Plan 2020. September 1, 2020. https://www.pge.com/en_US/for-our-business-partners/energy-supply/integrated-resource-plan/integrated-resource-plan.page (accessed December 2020).

Paleobiology Database. 2020. Online fossil locality database. Available online: https://www.paleobiodb.org/#/.

Peralta Community College District. 2020. Enrollment Report. September 29, 2020.

San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). 2015. California Regional Water Quality Control Board. San Francisco Bay Region Municipal Stormwater NPDES Permit. Order No. R2-2015-0049. https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/Municipal/R2_2015_0049_amended.pdf (accessed February 2021)

State of California. 2018. California's Fourth Climate Change Assessment Statewide Summary Report. August 27, 2018. http://www.climateassessment.ca.gov/state/ (accessed February 2021).

State Water Resources Control Board (SWRCB). 1999. General Waste Discharge Requirements for Biosolids Land Application Draft Statewide Program EIR – Appendix G. Background Information on Acoustics. http://www.waterboards.ca.gov/water_issues/programs/biosolids/deir/appendices/app_g.pdf (accessed December 2020).

_____. 2020. Geotracker: List of Leaking Underground Storage Tank Sites. https://geotracker.waterboards.ca.gov/search?CMD=search&case_number=&business_name=&main_street_name=&city=&zip=&county=&SITE_TYPE=LUFT&oilfield=&STATUS=&BRANCH=&MASTER_BASE=&Search=Search (accessed December 2020).

Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology Impact Mitigation Guidelines Revision Committee.

United States Department of Agriculture. 1981. Soil Conservation Service, Soil Survey of Alameda County, California, Western Part, March 1981.

_____. 2020. Natural Resources Conservation Service, Web Soil Survey. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (accessed December 2020).

United States Energy Information Association. 2020. "Petroleum & Other Liquids, California Field Production of Crude Oil." https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFPCA1&f=M (accessed December 2020).

United States Environmental Protection Agency (USEPA). 2018. "Criteria Air Pollutants." Last modified: March 8, 2018. https://www.epa.gov/criteria-air-pollutants (accessed December 2020).

_____. 2020. "Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases." Last modified: October 23, 2020. www.epa.gov/climate-indicators/climate-change-indicators-atmospheric-concentrations-greenhouse-gases (accessed January 2021).

United States Fish and Wildlife Service (USFWS). 2020a. Critical Habitat for Threatened & Endangered Species. https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77 (accessed December 2020).

_____. 2020b. National Wetlands Inventory. https://www.fws.gov/wetlands/data/Mapper.html (accessed December 2020).

University of California Museum of Paleontology (UCMP). 2020. UCMP online database specimen search portal, http://ucmpdb.berkeley.edu/.

World Health Organization. 1999. Guidelines for Community Noise. https://www.who.int/docstore/peh/noise/Comnoise-1.pdf (accessed February 2021).

# List of Preparers

Rincon Consultants, Inc. prepared this IS-MND under contract to the Peralta Community College District. Persons involved in data gathering analysis, project management, and quality control are listed below.

### RINCON CONSULTANTS, INC.

Abe Leider, AICP CEP, Principal
Darcy Kremin, AICP, Project Manager
Aileen Mahoney, Lead Analyst
Bill Vosti, Senior Environmental Planner
Mimi McNamara, Technical Analyst
April Durham, Associate Planner
Gianna Meschi, Associate Planner
Steven Treffers, Senior Architectural Historian
James Williams, Architectural Historian
Allysen Valencia, GIS Analyst
Erik Holtz, GIS Analyst
Dario Campos, Technical Editor

### Environmental Vision

Chuck Cornwall, Principal

### Pacific Legacy, Inc.

Ellie Reese, M.A.
Shauna Mundt, M.A.
Dave Daly, M.A.

### CHS Consulting Group

Chi-Hsin Shao, President
Migi Lee, Senior Transportation Planner

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# Appendix AQ

Air Quality/Greenhouse Gas Model Files

# 2118 Milvia Street Project - AQ

**Bay Area AQMD Air District, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Junior College (2Yr) | 60.00 | 1000sqft | 0.26 | 60,000.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 64 |
| **Climate Zone** | 5 | | | **Operational Year** | 2025 |
| **Utility Company** | User Defined | | | | |
| **CO2 Intensity (lb/MWhr)** | 0 | **CH4 Intensity (lb/MWhr)** | 0 | **N2O Intensity (lb/MWhr)** | 0 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project would enroll in East Bay Community Power Brilliant 100 (100% carbon-free electricity)

Land Use - Lot acreage per project site details

Construction Phase - Construction schedule per College, architectural coating starts halfway though building construction

Off-road Equipment -

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Demolition - 25 ksf is existing sf of building to be demolished

Grading - Export per College

Architectural Coating - per BAAQMD Reg 8 Rule 3

Vehicle Trips - Weekday trip rate per TIS

Energy Use - Electricity use reduced by 30% per 2019 Title 24. No natural gas use.

Water And Wastewater - No outdoor water use per site plan

Construction Off-road Equipment Mitigation - per College: watering 2x daily

Mobile Land Use Mitigation -

Energy Mitigation - Project includes solar panels; however, sizing information not provided.

Water Mitigation - Indoor water use reduced 20% per 2016 CalGreen.

Stationary Sources - Emergency Generators and Fire Pumps - Per BAAQMD Regulation 8 Rule 9, operational hours were assumed to be 50 hours per year for testing and maintenance

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblArchitecturalCoating | EF_Nonresidential_Exterior | 150.00 | 100.00 |
| tblArchitecturalCoating | EF_Residential_Exterior | 150.00 | 100.00 |
| tblConstructionPhase | NumDays | 5.00 | 200.00 |
| tblConstructionPhase | NumDays | 100.00 | 523.00 |
| tblConstructionPhase | NumDays | 10.00 | 67.00 |
| tblConstructionPhase | NumDays | 2.00 | 32.00 |
| tblConstructionPhase | NumDays | 1.00 | 33.00 |
| tblEnergyUse | NT24NG | 0.74 | 0.00 |
| tblEnergyUse | T24E | 4.14 | 2.90 |
| tblEnergyUse | T24NG | 33.46 | 0.00 |
| tblGrading | MaterialExported | 0.00 | 1,500.00 |
| tblLandUse | LotAcreage | 1.38 | 0.26 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 8.00 |
| tblStationaryGeneratorsPumpsUse | HorsePowerValue | 0.00 | 359.00 |
| tblStationaryGeneratorsPumpsUse | HoursPerYear | 0.00 | 50.00 |
| tblStationaryGeneratorsPumpsUse | NumberOfEquipment | 0.00 | 1.00 |
| tblVehicleTrips | WD_TR | 27.49 | 13.30 |
| tblWater | OutdoorWaterUseRate | 4,603,063.05 | 0.00 |

## 2.0 Emissions Summary

## 2.1 Overall Construction

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2022 | 0.0508 | 0.4898 | 0.4057 | 7.9000e-004 | 0.0155 | 0.0235 | 0.0390 | 2.7500e-003 | 0.0220 | 0.0248 | 0.0000 | 69.4791 | 69.4791 | 0.0160 | 0.0000 | 69.8794 |
| 2023 | 0.1111 | 1.0755 | 1.0639 | 2.3300e-003 | 0.1353 | 0.0464 | 0.1817 | 0.0620 | 0.0439 | 0.1059 | 0.0000 | 206.2035 | 206.2035 | 0.0353 | 0.0000 | 207.0870 |
| 2024 | 0.2973 | 1.0286 | 1.2188 | 2.5700e-003 | 0.0371 | 0.0430 | 0.0800 | 0.0101 | 0.0411 | 0.0511 | 0.0000 | 227.0590 | 227.0590 | 0.0325 | 0.0000 | 227.8724 |
| 2025 | 0.1267 | 0.2814 | 0.3676 | 7.5000e-004 | 0.0106 | 0.0111 | 0.0217 | 2.8600e-003 | 0.0106 | 0.0135 | 0.0000 | 66.5077 | 66.5077 | 9.5100e-003 | 0.0000 | 66.7455 |
| **Maximum** | **0.2973** | **1.0755** | **1.2188** | **2.5700e-003** | **0.1353** | **0.0464** | **0.1817** | **0.0620** | **0.0439** | **0.1059** | **0.0000** | **227.0590** | **227.0590** | **0.0353** | **0.0000** | **227.8724** |

## 2.1 Overall Construction

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2022 | 0.0508 | 0.4898 | 0.4057 | 7.9000e-004 | 8.9000e-003 | 0.0235 | 0.0324 | 1.7600e-003 | 0.0220 | 0.0238 | 0.0000 | 69.4790 | 69.4790 | 0.0160 | 0.0000 | 69.8794 |
| 2023 | 0.1111 | 1.0755 | 1.0639 | 2.3300e-003 | 0.0772 | 0.0464 | 0.1236 | 0.0323 | 0.0439 | 0.0762 | 0.0000 | 206.2033 | 206.2033 | 0.0353 | 0.0000 | 207.0868 |
| 2024 | 0.2973 | 1.0286 | 1.2188 | 2.5700e-003 | 0.0371 | 0.0430 | 0.0800 | 0.0101 | 0.0411 | 0.0511 | 0.0000 | 227.0588 | 227.0588 | 0.0325 | 0.0000 | 227.8722 |
| 2025 | 0.1267 | 0.2814 | 0.3676 | 7.5000e-004 | 0.0106 | 0.0111 | 0.0217 | 2.8600e-003 | 0.0106 | 0.0135 | 0.0000 | 66.5077 | 66.5077 | 9.5100e-003 | 0.0000 | 66.7455 |
| **Maximum** | **0.2973** | **1.0755** | **1.2188** | **2.5700e-003** | **0.0772** | **0.0464** | **0.1236** | **0.0323** | **0.0439** | **0.0762** | **0.0000** | **227.0588** | **227.0588** | **0.0353** | **0.0000** | **227.8722** |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **32.58** | **0.00** | **20.05** | **39.49** | **0.00** | **15.71** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| **1** | **10-3-2022** | **1-2-2023** | 0.5448 | 0.5448 |
| **2** | **1-3-2023** | **4-2-2023** | 0.3418 | 0.3418 |
| **3** | **4-3-2023** | **7-2-2023** | 0.2811 | 0.2811 |
| **4** | **7-3-2023** | **10-2-2023** | 0.2804 | 0.2804 |
| **5** | **10-3-2023** | **1-2-2024** | 0.2806 | 0.2806 |
| **6** | **1-3-2024** | **4-2-2024** | 0.2605 | 0.2605 |
| **7** | **4-3-2024** | **7-2-2024** | 0.2629 | 0.2629 |
| **8** | **7-3-2024** | **10-2-2024** | 0.4008 | 0.4008 |

| | | | | |
|---|---|---|---|---|
| **9** | **10-3-2024** | **1-2-2025** | 0.4010 | 0.4010 |
| **10** | **1-3-2025** | **4-2-2025** | 0.3724 | 0.3724 |
| **11** | **4-3-2025** | **7-2-2025** | 0.0228 | 0.0228 |
| | | **Highest** | 0.5448 | 0.5448 |

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.2657 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.1419 | 0.6667 | 1.6493 | 6.6600e-003 | 0.6393 | 5.4000e-003 | 0.6447 | 0.1716 | 5.0400e-003 | 0.1766 | 0.0000 | 613.3228 | 613.3228 | 0.0202 | 0.0000 | 613.8284 |
| Stationary | 0.0147 | 0.0412 | 0.0376 | 7.0000e-005 | | 2.1700e-003 | 2.1700e-003 | | 2.1700e-003 | 2.1700e-003 | 0.0000 | 6.8353 | 6.8353 | 9.6000e-004 | 0.0000 | 6.8593 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 15.8333 | 0.0000 | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.9337 | 0.0000 | 0.9337 | 0.0959 | 2.2600e-003 | 4.0058 |
| **Total** | **0.4223** | **0.7079** | **1.6874** | **6.7300e-003** | **0.6393** | **7.5700e-003** | **0.6469** | **0.1716** | **7.2100e-003** | **0.1788** | **16.7670** | **620.1592** | **636.9261** | **1.0528** | **2.2600e-003** | **663.9209** |

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.2657 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.1419 | 0.6667 | 1.6493 | 6.6600e-003 | 0.6393 | 5.4000e-003 | 0.6447 | 0.1716 | 5.0400e-003 | 0.1766 | 0.0000 | 613.3228 | 613.3228 | 0.0202 | 0.0000 | 613.8284 |
| Stationary | 0.0147 | 0.0412 | 0.0376 | 7.0000e-005 | | 2.1700e-003 | 2.1700e-003 | | 2.1700e-003 | 2.1700e-003 | 0.0000 | 6.8353 | 6.8353 | 9.6000e-004 | 0.0000 | 6.8593 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 15.8333 | 0.0000 | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.7469 | 0.0000 | 0.7469 | 0.0767 | 1.8100e-003 | 3.2047 |
| **Total** | **0.4223** | **0.7079** | **1.6874** | **6.7300e-003** | **0.6393** | **7.5700e-003** | **0.6469** | **0.1716** | **7.2100e-003** | **0.1788** | **16.5802** | **620.1592** | **636.7394** | **1.0336** | **1.8100e-003** | **663.1198** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **1.11** | **0.00** | **0.03** | **1.82** | **19.91** | **0.12** |

# 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 10/3/2022 | 1/3/2023 | 5 | 67 | |
| 2 | Site Preparation | Site Preparation | 1/4/2023 | 2/19/2023 | 5 | 33 | |
| 3 | Grading | Grading | 2/20/2023 | 4/4/2023 | 5 | 32 | |
| 4 | Building Construction | Building Construction | 4/5/2023 | 4/4/2025 | 5 | 523 | |
| 5 | Architectural Coating | Architectural Coating | 7/1/2024 | 4/4/2025 | 5 | 200 | |
| 6 | Paving | Paving | 4/5/2025 | 4/11/2025 | 5 | 5 | |

**Acres of Grading (Site Preparation Phase): 16.5**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 90,000; Non-Residential Outdoor: 30,000; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Excavators | 1 | 8.00 | 158 | 0.38 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Grading | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Grading | Rollers | 1 | 8.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 4.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Building Construction | Pumps | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 7.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 7.00 | 132 | 0.36 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 4 | 10.00 | 0.00 | 114.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 2 | 5.00 | 0.00 | 188.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 4 | 25.00 | 10.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 5.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

## 3.2 Demolition - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0119 | 0.0000 | 0.0119 | 1.8100e-003 | 0.0000 | 1.8100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0494 | 0.4754 | 0.3959 | 7.2000e-004 | | 0.0234 | 0.0234 | | 0.0220 | 0.0220 | 0.0000 | 63.2611 | 63.2611 | 0.0158 | 0.0000 | 63.6552 |
| **Total** | **0.0494** | **0.4754** | **0.3959** | **7.2000e-004** | **0.0119** | **0.0234** | **0.0354** | **1.8100e-003** | **0.0220** | **0.0238** | **0.0000** | **63.2611** | **63.2611** | **0.0158** | **0.0000** | **63.6552** |

## 3.2 Demolition - 2022

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.1000e-004 | 0.0137 | 3.1200e-003 | 4.0000e-005 | 9.6000e-004 | 4.0000e-005 | 1.0000e-003 | 2.6000e-004 | 4.0000e-005 | 3.0000e-004 | 0.0000 | 4.1266 | 4.1266 | 2.1000e-004 | 0.0000 | 4.1318 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 9.3000e-004 | 6.2000e-004 | 6.7000e-003 | 2.0000e-005 | 2.5700e-003 | 2.0000e-005 | 2.5800e-003 | 6.8000e-004 | 2.0000e-005 | 7.0000e-004 | 0.0000 | 2.0914 | 2.0914 | 4.0000e-005 | 0.0000 | 2.0925 |
| **Total** | **1.3400e-003** | **0.0143** | **9.8200e-003** | **6.0000e-005** | **3.5300e-003** | **6.0000e-005** | **3.5800e-003** | **9.4000e-004** | **6.0000e-005** | **1.0000e-003** | **0.0000** | **6.2180** | **6.2180** | **2.5000e-004** | **0.0000** | **6.2243** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 5.3700e-003 | 0.0000 | 5.3700e-003 | 8.1000e-004 | 0.0000 | 8.1000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0494 | 0.4754 | 0.3959 | 7.2000e-004 | | 0.0234 | 0.0234 | | 0.0220 | 0.0220 | 0.0000 | 63.2610 | 63.2610 | 0.0158 | 0.0000 | 63.6551 |
| **Total** | **0.0494** | **0.4754** | **0.3959** | **7.2000e-004** | **5.3700e-003** | **0.0234** | **0.0288** | **8.1000e-004** | **0.0220** | **0.0228** | **0.0000** | **63.2610** | **63.2610** | **0.0158** | **0.0000** | **63.6551** |

## 3.2 Demolition - 2022

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.1000e-004 | 0.0137 | 3.1200e-003 | 4.0000e-005 | 9.6000e-004 | 4.0000e-005 | 1.0000e-003 | 2.6000e-004 | 4.0000e-005 | 3.0000e-004 | 0.0000 | 4.1266 | 4.1266 | 2.1000e-004 | 0.0000 | 4.1318 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 9.3000e-004 | 6.2000e-004 | 6.7000e-003 | 2.0000e-005 | 2.5700e-003 | 2.0000e-005 | 2.5800e-003 | 6.8000e-004 | 2.0000e-005 | 7.0000e-004 | 0.0000 | 2.0914 | 2.0914 | 4.0000e-005 | 0.0000 | 2.0925 |
| **Total** | **1.3400e-003** | **0.0143** | **9.8200e-003** | **6.0000e-005** | **3.5300e-003** | **6.0000e-005** | **3.5800e-003** | **9.4000e-004** | **6.0000e-005** | **1.0000e-003** | **0.0000** | **6.2180** | **6.2180** | **2.5000e-004** | **0.0000** | **6.2243** |

## 3.2 Demolition - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 3.7000e-004 | 0.0000 | 3.7000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.3200e-003 | 0.0124 | 0.0117 | 2.0000e-005 | | 5.8000e-004 | 5.8000e-004 | | 5.5000e-004 | 5.5000e-004 | 0.0000 | 1.9468 | 1.9468 | 4.8000e-004 | 0.0000 | 1.9588 |
| **Total** | **1.3200e-003** | **0.0124** | **0.0117** | **2.0000e-005** | **3.7000e-004** | **5.8000e-004** | **9.5000e-004** | **6.0000e-005** | **5.5000e-004** | **6.1000e-004** | **0.0000** | **1.9468** | **1.9468** | **4.8000e-004** | **0.0000** | **1.9588** |

## 3.2 Demolition - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 1.0000e-005 | 2.8000e-004 | 9.0000e-005 | 0.0000 | 7.3000e-004 | 0.0000 | 7.3000e-004 | 1.8000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.1221 | 0.1221 | 1.0000e-005 | 0.0000 | 0.1223 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 8.0000e-005 | 0.0000 | 8.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 0.0619 | 0.0619 | 0.0000 | 0.0000 | 0.0619 |
| **Total** | **4.0000e-005** | **3.0000e-004** | **2.8000e-004** | **0.0000** | **8.1000e-004** | **0.0000** | **8.1000e-004** | **2.0000e-004** | **0.0000** | **2.0000e-004** | **0.0000** | **0.1840** | **0.1840** | **1.0000e-005** | **0.0000** | **0.1842** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 1.7000e-004 | 0.0000 | 1.7000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.3200e-003 | 0.0124 | 0.0117 | 2.0000e-005 | | 5.8000e-004 | 5.8000e-004 | | 5.5000e-004 | 5.5000e-004 | 0.0000 | 1.9468 | 1.9468 | 4.8000e-004 | 0.0000 | 1.9588 |
| **Total** | **1.3200e-003** | **0.0124** | **0.0117** | **2.0000e-005** | **1.7000e-004** | **5.8000e-004** | **7.5000e-004** | **3.0000e-005** | **5.5000e-004** | **5.8000e-004** | **0.0000** | **1.9468** | **1.9468** | **4.8000e-004** | **0.0000** | **1.9588** |

## 3.2 Demolition - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 1.0000e-005 | 2.8000e-004 | 9.0000e-005 | 0.0000 | 7.3000e-004 | 0.0000 | 7.3000e-004 | 1.8000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.1221 | 0.1221 | 1.0000e-005 | 0.0000 | 0.1223 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 8.0000e-005 | 0.0000 | 8.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 0.0619 | 0.0619 | 0.0000 | 0.0000 | 0.0619 |
| **Total** | **4.0000e-005** | **3.0000e-004** | **2.8000e-004** | **0.0000** | **8.1000e-004** | **0.0000** | **8.1000e-004** | **2.0000e-004** | **0.0000** | **2.0000e-004** | **0.0000** | **0.1840** | **0.1840** | **1.0000e-005** | **0.0000** | **0.1842** |

## 3.3 Site Preparation - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 8.8300e-003 | 0.0000 | 8.8300e-003 | 9.6000e-004 | 0.0000 | 9.6000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.8200e-003 | 0.1021 | 0.0648 | 1.6000e-004 | | 3.7400e-003 | 3.7400e-003 | | 3.4400e-003 | 3.4400e-003 | 0.0000 | 14.1068 | 14.1068 | 4.5600e-003 | 0.0000 | 14.2209 |
| **Total** | **8.8200e-003** | **0.1021** | **0.0648** | **1.6000e-004** | **8.8300e-003** | **3.7400e-003** | **0.0126** | **9.6000e-004** | **3.4400e-003** | **4.4000e-003** | **0.0000** | **14.1068** | **14.1068** | **4.5600e-003** | **0.0000** | **14.2209** |

## 3.3 Site Preparation - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.8000e-004 | 0.0156 | 4.8100e-003 | 7.0000e-005 | 1.5900e-003 | 3.0000e-005 | 1.6200e-003 | 4.4000e-004 | 3.0000e-005 | 4.6000e-004 | 0.0000 | 6.7473 | 6.7473 | 3.2000e-004 | 0.0000 | 6.7553 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.2000e-004 | 1.4000e-004 | 1.5600e-003 | 1.0000e-005 | 6.5000e-004 | 0.0000 | 6.6000e-004 | 1.7000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.5106 | 0.5106 | 1.0000e-005 | 0.0000 | 0.5108 |
| **Total** | **7.0000e-004** | **0.0157** | **6.3700e-003** | **8.0000e-005** | **2.2400e-003** | **3.0000e-005** | **2.2800e-003** | **6.1000e-004** | **3.0000e-005** | **6.4000e-004** | **0.0000** | **7.2579** | **7.2579** | **3.3000e-004** | **0.0000** | **7.2661** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 3.9800e-003 | 0.0000 | 3.9800e-003 | 4.3000e-004 | 0.0000 | 4.3000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.8200e-003 | 0.1021 | 0.0647 | 1.6000e-004 | | 3.7400e-003 | 3.7400e-003 | | 3.4400e-003 | 3.4400e-003 | 0.0000 | 14.1068 | 14.1068 | 4.5600e-003 | 0.0000 | 14.2209 |
| **Total** | **8.8200e-003** | **0.1021** | **0.0647** | **1.6000e-004** | **3.9800e-003** | **3.7400e-003** | **7.7200e-003** | **4.3000e-004** | **3.4400e-003** | **3.8700e-003** | **0.0000** | **14.1068** | **14.1068** | **4.5600e-003** | **0.0000** | **14.2209** |

## 3.3 Site Preparation - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.8000e-004 | 0.0156 | 4.8100e-003 | 7.0000e-005 | 1.5900e-003 | 3.0000e-005 | 1.6200e-003 | 4.4000e-004 | 3.0000e-005 | 4.6000e-004 | 0.0000 | 6.7473 | 6.7473 | 3.2000e-004 | 0.0000 | 6.7553 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.2000e-004 | 1.4000e-004 | 1.5600e-003 | 1.0000e-005 | 6.5000e-004 | 0.0000 | 6.6000e-004 | 1.7000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.5106 | 0.5106 | 1.0000e-005 | 0.0000 | 0.5108 |
| **Total** | **7.0000e-004** | **0.0157** | **6.3700e-003** | **8.0000e-005** | **2.2400e-003** | **3.0000e-005** | **2.2800e-003** | **6.1000e-004** | **3.0000e-005** | **6.4000e-004** | **0.0000** | **7.2579** | **7.2579** | **3.3000e-004** | **0.0000** | **7.2661** |

## 3.4 Grading - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0964 | 0.0000 | 0.0964 | 0.0530 | 0.0000 | 0.0530 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0206 | 0.1996 | 0.1646 | 3.2000e-004 | | 9.5100e-003 | 9.5100e-003 | | 8.9200e-003 | 8.9200e-003 | 0.0000 | 27.5778 | 27.5778 | 6.5600e-003 | 0.0000 | 27.7418 |
| **Total** | **0.0206** | **0.1996** | **0.1646** | **3.2000e-004** | **0.0964** | **9.5100e-003** | **0.1059** | **0.0530** | **8.9200e-003** | **0.0619** | **0.0000** | **27.5778** | **27.5778** | **6.5600e-003** | **0.0000** | **27.7418** |

## 3.4 Grading - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.3000e-004 | 2.7000e-004 | 3.0300e-003 | 1.0000e-005 | 1.2600e-003 | 1.0000e-005 | 1.2700e-003 | 3.4000e-004 | 1.0000e-005 | 3.4000e-004 | 0.0000 | 0.9902 | 0.9902 | 2.0000e-005 | 0.0000 | 0.9907 |
| **Total** | **4.3000e-004** | **2.7000e-004** | **3.0300e-003** | **1.0000e-005** | **1.2600e-003** | **1.0000e-005** | **1.2700e-003** | **3.4000e-004** | **1.0000e-005** | **3.4000e-004** | **0.0000** | **0.9902** | **0.9902** | **2.0000e-005** | **0.0000** | **0.9907** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0434 | 0.0000 | 0.0434 | 0.0238 | 0.0000 | 0.0238 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0206 | 0.1996 | 0.1646 | 3.2000e-004 | | 9.5100e-003 | 9.5100e-003 | | 8.9200e-003 | 8.9200e-003 | 0.0000 | 27.5778 | 27.5778 | 6.5600e-003 | 0.0000 | 27.7418 |
| **Total** | **0.0206** | **0.1996** | **0.1646** | **3.2000e-004** | **0.0434** | **9.5100e-003** | **0.0529** | **0.0238** | **8.9200e-003** | **0.0328** | **0.0000** | **27.5778** | **27.5778** | **6.5600e-003** | **0.0000** | **27.7418** |

## 3.4 Grading - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.3000e-004 | 2.7000e-004 | 3.0300e-003 | 1.0000e-005 | 1.2600e-003 | 1.0000e-005 | 1.2700e-003 | 3.4000e-004 | 1.0000e-005 | 3.4000e-004 | 0.0000 | 0.9902 | 0.9902 | 2.0000e-005 | 0.0000 | 0.9907 |
| **Total** | **4.3000e-004** | **2.7000e-004** | **3.0300e-003** | **1.0000e-005** | **1.2600e-003** | **1.0000e-005** | **1.2700e-003** | **3.4000e-004** | **1.0000e-005** | **3.4000e-004** | **0.0000** | **0.9902** | **0.9902** | **2.0000e-005** | **0.0000** | **0.9907** |

## 3.5 Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0706 | 0.6674 | 0.7462 | 1.3200e-003 | | 0.0323 | 0.0323 | | 0.0308 | 0.0308 | 0.0000 | 115.1233 | 115.1233 | 0.0221 | 0.0000 | 115.6755 |
| **Total** | **0.0706** | **0.6674** | **0.7462** | **1.3200e-003** | | **0.0323** | **0.0323** | | **0.0308** | **0.0308** | **0.0000** | **115.1233** | **115.1233** | **0.0221** | **0.0000** | **115.6755** |

## 3.5 Building Construction - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.1400e-003 | 0.0736 | 0.0212 | 2.5000e-004 | 6.3300e-003 | 8.0000e-005 | 6.4100e-003 | 1.8300e-003 | 8.0000e-005 | 1.9100e-003 | 0.0000 | 24.0868 | 24.0868 | 1.0000e-003 | 0.0000 | 24.1118 |
| Worker | 6.4500e-003 | 4.1200e-003 | 0.0457 | 1.6000e-004 | 0.0191 | 1.2000e-004 | 0.0192 | 5.0700e-003 | 1.1000e-004 | 5.1800e-003 | 0.0000 | 14.9299 | 14.9299 | 2.9000e-004 | 0.0000 | 14.9372 |
| **Total** | **8.5900e-003** | **0.0777** | **0.0669** | **4.1000e-004** | **0.0254** | **2.0000e-004** | **0.0256** | **6.9000e-003** | **1.9000e-004** | **7.0900e-003** | **0.0000** | **39.0167** | **39.0167** | **1.2900e-003** | **0.0000** | **39.0490** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0706 | 0.6674 | 0.7462 | 1.3200e-003 | | 0.0323 | 0.0323 | | 0.0308 | 0.0308 | 0.0000 | 115.1232 | 115.1232 | 0.0221 | 0.0000 | 115.6754 |
| **Total** | **0.0706** | **0.6674** | **0.7462** | **1.3200e-003** | | **0.0323** | **0.0323** | | **0.0308** | **0.0308** | **0.0000** | **115.1232** | **115.1232** | **0.0221** | **0.0000** | **115.6754** |

## 3.5 Building Construction - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.1400e-003 | 0.0736 | 0.0212 | 2.5000e-004 | 6.3300e-003 | 8.0000e-005 | 6.4100e-003 | 1.8300e-003 | 8.0000e-005 | 1.9100e-003 | 0.0000 | 24.0868 | 24.0868 | 1.0000e-003 | 0.0000 | 24.1118 |
| Worker | 6.4500e-003 | 4.1200e-003 | 0.0457 | 1.6000e-004 | 0.0191 | 1.2000e-004 | 0.0192 | 5.0700e-003 | 1.1000e-004 | 5.1800e-003 | 0.0000 | 14.9299 | 14.9299 | 2.9000e-004 | 0.0000 | 14.9372 |
| **Total** | **8.5900e-003** | **0.0777** | **0.0669** | **4.1000e-004** | **0.0254** | **2.0000e-004** | **0.0256** | **6.9000e-003** | **1.9000e-004** | **7.0900e-003** | **0.0000** | **39.0167** | **39.0167** | **1.2900e-003** | **0.0000** | **39.0490** |

## 3.5 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0899 | 0.8439 | 1.0083 | 1.8000e-003 | | 0.0386 | 0.0386 | | 0.0368 | 0.0368 | 0.0000 | 156.3033 | 156.3033 | 0.0299 | 0.0000 | 157.0498 |
| **Total** | **0.0899** | **0.8439** | **1.0083** | **1.8000e-003** | | **0.0386** | **0.0386** | | **0.0368** | **0.0368** | **0.0000** | **156.3033** | **156.3033** | **0.0299** | **0.0000** | **157.0498** |

## 3.5 Building Construction - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.8100e-003 | 0.0988 | 0.0277 | 3.4000e-004 | 8.5900e-003 | 1.1000e-004 | 8.7000e-003 | 2.4800e-003 | 1.1000e-004 | 2.5900e-003 | 0.0000 | 32.4774 | 32.4774 | 1.3300e-003 | 0.0000 | 32.5108 |
| Worker | 8.2300e-003 | 5.0500e-003 | 0.0575 | 2.2000e-004 | 0.0259 | 1.6000e-004 | 0.0260 | 6.8800e-003 | 1.5000e-004 | 7.0300e-003 | 0.0000 | 19.4654 | 19.4654 | 3.6000e-004 | 0.0000 | 19.4743 |
| **Total** | **0.0110** | **0.1039** | **0.0852** | **5.6000e-004** | **0.0345** | **2.7000e-004** | **0.0347** | **9.3600e-003** | **2.6000e-004** | **9.6200e-003** | **0.0000** | **51.9428** | **51.9428** | **1.6900e-003** | **0.0000** | **51.9851** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0899 | 0.8438 | 1.0083 | 1.8000e-003 | | 0.0386 | 0.0386 | | 0.0368 | 0.0368 | 0.0000 | 156.3031 | 156.3031 | 0.0299 | 0.0000 | 157.0497 |
| **Total** | **0.0899** | **0.8438** | **1.0083** | **1.8000e-003** | | **0.0386** | **0.0386** | | **0.0368** | **0.0368** | **0.0000** | **156.3031** | **156.3031** | **0.0299** | **0.0000** | **157.0497** |

## 3.5 Building Construction - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.8100e-003 | 0.0988 | 0.0277 | 3.4000e-004 | 8.5900e-003 | 1.1000e-004 | 8.7000e-003 | 2.4800e-003 | 1.1000e-004 | 2.5900e-003 | 0.0000 | 32.4774 | 32.4774 | 1.3300e-003 | 0.0000 | 32.5108 |
| Worker | 8.2300e-003 | 5.0500e-003 | 0.0575 | 2.2000e-004 | 0.0259 | 1.6000e-004 | 0.0260 | 6.8800e-003 | 1.5000e-004 | 7.0300e-003 | 0.0000 | 19.4654 | 19.4654 | 3.6000e-004 | 0.0000 | 19.4743 |
| **Total** | **0.0110** | **0.1039** | **0.0852** | **5.6000e-004** | **0.0345** | **2.7000e-004** | **0.0347** | **9.3600e-003** | **2.6000e-004** | **9.6200e-003** | **0.0000** | **51.9428** | **51.9428** | **1.6900e-003** | **0.0000** | **51.9851** |

## 3.5 Building Construction - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0218 | 0.2026 | 0.2606 | 4.7000e-004 | | 8.6800e-003 | 8.6800e-003 | | 8.2600e-003 | 8.2600e-003 | 0.0000 | 40.5765 | 40.5765 | 7.6900e-003 | 0.0000 | 40.7686 |
| **Total** | **0.0218** | **0.2026** | **0.2606** | **4.7000e-004** | | **8.6800e-003** | **8.6800e-003** | | **8.2600e-003** | **8.2600e-003** | **0.0000** | **40.5765** | **40.5765** | **7.6900e-003** | **0.0000** | **40.7686** |

## 3.5 Building Construction - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 7.1000e-004 | 0.0253 | 6.9700e-003 | 9.0000e-005 | 2.2300e-003 | 3.0000e-005 | 2.2600e-003 | 6.4000e-004 | 3.0000e-005 | 6.7000e-004 | 0.0000 | 8.3742 | 8.3742 | 3.4000e-004 | 0.0000 | 8.3827 |
| Worker | 2.0200e-003 | 1.1900e-003 | 0.0138 | 5.0000e-005 | 6.7200e-003 | 4.0000e-005 | 6.7600e-003 | 1.7900e-003 | 4.0000e-005 | 1.8200e-003 | 0.0000 | 4.8465 | 4.8465 | 8.0000e-005 | 0.0000 | 4.8485 |
| **Total** | **2.7300e-003** | **0.0265** | **0.0208** | **1.4000e-004** | **8.9500e-003** | **7.0000e-005** | **9.0200e-003** | **2.4300e-003** | **7.0000e-005** | **2.4900e-003** | **0.0000** | **13.2206** | **13.2206** | **4.2000e-004** | **0.0000** | **13.2312** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0218 | 0.2026 | 0.2606 | 4.7000e-004 | | 8.6800e-003 | 8.6800e-003 | | 8.2600e-003 | 8.2600e-003 | 0.0000 | 40.5764 | 40.5764 | 7.6900e-003 | 0.0000 | 40.7686 |
| **Total** | **0.0218** | **0.2026** | **0.2606** | **4.7000e-004** | | **8.6800e-003** | **8.6800e-003** | | **8.2600e-003** | **8.2600e-003** | **0.0000** | **40.5764** | **40.5764** | **7.6900e-003** | **0.0000** | **40.7686** |

## 3.5 Building Construction - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 7.1000e-004 | 0.0253 | 6.9700e-003 | 9.0000e-005 | 2.2300e-003 | 3.0000e-005 | 2.2600e-003 | 6.4000e-004 | 3.0000e-005 | 6.7000e-004 | 0.0000 | 8.3742 | 8.3742 | 3.4000e-004 | 0.0000 | 8.3827 |
| Worker | 2.0200e-003 | 1.1900e-003 | 0.0138 | 5.0000e-005 | 6.7200e-003 | 4.0000e-005 | 6.7600e-003 | 1.7900e-003 | 4.0000e-005 | 1.8200e-003 | 0.0000 | 4.8465 | 4.8465 | 8.0000e-005 | 0.0000 | 4.8485 |
| **Total** | **2.7300e-003** | **0.0265** | **0.0208** | **1.4000e-004** | **8.9500e-003** | **7.0000e-005** | **9.0200e-003** | **2.4300e-003** | **7.0000e-005** | **2.4900e-003** | **0.0000** | **13.2206** | **13.2206** | **4.2000e-004** | **0.0000** | **13.2312** |

## 3.6 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.1836 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0119 | 0.0804 | 0.1195 | 2.0000e-004 | | 4.0200e-003 | 4.0200e-003 | | 4.0200e-003 | 4.0200e-003 | 0.0000 | 16.8515 | 16.8515 | 9.5000e-004 | 0.0000 | 16.8752 |
| **Total** | **0.1955** | **0.0804** | **0.1195** | **2.0000e-004** | | **4.0200e-003** | **4.0200e-003** | | **4.0200e-003** | **4.0200e-003** | **0.0000** | **16.8515** | **16.8515** | **9.5000e-004** | **0.0000** | **16.8752** |

## 3.6 Architectural Coating - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.3000e-004 | 5.1000e-004 | 5.8000e-003 | 2.0000e-005 | 2.6100e-003 | 2.0000e-005 | 2.6200e-003 | 6.9000e-004 | 1.0000e-005 | 7.1000e-004 | 0.0000 | 1.9614 | 1.9614 | 4.0000e-005 | 0.0000 | 1.9623 |
| **Total** | **8.3000e-004** | **5.1000e-004** | **5.8000e-003** | **2.0000e-005** | **2.6100e-003** | **2.0000e-005** | **2.6200e-003** | **6.9000e-004** | **1.0000e-005** | **7.1000e-004** | **0.0000** | **1.9614** | **1.9614** | **4.0000e-005** | **0.0000** | **1.9623** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.1836 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0119 | 0.0804 | 0.1195 | 2.0000e-004 | | 4.0200e-003 | 4.0200e-003 | | 4.0200e-003 | 4.0200e-003 | 0.0000 | 16.8515 | 16.8515 | 9.5000e-004 | 0.0000 | 16.8752 |
| **Total** | **0.1955** | **0.0804** | **0.1195** | **2.0000e-004** | | **4.0200e-003** | **4.0200e-003** | | **4.0200e-003** | **4.0200e-003** | **0.0000** | **16.8515** | **16.8515** | **9.5000e-004** | **0.0000** | **16.8752** |

## 3.6 Architectural Coating - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.3000e-004 | 5.1000e-004 | 5.8000e-003 | 2.0000e-005 | 2.6100e-003 | 2.0000e-005 | 2.6200e-003 | 6.9000e-004 | 1.0000e-005 | 7.1000e-004 | 0.0000 | 1.9614 | 1.9614 | 4.0000e-005 | 0.0000 | 1.9623 |
| **Total** | **8.3000e-004** | **5.1000e-004** | **5.8000e-003** | **2.0000e-005** | **2.6100e-003** | **2.0000e-005** | **2.6200e-003** | **6.9000e-004** | **1.0000e-005** | **7.1000e-004** | **0.0000** | **1.9614** | **1.9614** | **4.0000e-005** | **0.0000** | **1.9623** |

## 3.6 Architectural Coating - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0946 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 5.8100e-003 | 0.0390 | 0.0615 | 1.0000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | 0.0000 | 8.6811 | 8.6811 | 4.7000e-004 | 0.0000 | 8.6929 |
| **Total** | **0.1004** | **0.0390** | **0.0615** | **1.0000e-004** | | **1.7500e-003** | **1.7500e-003** | | **1.7500e-003** | **1.7500e-003** | **0.0000** | **8.6811** | **8.6811** | **4.7000e-004** | **0.0000** | **8.6929** |

### 3.6 Architectural Coating - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-004 | 2.4000e-004 | 2.7700e-003 | 1.0000e-005 | 1.3400e-003 | 1.0000e-005 | 1.3500e-003 | 3.6000e-004 | 1.0000e-005 | 3.6000e-004 | 0.0000 | 0.9693 | 0.9693 | 2.0000e-005 | 0.0000 | 0.9697 |
| **Total** | **4.0000e-004** | **2.4000e-004** | **2.7700e-003** | **1.0000e-005** | **1.3400e-003** | **1.0000e-005** | **1.3500e-003** | **3.6000e-004** | **1.0000e-005** | **3.6000e-004** | **0.0000** | **0.9693** | **0.9693** | **2.0000e-005** | **0.0000** | **0.9697** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0946 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 5.8100e-003 | 0.0390 | 0.0615 | 1.0000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | 0.0000 | 8.6811 | 8.6811 | 4.7000e-004 | 0.0000 | 8.6929 |
| **Total** | **0.1004** | **0.0390** | **0.0615** | **1.0000e-004** | | **1.7500e-003** | **1.7500e-003** | | **1.7500e-003** | **1.7500e-003** | **0.0000** | **8.6811** | **8.6811** | **4.7000e-004** | **0.0000** | **8.6929** |

## 3.6 Architectural Coating - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-004 | 2.4000e-004 | 2.7700e-003 | 1.0000e-005 | 1.3400e-003 | 1.0000e-005 | 1.3500e-003 | 3.6000e-004 | 1.0000e-005 | 3.6000e-004 | 0.0000 | 0.9693 | 0.9693 | 2.0000e-005 | 0.0000 | 0.9697 |
| **Total** | **4.0000e-004** | **2.4000e-004** | **2.7700e-003** | **1.0000e-005** | **1.3400e-003** | **1.0000e-005** | **1.3500e-003** | **3.6000e-004** | **1.0000e-005** | **3.6000e-004** | **0.0000** | **0.9693** | **0.9693** | **2.0000e-005** | **0.0000** | **0.9697** |

## 3.7 Paving - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.4000e-003 | 0.0130 | 0.0214 | 3.0000e-005 | | 6.0000e-004 | 6.0000e-004 | | 5.6000e-004 | 5.6000e-004 | 0.0000 | 2.8750 | 2.8750 | 9.1000e-004 | 0.0000 | 2.8977 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **1.4000e-003** | **0.0130** | **0.0214** | **3.0000e-005** | | **6.0000e-004** | **6.0000e-004** | | **5.6000e-004** | **5.6000e-004** | **0.0000** | **2.8750** | **2.8750** | **9.1000e-004** | **0.0000** | **2.8977** |

## 3.7 Paving - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.0000e-005 | 5.0000e-005 | 5.3000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.1853 | 0.1853 | 0.0000 | 0.0000 | 0.1854 |
| **Total** | **8.0000e-005** | **5.0000e-005** | **5.3000e-004** | **0.0000** | **2.6000e-004** | **0.0000** | **2.6000e-004** | **7.0000e-005** | **0.0000** | **7.0000e-005** | **0.0000** | **0.1853** | **0.1853** | **0.0000** | **0.0000** | **0.1854** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.4000e-003 | 0.0130 | 0.0214 | 3.0000e-005 | | 6.0000e-004 | 6.0000e-004 | | 5.6000e-004 | 5.6000e-004 | 0.0000 | 2.8750 | 2.8750 | 9.1000e-004 | 0.0000 | 2.8977 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **1.4000e-003** | **0.0130** | **0.0214** | **3.0000e-005** | | **6.0000e-004** | **6.0000e-004** | | **5.6000e-004** | **5.6000e-004** | **0.0000** | **2.8750** | **2.8750** | **9.1000e-004** | **0.0000** | **2.8977** |

## 3.7 Paving - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.0000e-005 | 5.0000e-005 | 5.3000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.1853 | 0.1853 | 0.0000 | 0.0000 | 0.1854 |
| **Total** | **8.0000e-005** | **5.0000e-005** | **5.3000e-004** | **0.0000** | **2.6000e-004** | **0.0000** | **2.6000e-004** | **7.0000e-005** | **0.0000** | **7.0000e-005** | **0.0000** | **0.1853** | **0.1853** | **0.0000** | **0.0000** | **0.1854** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.1419 | 0.6667 | 1.6493 | 6.6600e-003 | 0.6393 | 5.4000e-003 | 0.6447 | 0.1716 | 5.0400e-003 | 0.1766 | 0.0000 | 613.3228 | 613.3228 | 0.0202 | 0.0000 | 613.8284 |
| Unmitigated | 0.1419 | 0.6667 | 1.6493 | 6.6600e-003 | 0.6393 | 5.4000e-003 | 0.6447 | 0.1716 | 5.0400e-003 | 0.1766 | 0.0000 | 613.3228 | 613.3228 | 0.0202 | 0.0000 | 613.8284 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Junior College (2Yr) | 798.00 | 673.80 | 72.60 | 1,718,323 | 1,718,323 |
| Total | 798.00 | 673.80 | 72.60 | 1,718,323 | 1,718,323 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Junior College (2Yr) | 9.50 | 7.30 | 7.30 | 6.40 | 88.60 | 5.00 | 92 | 7 | 1 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Junior College (2Yr) | 0.581705 | 0.037849 | 0.193793 | 0.109044 | 0.014574 | 0.005304 | 0.018664 | 0.026966 | 0.002656 | 0.002072 | 0.005755 | 0.000900 | 0.000719 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Junior College (2Yr) | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Junior College (2Yr) | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Junior College (2Yr) | 538800 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

### 5.3 Energy by Land Use - Electricity

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Junior College (2Yr) | 538800 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.2657 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| Unmitigated | 0.2657 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0313 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.2343 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.0000e-005 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| **Total** | **0.2657** | **0.0000** | **5.5000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **1.0700e-003** | **1.0700e-003** | **0.0000** | **0.0000** | **1.1400e-003** |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0313 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.2343 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.0000e-005 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| **Total** | **0.2657** | **0.0000** | **5.5000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **1.0700e-003** | **1.0700e-003** | **0.0000** | **0.0000** | **1.1400e-003** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 0.7469 | 0.0767 | 1.8100e-003 | 3.2047 |
| Unmitigated | 0.9337 | 0.0959 | 2.2600e-003 | 4.0058 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Junior College (2Yr) | 2.94294 / 0 | 0.9337 | 0.0959 | 2.2600e-003 | 4.0058 |
| **Total** | | **0.9337** | **0.0959** | **2.2600e-003** | **4.0058** |

## 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Junior College (2Yr) | 2.35435 / 0 | 0.7469 | 0.0767 | 1.8100e-003 | 3.2047 |
| **Total** | | **0.7469** | **0.0767** | **1.8100e-003** | **3.2047** |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| Unmitigated | 15.8333 | 0.9357 | 0.0000 | 39.2263 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Junior College (2Yr) | 78 | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| **Total** | | **15.8333** | **0.9357** | **0.0000** | **39.2263** |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Junior College (2Yr) | 78 | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| **Total** | | **15.8333** | **0.9357** | **0.0000** | **39.2263** |

# 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

### Fire Pumps and Emergency Generators

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|
| Emergency Generator | 1 | 0 | 50 | 359 | 0.73 | Diesel |

### Boilers

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

### User Defined Equipment

| Equipment Type | Number |
|---|---|

## 10.1 Stationary Sources

### Unmitigated/Mitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Emergency Generator - Diesel (300 - 600 HP) | 0.0147 | 0.0412 | 0.0376 | 7.0000e-005 | | 2.1700e-003 | 2.1700e-003 | | 2.1700e-003 | 2.1700e-003 | 0.0000 | 6.8353 | 6.8353 | 9.6000e-004 | 0.0000 | 6.8593 |
| **Total** | **0.0147** | **0.0412** | **0.0376** | **7.0000e-005** | | **2.1700e-003** | **2.1700e-003** | | **2.1700e-003** | **2.1700e-003** | **0.0000** | **6.8353** | **6.8353** | **9.6000e-004** | **0.0000** | **6.8593** |

## 11.0 Vegetation

# 2118 Milvia Street Project - AQ

**Bay Area AQMD Air District, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Junior College (2Yr) | 60.00 | 1000sqft | 0.26 | 60,000.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 64 |
| **Climate Zone** | 5 | | | **Operational Year** | 2025 |
| **Utility Company** | User Defined | | | | |
| **CO2 Intensity (lb/MWhr)** | 0 | **CH4 Intensity (lb/MWhr)** | 0 | **N2O Intensity (lb/MWhr)** | 0 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project would enroll in East Bay Community Power Brilliant 100 (100% carbon-free electricity)

Land Use - Lot acreage per project site details

Construction Phase - Construction schedule per College, architectural coating starts halfway though building construction

Off-road Equipment -

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Demolition - 25 ksf is existing sf of building to be demolished

Grading - Export per College

Architectural Coating - per BAAQMD Reg 8 Rule 3

Vehicle Trips - Weekday trip rate per TIS

Energy Use - Electricity use reduced by 30% per 2019 Title 24. No natural gas use.

Water And Wastewater - No outdoor water use per site plan

Construction Off-road Equipment Mitigation - per College: watering 2x daily

Mobile Land Use Mitigation -

Energy Mitigation - Project includes solar panels; however, sizing information not provided.

Water Mitigation - Indoor water use reduced 20% per 2016 CalGreen.

Stationary Sources - Emergency Generators and Fire Pumps - Per BAAQMD Regulation 8 Rule 9, operational hours were assumed to be 50 hours per year for testing and maintenance

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblArchitecturalCoating | EF_Nonresidential_Exterior | 150.00 | 100.00 |
| tblArchitecturalCoating | EF_Residential_Exterior | 150.00 | 100.00 |
| tblConstructionPhase | NumDays | 5.00 | 200.00 |
| tblConstructionPhase | NumDays | 100.00 | 523.00 |
| tblConstructionPhase | NumDays | 10.00 | 67.00 |
| tblConstructionPhase | NumDays | 2.00 | 32.00 |
| tblConstructionPhase | NumDays | 1.00 | 33.00 |
| tblEnergyUse | NT24NG | 0.74 | 0.00 |
| tblEnergyUse | T24E | 4.14 | 2.90 |
| tblEnergyUse | T24NG | 33.46 | 0.00 |
| tblGrading | MaterialExported | 0.00 | 1,500.00 |
| tblLandUse | LotAcreage | 1.38 | 0.26 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 8.00 |
| tblStationaryGeneratorsPumpsUse | HorsePowerValue | 0.00 | 359.00 |
| tblStationaryGeneratorsPumpsUse | HoursPerYear | 0.00 | 50.00 |
| tblStationaryGeneratorsPumpsUse | NumberOfEquipment | 0.00 | 1.00 |
| tblVehicleTrips | WD_TR | 27.49 | 13.30 |
| tblWater | OutdoorWaterUseRate | 4,603,063.05 | 0.00 |

## 2.0 Emissions Summary

## 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2022 | 1.5654 | 15.0726 | 12.4911 | 0.0243 | 0.4799 | 0.7228 | 1.2027 | 0.0857 | 0.6770 | 0.7627 | 0.0000 | 2,354.4908 | 2,354.4908 | 0.5433 | 0.0000 | 2,368.0740 |
| 2023 | 1.3591 | 12.7131 | 11.9785 | 0.0242 | 6.1042 | 0.5951 | 6.6994 | 3.3320 | 0.5578 | 3.8898 | 0.0000 | 2,346.8287 | 2,346.8287 | 0.5394 | 0.0000 | 2,360.3136 |
| 2024 | 3.7545 | 8.4631 | 10.2700 | 0.0212 | 0.3141 | 0.3582 | 0.6723 | 0.0849 | 0.3438 | 0.4287 | 0.0000 | 2,060.6831 | 2,060.6831 | 0.2823 | 0.0000 | 2,067.7417 |
| 2025 | 3.6930 | 7.8939 | 10.1886 | 0.0211 | 0.3141 | 0.3090 | 0.6231 | 0.0849 | 0.2965 | 0.3813 | 0.0000 | 2,051.3227 | 2,051.3227 | 0.4031 | 0.0000 | 2,058.3021 |
| **Maximum** | **3.7545** | **15.0726** | **12.4911** | **0.0243** | **6.1042** | **0.7228** | **6.6994** | **3.3320** | **0.6770** | **3.8898** | **0.0000** | **2,354.4908** | **2,354.4908** | **0.5433** | **0.0000** | **2,368.0740** |

## 2.1 Overall Construction (Maximum Daily Emission)

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2022 | 1.5654 | 15.0726 | 12.4911 | 0.0243 | 0.2779 | 0.7228 | 1.0006 | 0.0551 | 0.6770 | 0.7322 | 0.0000 | 2,354.4908 | 2,354.4908 | 0.5433 | 0.0000 | 2,368.0740 |
| 2023 | 1.3591 | 12.7131 | 11.9785 | 0.0242 | 2.7921 | 0.5951 | 3.3872 | 1.5114 | 0.5578 | 2.0692 | 0.0000 | 2,346.8287 | 2,346.8287 | 0.5394 | 0.0000 | 2,360.3136 |
| 2024 | 3.7545 | 8.4631 | 10.2700 | 0.0212 | 0.3141 | 0.3582 | 0.6723 | 0.0849 | 0.3438 | 0.4287 | 0.0000 | 2,060.6831 | 2,060.6831 | 0.2823 | 0.0000 | 2,067.7417 |
| 2025 | 3.6930 | 7.8939 | 10.1886 | 0.0211 | 0.3141 | 0.3090 | 0.6231 | 0.0849 | 0.2965 | 0.3813 | 0.0000 | 2,051.3227 | 2,051.3227 | 0.4031 | 0.0000 | 2,058.3021 |
| **Maximum** | **3.7545** | **15.0726** | **12.4911** | **0.0243** | **2.7921** | **0.7228** | **3.3872** | **1.5114** | **0.6770** | **2.0692** | **0.0000** | **2,354.4908** | **2,354.4908** | **0.5433** | **0.0000** | **2,368.0740** |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **48.72** | **0.00** | **38.21** | **51.60** | **0.00** | **33.89** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.4560 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.9091 | 4.3971 | 11.1372 | 0.0428 | 4.3041 | 0.0351 | 4.3392 | 1.1513 | 0.0327 | 1.1840 | | 4,340.7303 | 4,340.7303 | 0.1478 | | 4,344.4254 |
| Stationary | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **2.3651** | **4.3972** | **11.1433** | **0.0428** | **4.3041** | **0.0351** | **4.3392** | **1.1513** | **0.0328** | **1.1840** | | **4,340.7435** | **4,340.7435** | **0.1478** | **0.0000** | **4,344.4394** |

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.4560 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.9091 | 4.3971 | 11.1372 | 0.0428 | 4.3041 | 0.0351 | 4.3392 | 1.1513 | 0.0327 | 1.1840 | | 4,340.7303 | 4,340.7303 | 0.1478 | | 4,344.4254 |
| Stationary | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **2.3651** | **4.3972** | **11.1433** | **0.0428** | **4.3041** | **0.0351** | **4.3392** | **1.1513** | **0.0328** | **1.1840** | | **4,340.7435** | **4,340.7435** | **0.1478** | **0.0000** | **4,344.4394** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 10/3/2022 | 1/3/2023 | 5 | 67 | |
| 2 | Site Preparation | Site Preparation | 1/4/2023 | 2/19/2023 | 5 | 33 | |
| 3 | Grading | Grading | 2/20/2023 | 4/4/2023 | 5 | 32 | |
| 4 | Building Construction | Building Construction | 4/5/2023 | 4/4/2025 | 5 | 523 | |
| 5 | Architectural Coating | Architectural Coating | 7/1/2024 | 4/4/2025 | 5 | 200 | |
| 6 | Paving | Paving | 4/5/2025 | 4/11/2025 | 5 | 5 | |

**Acres of Grading (Site Preparation Phase): 16.5**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 90,000; Non-Residential Outdoor: 30,000; Striped Parking Area: 0 (Architectural Coating – sqft)**

**<u>OffRoad Equipment</u>**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Excavators | 1 | 8.00 | 158 | 0.38 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Grading | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Grading | Rollers | 1 | 8.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 4.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Building Construction | Pumps | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 7.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 7.00 | 132 | 0.36 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 4 | 10.00 | 0.00 | 114.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 2 | 5.00 | 0.00 | 188.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 4 | 25.00 | 10.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 5.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

## 3.2 Demolition - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.3673 | 0.0000 | 0.3673 | 0.0556 | 0.0000 | 0.0556 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.5208 | 14.6285 | 12.1803 | 0.0223 | | 0.7211 | 0.7211 | | 0.6754 | 0.6754 | | 2,145.6445 | 2,145.6445 | 0.5346 | | 2,159.0093 |
| **Total** | **1.5208** | **14.6285** | **12.1803** | **0.0223** | **0.3673** | **0.7211** | **1.0884** | **0.0556** | **0.6754** | **0.7310** | | **2,145.6445** | **2,145.6445** | **0.5346** | | **2,159.0093** |

## 3.2 Demolition - 2022

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0128 | 0.4233 | 0.0999 | 1.2900e-003 | 0.0304 | 1.2300e-003 | 0.0317 | 8.3200e-003 | 1.1800e-003 | 9.4900e-003 | | 138.5671 | 138.5671 | 7.2600e-003 | | 138.7485 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0318 | 0.0208 | 0.2109 | 7.0000e-004 | 0.0822 | 5.0000e-004 | 0.0827 | 0.0218 | 4.6000e-004 | 0.0223 | | 70.2792 | 70.2792 | 1.4800e-003 | | 70.3162 |
| **Total** | **0.0446** | **0.4441** | **0.3108** | **1.9900e-003** | **0.1126** | **1.7300e-003** | **0.1143** | **0.0301** | **1.6400e-003** | **0.0317** | | **208.8463** | **208.8463** | **8.7400e-003** | | **209.0647** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1653 | 0.0000 | 0.1653 | 0.0250 | 0.0000 | 0.0250 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.5208 | 14.6285 | 12.1803 | 0.0223 | | 0.7211 | 0.7211 | | 0.6754 | 0.6754 | 0.0000 | 2,145.6445 | 2,145.6445 | 0.5346 | | 2,159.0093 |
| **Total** | **1.5208** | **14.6285** | **12.1803** | **0.0223** | **0.1653** | **0.7211** | **0.8863** | **0.0250** | **0.6754** | **0.7004** | **0.0000** | **2,145.6445** | **2,145.6445** | **0.5346** | | **2,159.0093** |

## 3.2 Demolition - 2022

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0128 | 0.4233 | 0.0999 | 1.2900e-003 | 0.0304 | 1.2300e-003 | 0.0317 | 8.3200e-003 | 1.1800e-003 | 9.4900e-003 | | 138.5671 | 138.5671 | 7.2600e-003 | | 138.7485 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0318 | 0.0208 | 0.2109 | 7.0000e-004 | 0.0822 | 5.0000e-004 | 0.0827 | 0.0218 | 4.6000e-004 | 0.0223 | | 70.2792 | 70.2792 | 1.4800e-003 | | 70.3162 |
| **Total** | **0.0446** | **0.4441** | **0.3108** | **1.9900e-003** | **0.1126** | **1.7300e-003** | **0.1143** | **0.0301** | **1.6400e-003** | **0.0317** | | **208.8463** | **208.8463** | **8.7400e-003** | | **209.0647** |

## 3.2 Demolition - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.3673 | 0.0000 | 0.3673 | 0.0556 | 0.0000 | 0.0556 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3206 | 12.4118 | 11.6950 | 0.0223 | | 0.5819 | 0.5819 | | 0.5456 | 0.5456 | | 2,145.9544 | 2,145.9544 | 0.5316 | | 2,159.2435 |
| **Total** | **1.3206** | **12.4118** | **11.6950** | **0.0223** | **0.3673** | **0.5819** | **0.9492** | **0.0556** | **0.5456** | **0.6012** | | **2,145.9544** | **2,145.9544** | **0.5316** | | **2,159.2435** |

## 3.2 Demolition - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 8.7700e-003 | 0.2826 | 0.0899 | 1.2400e-003 | 0.7608 | 5.1000e-004 | 0.7614 | 0.1876 | 4.9000e-004 | 0.1881 | | 133.2865 | 133.2865 | 6.5100e-003 | | 133.4492 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0298 | 0.0187 | 0.1937 | 6.8000e-004 | 0.0822 | 4.9000e-004 | 0.0826 | 0.0218 | 4.6000e-004 | 0.0222 | | 67.5878 | 67.5878 | 1.3200e-003 | | 67.6209 |
| **Total** | **0.0386** | **0.3013** | **0.2836** | **1.9200e-003** | **0.8430** | **1.0000e-003** | **0.8440** | **0.2094** | **9.5000e-004** | **0.2103** | | **200.8743** | **200.8743** | **7.8300e-003** | | **201.0701** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1653 | 0.0000 | 0.1653 | 0.0250 | 0.0000 | 0.0250 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3206 | 12.4118 | 11.6950 | 0.0223 | | 0.5819 | 0.5819 | | 0.5456 | 0.5456 | 0.0000 | 2,145.954 4 | 2,145.954 4 | 0.5316 | | 2,159.243 5 |
| **Total** | **1.3206** | **12.4118** | **11.6950** | **0.0223** | **0.1653** | **0.5819** | **0.7471** | **0.0250** | **0.5456** | **0.5706** | **0.0000** | **2,145.954 4** | **2,145.954 4** | **0.5316** | | **2,159.243 5** |

## 3.2 Demolition - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 8.7700e-003 | 0.2826 | 0.0899 | 1.2400e-003 | 0.7608 | 5.1000e-004 | 0.7614 | 0.1876 | 4.9000e-004 | 0.1881 | | 133.2865 | 133.2865 | 6.5100e-003 | | 133.4492 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0298 | 0.0187 | 0.1937 | 6.8000e-004 | 0.0822 | 4.9000e-004 | 0.0826 | 0.0218 | 4.6000e-004 | 0.0222 | | 67.5878 | 67.5878 | 1.3200e-003 | | 67.6209 |
| **Total** | **0.0386** | **0.3013** | **0.2836** | **1.9200e-003** | **0.8430** | **1.0000e-003** | **0.8440** | **0.2094** | **9.5000e-004** | **0.2103** | | **200.8743** | **200.8743** | **7.8300e-003** | | **201.0701** |

## 3.3 Site Preparation - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.5354 | 0.0000 | 0.5354 | 0.0580 | 0.0000 | 0.0580 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.5348 | 6.1887 | 3.9239 | 9.7300e-003 | | 0.2266 | 0.2266 | | 0.2084 | 0.2084 | | 942.4317 | 942.4317 | 0.3048 | | 950.0517 |
| **Total** | **0.5348** | **6.1887** | **3.9239** | **9.7300e-003** | **0.5354** | **0.2266** | **0.7620** | **0.0580** | **0.2084** | **0.2665** | | **942.4317** | **942.4317** | **0.3048** | | **950.0517** |

### 3.3 Site Preparation - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0294 | 0.9462 | 0.3009 | 4.1600e-003 | 0.0996 | 1.7200e-003 | 0.1013 | 0.0273 | 1.6500e-003 | 0.0289 | | 446.2724 | 446.2724 | 0.0218 | | 446.8170 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0149 | 9.3500e-003 | 0.0968 | 3.4000e-004 | 0.0411 | 2.5000e-004 | 0.0413 | 0.0109 | 2.3000e-004 | 0.0111 | | 33.7939 | 33.7939 | 6.6000e-004 | | 33.8104 |
| **Total** | **0.0443** | **0.9555** | **0.3978** | **4.5000e-003** | **0.1406** | **1.9700e-003** | **0.1426** | **0.0382** | **1.8800e-003** | **0.0401** | | **480.0663** | **480.0663** | **0.0225** | | **480.6275** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.2409 | 0.0000 | 0.2409 | 0.0261 | 0.0000 | 0.0261 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.5348 | 6.1887 | 3.9239 | 9.7300e-003 | | 0.2266 | 0.2266 | | 0.2084 | 0.2084 | 0.0000 | 942.4317 | 942.4317 | 0.3048 | | 950.0517 |
| **Total** | **0.5348** | **6.1887** | **3.9239** | **9.7300e-003** | **0.2409** | **0.2266** | **0.4675** | **0.0261** | **0.2084** | **0.2346** | **0.0000** | **942.4317** | **942.4317** | **0.3048** | | **950.0517** |

## 3.3 Site Preparation - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0294 | 0.9462 | 0.3009 | 4.1600e-003 | 0.0996 | 1.7200e-003 | 0.1013 | 0.0273 | 1.6500e-003 | 0.0289 | | 446.2724 | 446.2724 | 0.0218 | | 446.8170 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0149 | 9.3500e-003 | 0.0968 | 3.4000e-004 | 0.0411 | 2.5000e-004 | 0.0413 | 0.0109 | 2.3000e-004 | 0.0111 | | 33.7939 | 33.7939 | 6.6000e-004 | | 33.8104 |
| **Total** | **0.0443** | **0.9555** | **0.3978** | **4.5000e-003** | **0.1406** | **1.9700e-003** | **0.1426** | **0.0382** | **1.8800e-003** | **0.0401** | | **480.0663** | **480.0663** | **0.0225** | | **480.6275** |

## 3.4 Grading - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 6.0221 | 0.0000 | 6.0221 | 3.3102 | 0.0000 | 3.3102 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.2856 | 12.4733 | 10.2894 | 0.0198 | | 0.5946 | 0.5946 | | 0.5573 | 0.5573 | | 1,899.9564 | 1,899.9564 | 0.4520 | | 1,911.2566 |
| **Total** | **1.2856** | **12.4733** | **10.2894** | **0.0198** | **6.0221** | **0.5946** | **6.6167** | **3.3102** | **0.5573** | **3.8676** | | **1,899.9564** | **1,899.9564** | **0.4520** | | **1,911.2566** |

## 3.4 Grading - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0298 | 0.0187 | 0.1937 | 6.8000e-004 | 0.0822 | 4.9000e-004 | 0.0826 | 0.0218 | 4.6000e-004 | 0.0222 | | 67.5878 | 67.5878 | 1.3200e-003 | | 67.6209 |
| **Total** | **0.0298** | **0.0187** | **0.1937** | **6.8000e-004** | **0.0822** | **4.9000e-004** | **0.0826** | **0.0218** | **4.6000e-004** | **0.0222** | | **67.5878** | **67.5878** | **1.3200e-003** | | **67.6209** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.7099 | 0.0000 | 2.7099 | 1.4896 | 0.0000 | 1.4896 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.2856 | 12.4733 | 10.2894 | 0.0198 | | 0.5946 | 0.5946 | | 0.5573 | 0.5573 | 0.0000 | 1,899.9564 | 1,899.9564 | 0.4520 | | 1,911.2566 |
| **Total** | **1.2856** | **12.4733** | **10.2894** | **0.0198** | **2.7099** | **0.5946** | **3.3046** | **1.4896** | **0.5573** | **2.0469** | **0.0000** | **1,899.9564** | **1,899.9564** | **0.4520** | | **1,911.2566** |

## 3.4 Grading - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0298 | 0.0187 | 0.1937 | 6.8000e-004 | 0.0822 | 4.9000e-004 | 0.0826 | 0.0218 | 4.6000e-004 | 0.0222 | | 67.5878 | 67.5878 | 1.3200e-003 | | 67.6209 |
| **Total** | **0.0298** | **0.0187** | **0.1937** | **6.8000e-004** | **0.0822** | **4.9000e-004** | **0.0826** | **0.0218** | **4.6000e-004** | **0.0222** | | **67.5878** | **67.5878** | **1.3200e-003** | | **67.6209** |

## 3.5 Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.7318 | 6.9160 | 7.7324 | 0.0137 | | 0.3348 | 0.3348 | | 0.3188 | 0.3188 | | 1,315.0438 | 1,315.0438 | 0.2523 | | 1,321.3517 |
| **Total** | **0.7318** | **6.9160** | **7.7324** | **0.0137** | | **0.3348** | **0.3348** | | **0.3188** | **0.3188** | | **1,315.0438** | **1,315.0438** | **0.2523** | | **1,321.3517** |

## 3.5 Building Construction - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0230 | 0.7606 | 0.2338 | 2.5600e-003 | 0.0677 | 9.0000e-004 | 0.0686 | 0.0195 | 8.6000e-004 | 0.0204 | | 271.0660 | 271.0660 | 0.0119 | | 271.3635 |
| Worker | 0.0745 | 0.0468 | 0.4842 | 1.6900e-003 | 0.2054 | 1.2400e-003 | 0.2066 | 0.0545 | 1.1400e-003 | 0.0556 | | 168.9695 | 168.9695 | 3.3100e-003 | | 169.0522 |
| **Total** | **0.0975** | **0.8073** | **0.7180** | **4.2500e-003** | **0.2731** | **2.1400e-003** | **0.2752** | **0.0740** | **2.0000e-003** | **0.0760** | | **440.0356** | **440.0356** | **0.0152** | | **440.4157** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.7318 | 6.9160 | 7.7324 | 0.0137 | | 0.3348 | 0.3348 | | 0.3188 | 0.3188 | 0.0000 | 1,315.0438 | 1,315.0438 | 0.2523 | | 1,321.3517 |
| **Total** | **0.7318** | **6.9160** | **7.7324** | **0.0137** | | **0.3348** | **0.3348** | | **0.3188** | **0.3188** | **0.0000** | **1,315.0438** | **1,315.0438** | **0.2523** | | **1,321.3517** |

## 3.5 Building Construction - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0230 | 0.7606 | 0.2338 | 2.5600e-003 | 0.0677 | 9.0000e-004 | 0.0686 | 0.0195 | 8.6000e-004 | 0.0204 | | 271.0660 | 271.0660 | 0.0119 | | 271.3635 |
| Worker | 0.0745 | 0.0468 | 0.4842 | 1.6900e-003 | 0.2054 | 1.2400e-003 | 0.2066 | 0.0545 | 1.1400e-003 | 0.0556 | | 168.9695 | 168.9695 | 3.3100e-003 | | 169.0522 |
| **Total** | **0.0975** | **0.8073** | **0.7180** | **4.2500e-003** | **0.2731** | **2.1400e-003** | **0.2752** | **0.0740** | **2.0000e-003** | **0.0760** | | **440.0356** | **440.0356** | **0.0152** | | **440.4157** |

## 3.5 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.6863 | 6.4416 | 7.6972 | 0.0137 | | 0.2949 | 0.2949 | | 0.2807 | 0.2807 | | 1,315.2281 | 1,315.2281 | 0.2513 | | 1,321.5100 |
| **Total** | **0.6863** | **6.4416** | **7.6972** | **0.0137** | | **0.2949** | **0.2949** | | **0.2807** | **0.2807** | | **1,315.2281** | **1,315.2281** | **0.2513** | | **1,321.5100** |

### 3.5 Building Construction - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0223 | 0.7521 | 0.2250 | 2.5400e-003 | 0.0677 | 8.8000e-004 | 0.0686 | 0.0195 | 8.4000e-004 | 0.0203 | | 269.2679 | 269.2679 | 0.0117 | | 269.5592 |
| Worker | 0.0701 | 0.0422 | 0.4480 | 1.6300e-003 | 0.2054 | 1.2100e-003 | 0.2066 | 0.0545 | 1.1200e-003 | 0.0556 | | 162.2825 | 162.2825 | 2.9700e-003 | | 162.3569 |
| **Total** | **0.0924** | **0.7943** | **0.6730** | **4.1700e-003** | **0.2731** | **2.0900e-003** | **0.2752** | **0.0740** | **1.9600e-003** | **0.0759** | | **431.5505** | **431.5505** | **0.0146** | | **431.9161** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.6863 | 6.4416 | 7.6972 | 0.0137 | | 0.2949 | 0.2949 | | 0.2807 | 0.2807 | 0.0000 | 1,315.2281 | 1,315.2281 | 0.2513 | | 1,321.5100 |
| **Total** | **0.6863** | **6.4416** | **7.6972** | **0.0137** | | **0.2949** | **0.2949** | | **0.2807** | **0.2807** | **0.0000** | **1,315.2281** | **1,315.2281** | **0.2513** | | **1,321.5100** |

## 3.5 Building Construction - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0223 | 0.7521 | 0.2250 | 2.5400e-003 | 0.0677 | 8.8000e-004 | 0.0686 | 0.0195 | 8.4000e-004 | 0.0203 | | 269.2679 | 269.2679 | 0.0117 | | 269.5592 |
| Worker | 0.0701 | 0.0422 | 0.4480 | 1.6300e-003 | 0.2054 | 1.2100e-003 | 0.2066 | 0.0545 | 1.1200e-003 | 0.0556 | | 162.2825 | 162.2825 | 2.9700e-003 | | 162.3569 |
| **Total** | **0.0924** | **0.7943** | **0.6730** | **4.1700e-003** | **0.2731** | **2.0900e-003** | **0.2752** | **0.0740** | **1.9600e-003** | **0.0759** | | **431.5505** | **431.5505** | **0.0146** | | **431.9161** |

## 3.5 Building Construction - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.6398 | 5.9591 | 7.6636 | 0.0137 | | 0.2552 | 0.2552 | | 0.2428 | 0.2428 | | 1,315.5267 | 1,315.5267 | 0.2492 | | 1,321.7562 |
| **Total** | **0.6398** | **5.9591** | **7.6636** | **0.0137** | | **0.2552** | **0.2552** | | **0.2428** | **0.2428** | | **1,315.5267** | **1,315.5267** | **0.2492** | | **1,321.7562** |

## 3.5 Building Construction - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0216 | 0.7432 | 0.2183 | 2.5200e-003 | 0.0677 | 8.6000e-004 | 0.0686 | 0.0195 | 8.2000e-004 | 0.0203 | | 267.5353 | 267.5353 | 0.0114 | | 267.8207 |
| Worker | 0.0664 | 0.0384 | 0.4146 | 1.5600e-003 | 0.2054 | 1.2000e-003 | 0.2066 | 0.0545 | 1.1000e-003 | 0.0556 | | 155.6773 | 155.6773 | 2.6900e-003 | | 155.7445 |
| **Total** | **0.0880** | **0.7816** | **0.6329** | **4.0800e-003** | **0.2731** | **2.0600e-003** | **0.2751** | **0.0740** | **1.9200e-003** | **0.0759** | | **423.2125** | **423.2125** | **0.0141** | | **423.5652** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.6398 | 5.9591 | 7.6636 | 0.0137 | | 0.2552 | 0.2552 | | 0.2428 | 0.2428 | 0.0000 | 1,315.5267 | 1,315.5267 | 0.2492 | | 1,321.7562 |
| **Total** | **0.6398** | **5.9591** | **7.6636** | **0.0137** | | **0.2552** | **0.2552** | | **0.2428** | **0.2428** | **0.0000** | **1,315.5267** | **1,315.5267** | **0.2492** | | **1,321.7562** |

## 3.5 Building Construction - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0216 | 0.7432 | 0.2183 | 2.5200e-003 | 0.0677 | 8.6000e-004 | 0.0686 | 0.0195 | 8.2000e-004 | 0.0203 | | 267.5353 | 267.5353 | 0.0114 | | 267.8207 |
| Worker | 0.0664 | 0.0384 | 0.4146 | 1.5600e-003 | 0.2054 | 1.2000e-003 | 0.2066 | 0.0545 | 1.1000e-003 | 0.0556 | | 155.6773 | 155.6773 | 2.6900e-003 | | 155.7445 |
| **Total** | **0.0880** | **0.7816** | **0.6329** | **4.0800e-003** | **0.2731** | **2.0600e-003** | **0.2751** | **0.0740** | **1.9200e-003** | **0.0759** | | **423.2125** | **423.2125** | **0.0141** | | **423.5652** |

## 3.6 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 2.7810 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1808 | 1.2188 | 1.8101 | 2.9700e-003 | | 0.0609 | 0.0609 | | 0.0609 | 0.0609 | | 281.4481 | 281.4481 | 0.0159 | | 281.8443 |
| **Total** | **2.9618** | **1.2188** | **1.8101** | **2.9700e-003** | | **0.0609** | **0.0609** | | **0.0609** | **0.0609** | | **281.4481** | **281.4481** | **0.0159** | | **281.8443** |

### 3.6 Architectural Coating - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0140 | 8.4500e-003 | 0.0896 | 3.3000e-004 | 0.0411 | 2.4000e-004 | 0.0413 | 0.0109 | 2.2000e-004 | 0.0111 | | 32.4565 | 32.4565 | 5.9000e-004 | | 32.4714 |
| **Total** | **0.0140** | **8.4500e-003** | **0.0896** | **3.3000e-004** | **0.0411** | **2.4000e-004** | **0.0413** | **0.0109** | **2.2000e-004** | **0.0111** | | **32.4565** | **32.4565** | **5.9000e-004** | | **32.4714** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 2.7810 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1808 | 1.2188 | 1.8101 | 2.9700e-003 | | 0.0609 | 0.0609 | | 0.0609 | 0.0609 | 0.0000 | 281.4481 | 281.4481 | 0.0159 | | 281.8443 |
| **Total** | **2.9618** | **1.2188** | **1.8101** | **2.9700e-003** | | **0.0609** | **0.0609** | | **0.0609** | **0.0609** | **0.0000** | **281.4481** | **281.4481** | **0.0159** | | **281.8443** |

### 3.6 Architectural Coating - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0140 | 8.4500e-003 | 0.0896 | 3.3000e-004 | 0.0411 | 2.4000e-004 | 0.0413 | 0.0109 | 2.2000e-004 | 0.0111 | | 32.4565 | 32.4565 | 5.9000e-004 | | 32.4714 |
| **Total** | **0.0140** | **8.4500e-003** | **0.0896** | **3.3000e-004** | **0.0411** | **2.4000e-004** | **0.0413** | **0.0109** | **2.2000e-004** | **0.0111** | | **32.4565** | **32.4565** | **5.9000e-004** | | **32.4714** |

### 3.6 Architectural Coating - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 2.7810 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1709 | 1.1455 | 1.8091 | 2.9700e-003 | | 0.0515 | 0.0515 | | 0.0515 | 0.0515 | | 281.4481 | 281.4481 | 0.0154 | | 281.8319 |
| **Total** | **2.9519** | **1.1455** | **1.8091** | **2.9700e-003** | | **0.0515** | **0.0515** | | **0.0515** | **0.0515** | | **281.4481** | **281.4481** | **0.0154** | | **281.8319** |

## 3.6 Architectural Coating - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0133 | 7.6800e-003 | 0.0829 | 3.1000e-004 | 0.0411 | 2.4000e-004 | 0.0413 | 0.0109 | 2.2000e-004 | 0.0111 | | 31.1355 | 31.1355 | 5.4000e-004 | | 31.1489 |
| **Total** | **0.0133** | **7.6800e-003** | **0.0829** | **3.1000e-004** | **0.0411** | **2.4000e-004** | **0.0413** | **0.0109** | **2.2000e-004** | **0.0111** | | **31.1355** | **31.1355** | **5.4000e-004** | | **31.1489** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 2.7810 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1709 | 1.1455 | 1.8091 | 2.9700e-003 | | 0.0515 | 0.0515 | | 0.0515 | 0.0515 | 0.0000 | 281.4481 | 281.4481 | 0.0154 | | 281.8319 |
| **Total** | **2.9519** | **1.1455** | **1.8091** | **2.9700e-003** | | **0.0515** | **0.0515** | | **0.0515** | **0.0515** | **0.0000** | **281.4481** | **281.4481** | **0.0154** | | **281.8319** |

## 3.6 Architectural Coating - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0133 | 7.6800e-003 | 0.0829 | 3.1000e-004 | 0.0411 | 2.4000e-004 | 0.0413 | 0.0109 | 2.2000e-004 | 0.0111 | | 31.1355 | 31.1355 | 5.4000e-004 | | 31.1489 |
| **Total** | **0.0133** | **7.6800e-003** | **0.0829** | **3.1000e-004** | **0.0411** | **2.4000e-004** | **0.0413** | **0.0109** | **2.2000e-004** | **0.0111** | | **31.1355** | **31.1355** | **5.4000e-004** | | **31.1489** |

## 3.7 Paving - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.5601 | 5.1988 | 8.5601 | 0.0132 | | 0.2412 | 0.2412 | | 0.2227 | 0.2227 | | 1,267.6371 | 1,267.6371 | 0.4017 | | 1,277.6786 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.5601** | **5.1988** | **8.5601** | **0.0132** | | **0.2412** | **0.2412** | | **0.2227** | **0.2227** | | **1,267.6371** | **1,267.6371** | **0.4017** | | **1,277.6786** |

## 3.7 Paving - 2025

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0345 | 0.0200 | 0.2156 | 8.1000e-004 | 0.1068 | 6.2000e-004 | 0.1074 | 0.0283 | 5.7000e-004 | 0.0289 | | 80.9522 | 80.9522 | 1.4000e-003 | | 80.9872 |
| **Total** | **0.0345** | **0.0200** | **0.2156** | **8.1000e-004** | **0.1068** | **6.2000e-004** | **0.1074** | **0.0283** | **5.7000e-004** | **0.0289** | | **80.9522** | **80.9522** | **1.4000e-003** | | **80.9872** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.5601 | 5.1988 | 8.5601 | 0.0132 | | 0.2412 | 0.2412 | | 0.2227 | 0.2227 | 0.0000 | 1,267.6371 | 1,267.6371 | 0.4017 | | 1,277.6786 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.5601** | **5.1988** | **8.5601** | **0.0132** | | **0.2412** | **0.2412** | | **0.2227** | **0.2227** | **0.0000** | **1,267.6371** | **1,267.6371** | **0.4017** | | **1,277.6786** |

### 3.7 Paving - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0345 | 0.0200 | 0.2156 | 8.1000e-004 | 0.1068 | 6.2000e-004 | 0.1074 | 0.0283 | 5.7000e-004 | 0.0289 | | 80.9522 | 80.9522 | 1.4000e-003 | | 80.9872 |
| **Total** | **0.0345** | **0.0200** | **0.2156** | **8.1000e-004** | **0.1068** | **6.2000e-004** | **0.1074** | **0.0283** | **5.7000e-004** | **0.0289** | | **80.9522** | **80.9522** | **1.4000e-003** | | **80.9872** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.9091 | 4.3971 | 11.1372 | 0.0428 | 4.3041 | 0.0351 | 4.3392 | 1.1513 | 0.0327 | 1.1840 | | 4,340.7303 | 4,340.7303 | 0.1478 | | 4,344.4254 |
| Unmitigated | 0.9091 | 4.3971 | 11.1372 | 0.0428 | 4.3041 | 0.0351 | 4.3392 | 1.1513 | 0.0327 | 1.1840 | | 4,340.7303 | 4,340.7303 | 0.1478 | | 4,344.4254 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Junior College (2Yr) | 798.00 | 673.80 | 72.60 | 1,718,323 | 1,718,323 |
| Total | 798.00 | 673.80 | 72.60 | 1,718,323 | 1,718,323 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Junior College (2Yr) | 9.50 | 7.30 | 7.30 | 6.40 | 88.60 | 5.00 | 92 | 7 | 1 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Junior College (2Yr) | 0.581705 | 0.037849 | 0.193793 | 0.109044 | 0.014574 | 0.005304 | 0.018664 | 0.026966 | 0.002656 | 0.002072 | 0.005755 | 0.000900 | 0.000719 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Junior College (2Yr) | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Junior College (2Yr) | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.4560 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| Unmitigated | 1.4560 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1714 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.2840 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 5.6000e-004 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| **Total** | **1.4560** | **6.0000e-005** | **6.1100e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | **0.0131** | **0.0131** | **3.0000e-005** | | **0.0140** |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1714 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.2840 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 5.6000e-004 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| **Total** | **1.4560** | **6.0000e-005** | **6.1100e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | **0.0131** | **0.0131** | **3.0000e-005** | | **0.0140** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|
| Emergency Generator | 1 | 0 | 50 | 359 | 0.73 | Diesel |

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

### 10.1 Stationary Sources

**Unmitigated/Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | lb/day | | | | | | | | | | lb/day | | | | | |
| Emergency Generator - Diesel (300 - 600 HP) | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | | **0.0000** |

## 11.0 Vegetation

# 2118 Milvia Street Project - AQ

**Bay Area AQMD Air District, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Junior College (2Yr) | 60.00 | 1000sqft | 0.26 | 60,000.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 64 |
| **Climate Zone** | 5 | | | **Operational Year** | 2025 |
| **Utility Company** | User Defined | | | | |
| **CO2 Intensity (lb/MWhr)** | 0 | **CH4 Intensity (lb/MWhr)** | 0 | **N2O Intensity (lb/MWhr)** | 0 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project would enroll in East Bay Community Power Brilliant 100 (100% carbon-free electricity)

Land Use - Lot acreage per project site details

Construction Phase - Construction schedule per College, architectural coating starts halfway though building construction

Off-road Equipment -

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Demolition - 25 ksf is existing sf of building to be demolished

Grading - Export per College

Architectural Coating - per BAAQMD Reg 8 Rule 3

Vehicle Trips - Weekday trip rate per TIS

Energy Use - Electricity use reduced by 30% per 2019 Title 24. No natural gas use.

Water And Wastewater - No outdoor water use per site plan

Construction Off-road Equipment Mitigation - per College: watering 2x daily

Mobile Land Use Mitigation -

Energy Mitigation - Project includes solar panels; however, sizing information not provided.

Water Mitigation - Indoor water use reduced 20% per 2016 CalGreen.

Stationary Sources - Emergency Generators and Fire Pumps - Per BAAQMD Regulation 8 Rule 9, operational hours were assumed to be 50 hours per year for testing and maintenance

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblArchitecturalCoating | EF_Nonresidential_Exterior | 150.00 | 100.00 |
| tblArchitecturalCoating | EF_Residential_Exterior | 150.00 | 100.00 |
| tblConstructionPhase | NumDays | 5.00 | 200.00 |
| tblConstructionPhase | NumDays | 100.00 | 523.00 |
| tblConstructionPhase | NumDays | 10.00 | 67.00 |
| tblConstructionPhase | NumDays | 2.00 | 32.00 |
| tblConstructionPhase | NumDays | 1.00 | 33.00 |
| tblEnergyUse | NT24NG | 0.74 | 0.00 |
| tblEnergyUse | T24E | 4.14 | 2.90 |
| tblEnergyUse | T24NG | 33.46 | 0.00 |
| tblGrading | MaterialExported | 0.00 | 1,500.00 |
| tblLandUse | LotAcreage | 1.38 | 0.26 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 8.00 |
| tblStationaryGeneratorsPumpsUse | HorsePowerValue | 0.00 | 359.00 |
| tblStationaryGeneratorsPumpsUse | HoursPerYear | 0.00 | 50.00 |
| tblStationaryGeneratorsPumpsUse | NumberOfEquipment | 0.00 | 1.00 |
| tblVehicleTrips | WD_TR | 27.49 | 13.30 |
| tblWater | OutdoorWaterUseRate | 4,603,063.05 | 0.00 |

## 2.0 Emissions Summary

## 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2022 | 1.5632 | 15.0595 | 12.4999 | 0.0244 | 0.4799 | 0.7228 | 1.2026 | 0.0857 | 0.6770 | 0.7627 | 0.0000 | 2,362.907 5 | 2,362.907 5 | 0.5431 | 0.0000 | 2,376.485 4 |
| 2023 | 1.3571 | 12.7050 | 11.9889 | 0.0243 | 6.1042 | 0.5951 | 6.6994 | 3.3320 | 0.5578 | 3.8898 | 0.0000 | 2,354.919 7 | 2,354.919 7 | 0.5393 | 0.0000 | 2,368.401 0 |
| 2024 | 3.7477 | 8.4500 | 10.2874 | 0.0214 | 0.3141 | 0.3582 | 0.6723 | 0.0849 | 0.3438 | 0.4287 | 0.0000 | 2,084.246 6 | 2,084.246 6 | 0.2819 | 0.0000 | 2,091.292 9 |
| 2025 | 3.6863 | 7.8817 | 10.2050 | 0.0213 | 0.3141 | 0.3089 | 0.6231 | 0.0849 | 0.2964 | 0.3813 | 0.0000 | 2,074.108 2 | 2,074.108 2 | 0.4032 | 0.0000 | 2,081.075 6 |
| **Maximum** | **3.7477** | **15.0595** | **12.4999** | **0.0244** | **6.1042** | **0.7228** | **6.6994** | **3.3320** | **0.6770** | **3.8898** | **0.0000** | **2,362.907 5** | **2,362.907 5** | **0.5431** | **0.0000** | **2,376.485 4** |

## 2.1 Overall Construction (Maximum Daily Emission)

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2022 | 1.5632 | 15.0595 | 12.4999 | 0.0244 | 0.2779 | 0.7228 | 1.0006 | 0.0551 | 0.6770 | 0.7321 | 0.0000 | 2,362.9075 | 2,362.9075 | 0.5431 | 0.0000 | 2,376.4854 |
| 2023 | 1.3571 | 12.7050 | 11.9889 | 0.0243 | 2.7921 | 0.5951 | 3.3872 | 1.5114 | 0.5578 | 2.0692 | 0.0000 | 2,354.9197 | 2,354.9197 | 0.5393 | 0.0000 | 2,368.4010 |
| 2024 | 3.7477 | 8.4500 | 10.2874 | 0.0214 | 0.3141 | 0.3582 | 0.6723 | 0.0849 | 0.3438 | 0.4287 | 0.0000 | 2,084.2466 | 2,084.2466 | 0.2819 | 0.0000 | 2,091.2929 |
| 2025 | 3.6863 | 7.8817 | 10.2050 | 0.0213 | 0.3141 | 0.3089 | 0.6231 | 0.0849 | 0.2964 | 0.3813 | 0.0000 | 2,074.1082 | 2,074.1082 | 0.4032 | 0.0000 | 2,081.0756 |
| **Maximum** | **3.7477** | **15.0595** | **12.4999** | **0.0244** | **2.7921** | **0.7228** | **3.3872** | **1.5114** | **0.6770** | **2.0692** | **0.0000** | **2,362.9075** | **2,362.9075** | **0.5431** | **0.0000** | **2,376.4854** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **48.72** | **0.00** | **38.21** | **51.60** | **0.00** | **33.89** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.4560 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 1.0556 | 4.1962 | 11.2065 | 0.0457 | 4.3041 | 0.0350 | 4.3391 | 1.1513 | 0.0326 | 1.1839 | | 4,629.4737 | 4,629.4737 | 0.1454 | | 4,633.1086 |
| Stationary | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **2.5116** | **4.1963** | **11.2126** | **0.0457** | **4.3041** | **0.0350** | **4.3391** | **1.1513** | **0.0326** | **1.1839** | | **4,629.4868** | **4,629.4868** | **0.1454** | **0.0000** | **4,633.1226** |

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.4560 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 1.0556 | 4.1962 | 11.2065 | 0.0457 | 4.3041 | 0.0350 | 4.3391 | 1.1513 | 0.0326 | 1.1839 | | 4,629.4737 | 4,629.4737 | 0.1454 | | 4,633.1086 |
| Stationary | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **2.5116** | **4.1963** | **11.2126** | **0.0457** | **4.3041** | **0.0350** | **4.3391** | **1.1513** | **0.0326** | **1.1839** | | **4,629.4868** | **4,629.4868** | **0.1454** | **0.0000** | **4,633.1226** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 10/3/2022 | 1/3/2023 | 5 | 67 | |
| 2 | Site Preparation | Site Preparation | 1/4/2023 | 2/19/2023 | 5 | 33 | |
| 3 | Grading | Grading | 2/20/2023 | 4/4/2023 | 5 | 32 | |
| 4 | Building Construction | Building Construction | 4/5/2023 | 4/4/2025 | 5 | 523 | |
| 5 | Architectural Coating | Architectural Coating | 7/1/2024 | 4/4/2025 | 5 | 200 | |
| 6 | Paving | Paving | 4/5/2025 | 4/11/2025 | 5 | 5 | |

**Acres of Grading (Site Preparation Phase): 16.5**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 90,000; Non-Residential Outdoor: 30,000; Striped Parking Area: 0 (Architectural Coating – sqft)**

**<u>OffRoad Equipment</u>**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Excavators | 1 | 8.00 | 158 | 0.38 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Grading | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Grading | Rollers | 1 | 8.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 4.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Building Construction | Pumps | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 7.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 7.00 | 132 | 0.36 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 4 | 10.00 | 0.00 | 114.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 2 | 5.00 | 0.00 | 188.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 4 | 25.00 | 10.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 5.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

## 3.2 Demolition - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.3673 | 0.0000 | 0.3673 | 0.0556 | 0.0000 | 0.0556 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.5208 | 14.6285 | 12.1803 | 0.0223 | | 0.7211 | 0.7211 | | 0.6754 | 0.6754 | | 2,145.6445 | 2,145.6445 | 0.5346 | | 2,159.0093 |
| **Total** | **1.5208** | **14.6285** | **12.1803** | **0.0223** | **0.3673** | **0.7211** | **1.0884** | **0.0556** | **0.6754** | **0.7310** | | **2,145.6445** | **2,145.6445** | **0.5346** | | **2,159.0093** |

## 3.2 Demolition - 2022

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0125 | 0.4141 | 0.0933 | 1.3200e-003 | 0.0304 | 1.2100e-003 | 0.0316 | 8.3200e-003 | 1.1600e-003 | 9.4700e-003 | | 140.9735 | 140.9735 | 6.9300e-003 | | 141.1468 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0299 | 0.0169 | 0.2263 | 7.7000e-004 | 0.0822 | 5.0000e-004 | 0.0827 | 0.0218 | 4.6000e-004 | 0.0223 | | 76.2895 | 76.2895 | 1.5900e-003 | | 76.3293 |
| **Total** | **0.0424** | **0.4310** | **0.3196** | **2.0900e-003** | **0.1126** | **1.7100e-003** | **0.1143** | **0.0301** | **1.6200e-003** | **0.0317** | | **217.2630** | **217.2630** | **8.5200e-003** | | **217.4760** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1653 | 0.0000 | 0.1653 | 0.0250 | 0.0000 | 0.0250 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.5208 | 14.6285 | 12.1803 | 0.0223 | | 0.7211 | 0.7211 | | 0.6754 | 0.6754 | 0.0000 | 2,145.6445 | 2,145.6445 | 0.5346 | | 2,159.0093 |
| **Total** | **1.5208** | **14.6285** | **12.1803** | **0.0223** | **0.1653** | **0.7211** | **0.8863** | **0.0250** | **0.6754** | **0.7004** | **0.0000** | **2,145.6445** | **2,145.6445** | **0.5346** | | **2,159.0093** |

## 3.2 Demolition - 2022

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0125 | 0.4141 | 0.0933 | 1.3200e-003 | 0.0304 | 1.2100e-003 | 0.0316 | 8.3200e-003 | 1.1600e-003 | 9.4700e-003 | | 140.9735 | 140.9735 | 6.9300e-003 | | 141.1468 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0299 | 0.0169 | 0.2263 | 7.7000e-004 | 0.0822 | 5.0000e-004 | 0.0827 | 0.0218 | 4.6000e-004 | 0.0223 | | 76.2895 | 76.2895 | 1.5900e-003 | | 76.3293 |
| **Total** | **0.0424** | **0.4310** | **0.3196** | **2.0900e-003** | **0.1126** | **1.7100e-003** | **0.1143** | **0.0301** | **1.6200e-003** | **0.0317** | | **217.2630** | **217.2630** | **8.5200e-003** | | **217.4760** |

## 3.2 Demolition - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.3673 | 0.0000 | 0.3673 | 0.0556 | 0.0000 | 0.0556 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3206 | 12.4118 | 11.6950 | 0.0223 | | 0.5819 | 0.5819 | | 0.5456 | 0.5456 | | 2,145.9544 | 2,145.9544 | 0.5316 | | 2,159.2435 |
| **Total** | **1.3206** | **12.4118** | **11.6950** | **0.0223** | **0.3673** | **0.5819** | **0.9492** | **0.0556** | **0.5456** | **0.6012** | | **2,145.9544** | **2,145.9544** | **0.5316** | | **2,159.2435** |

## 3.2 Demolition - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 8.5300e-003 | 0.2780 | 0.0852 | 1.2600e-003 | 0.7608 | 5.0000e-004 | 0.7613 | 0.1876 | 4.8000e-004 | 0.1881 | | 135.6004 | 135.6004 | 6.2600e-003 | | 135.7569 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0279 | 0.0152 | 0.2088 | 7.4000e-004 | 0.0822 | 4.9000e-004 | 0.0826 | 0.0218 | 4.6000e-004 | 0.0222 | | 73.3649 | 73.3649 | 1.4300e-003 | | 73.4006 |
| **Total** | **0.0365** | **0.2932** | **0.2939** | **2.0000e-003** | **0.8430** | **9.9000e-004** | **0.8440** | **0.2094** | **9.4000e-004** | **0.2103** | | **208.9653** | **208.9653** | **7.6900e-003** | | **209.1575** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1653 | 0.0000 | 0.1653 | 0.0250 | 0.0000 | 0.0250 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3206 | 12.4118 | 11.6950 | 0.0223 | | 0.5819 | 0.5819 | | 0.5456 | 0.5456 | 0.0000 | 2,145.9544 | 2,145.9544 | 0.5316 | | 2,159.2435 |
| **Total** | **1.3206** | **12.4118** | **11.6950** | **0.0223** | **0.1653** | **0.5819** | **0.7471** | **0.0250** | **0.5456** | **0.5706** | **0.0000** | **2,145.9544** | **2,145.9544** | **0.5316** | | **2,159.2435** |

## 3.2 Demolition - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 8.5300e-003 | 0.2780 | 0.0852 | 1.2600e-003 | 0.7608 | 5.0000e-004 | 0.7613 | 0.1876 | 4.8000e-004 | 0.1881 | | 135.6004 | 135.6004 | 6.2600e-003 | | 135.7569 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0279 | 0.0152 | 0.2088 | 7.4000e-004 | 0.0822 | 4.9000e-004 | 0.0826 | 0.0218 | 4.6000e-004 | 0.0222 | | 73.3649 | 73.3649 | 1.4300e-003 | | 73.4006 |
| **Total** | **0.0365** | **0.2932** | **0.2939** | **2.0000e-003** | **0.8430** | **9.9000e-004** | **0.8440** | **0.2094** | **9.4000e-004** | **0.2103** | | **208.9653** | **208.9653** | **7.6900e-003** | | **209.1575** |

## 3.3 Site Preparation - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.5354 | 0.0000 | 0.5354 | 0.0580 | 0.0000 | 0.0580 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.5348 | 6.1887 | 3.9239 | 9.7300e-003 | | 0.2266 | 0.2266 | | 0.2084 | 0.2084 | | 942.4317 | 942.4317 | 0.3048 | | 950.0517 |
| **Total** | **0.5348** | **6.1887** | **3.9239** | **9.7300e-003** | **0.5354** | **0.2266** | **0.7620** | **0.0580** | **0.2084** | **0.2665** | | **942.4317** | **942.4317** | **0.3048** | | **950.0517** |

### 3.3 Site Preparation - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0286 | 0.9309 | 0.2851 | 4.2300e-003 | 0.0996 | 1.6800e-003 | 0.1012 | 0.0273 | 1.6100e-003 | 0.0289 | | 454.0199 | 454.0199 | 0.0210 | | 454.5439 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0140 | 7.5800e-003 | 0.1044 | 3.7000e-004 | 0.0411 | 2.5000e-004 | 0.0413 | 0.0109 | 2.3000e-004 | 0.0111 | | 36.6824 | 36.6824 | 7.1000e-004 | | 36.7003 |
| **Total** | **0.0425** | **0.9385** | **0.3895** | **4.6000e-003** | **0.1406** | **1.9300e-003** | **0.1426** | **0.0382** | **1.8400e-003** | **0.0400** | | **490.7024** | **490.7024** | **0.0217** | | **491.2441** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.2409 | 0.0000 | 0.2409 | 0.0261 | 0.0000 | 0.0261 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.5348 | 6.1887 | 3.9239 | 9.7300e-003 | | 0.2266 | 0.2266 | | 0.2084 | 0.2084 | 0.0000 | 942.4317 | 942.4317 | 0.3048 | | 950.0517 |
| **Total** | **0.5348** | **6.1887** | **3.9239** | **9.7300e-003** | **0.2409** | **0.2266** | **0.4675** | **0.0261** | **0.2084** | **0.2346** | **0.0000** | **942.4317** | **942.4317** | **0.3048** | | **950.0517** |

### 3.3 Site Preparation - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0286 | 0.9309 | 0.2851 | 4.2300e-003 | 0.0996 | 1.6800e-003 | 0.1012 | 0.0273 | 1.6100e-003 | 0.0289 | | 454.0199 | 454.0199 | 0.0210 | | 454.5439 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0140 | 7.5800e-003 | 0.1044 | 3.7000e-004 | 0.0411 | 2.5000e-004 | 0.0413 | 0.0109 | 2.3000e-004 | 0.0111 | | 36.6824 | 36.6824 | 7.1000e-004 | | 36.7003 |
| **Total** | **0.0425** | **0.9385** | **0.3895** | **4.6000e-003** | **0.1406** | **1.9300e-003** | **0.1426** | **0.0382** | **1.8400e-003** | **0.0400** | | **490.7024** | **490.7024** | **0.0217** | | **491.2441** |

### 3.4 Grading - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 6.0221 | 0.0000 | 6.0221 | 3.3102 | 0.0000 | 3.3102 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.2856 | 12.4733 | 10.2894 | 0.0198 | | 0.5946 | 0.5946 | | 0.5573 | 0.5573 | | 1,899.9564 | 1,899.9564 | 0.4520 | | 1,911.2566 |
| **Total** | **1.2856** | **12.4733** | **10.2894** | **0.0198** | **6.0221** | **0.5946** | **6.6167** | **3.3102** | **0.5573** | **3.8676** | | **1,899.9564** | **1,899.9564** | **0.4520** | | **1,911.2566** |

## 3.4 Grading - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0279 | 0.0152 | 0.2088 | 7.4000e-004 | 0.0822 | 4.9000e-004 | 0.0826 | 0.0218 | 4.6000e-004 | 0.0222 | | 73.3649 | 73.3649 | 1.4300e-003 | | 73.4006 |
| **Total** | **0.0279** | **0.0152** | **0.2088** | **7.4000e-004** | **0.0822** | **4.9000e-004** | **0.0826** | **0.0218** | **4.6000e-004** | **0.0222** | | **73.3649** | **73.3649** | **1.4300e-003** | | **73.4006** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.7099 | 0.0000 | 2.7099 | 1.4896 | 0.0000 | 1.4896 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.2856 | 12.4733 | 10.2894 | 0.0198 | | 0.5946 | 0.5946 | | 0.5573 | 0.5573 | 0.0000 | 1,899.956 4 | 1,899.956 4 | 0.4520 | | 1,911.256 6 |
| **Total** | **1.2856** | **12.4733** | **10.2894** | **0.0198** | **2.7099** | **0.5946** | **3.3046** | **1.4896** | **0.5573** | **2.0469** | **0.0000** | **1,899.956 4** | **1,899.956 4** | **0.4520** | | **1,911.256 6** |

## 3.4 Grading - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0279 | 0.0152 | 0.2088 | 7.4000e-004 | 0.0822 | 4.9000e-004 | 0.0826 | 0.0218 | 4.6000e-004 | 0.0222 | | 73.3649 | 73.3649 | 1.4300e-003 | | 73.4006 |
| **Total** | **0.0279** | **0.0152** | **0.2088** | **7.4000e-004** | **0.0822** | **4.9000e-004** | **0.0826** | **0.0218** | **4.6000e-004** | **0.0222** | | **73.3649** | **73.3649** | **1.4300e-003** | | **73.4006** |

## 3.5 Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.7318 | 6.9160 | 7.7324 | 0.0137 | | 0.3348 | 0.3348 | | 0.3188 | 0.3188 | | 1,315.0438 | 1,315.0438 | 0.2523 | | 1,321.3517 |
| **Total** | **0.7318** | **6.9160** | **7.7324** | **0.0137** | | **0.3348** | **0.3348** | | **0.3188** | **0.3188** | | **1,315.0438** | **1,315.0438** | **0.2523** | | **1,321.3517** |

## 3.5 Building Construction - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | | | | | | lb/day | | | | | | | | lb/day | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0217 | 0.7569 | 0.2063 | 2.6200e-003 | 0.0677 | 8.6000e-004 | 0.0686 | 0.0195 | 8.2000e-004 | 0.0203 | | 278.0949 | 278.0949 | 0.0111 | | 278.3720 |
| Worker | 0.0699 | 0.0379 | 0.5219 | 1.8400e-003 | 0.2054 | 1.2400e-003 | 0.2066 | 0.0545 | 1.1400e-003 | 0.0556 | | 183.4122 | 183.4122 | 3.5700e-003 | | 183.5014 |
| **Total** | **0.0915** | **0.7948** | **0.7282** | **4.4600e-003** | **0.2731** | **2.1000e-003** | **0.2752** | **0.0740** | **1.9600e-003** | **0.0759** | | **461.5071** | **461.5071** | **0.0147** | | **461.8734** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | | | | | | lb/day | | | | | | | | lb/day | | |
| Off-Road | 0.7318 | 6.9160 | 7.7324 | 0.0137 | | 0.3348 | 0.3348 | | 0.3188 | 0.3188 | 0.0000 | 1,315.0438 | 1,315.0438 | 0.2523 | | 1,321.3517 |
| **Total** | **0.7318** | **6.9160** | **7.7324** | **0.0137** | | **0.3348** | **0.3348** | | **0.3188** | **0.3188** | **0.0000** | **1,315.0438** | **1,315.0438** | **0.2523** | | **1,321.3517** |

## 3.5 Building Construction - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0217 | 0.7569 | 0.2063 | 2.6200e-003 | 0.0677 | 8.6000e-004 | 0.0686 | 0.0195 | 8.2000e-004 | 0.0203 | | 278.0949 | 278.0949 | 0.0111 | | 278.3720 |
| Worker | 0.0699 | 0.0379 | 0.5219 | 1.8400e-003 | 0.2054 | 1.2400e-003 | 0.2066 | 0.0545 | 1.1400e-003 | 0.0556 | | 183.4122 | 183.4122 | 3.5700e-003 | | 183.5014 |
| **Total** | **0.0915** | **0.7948** | **0.7282** | **4.4600e-003** | **0.2731** | **2.1000e-003** | **0.2752** | **0.0740** | **1.9600e-003** | **0.0759** | | **461.5071** | **461.5071** | **0.0147** | | **461.8734** |

## 3.5 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.6863 | 6.4416 | 7.6972 | 0.0137 | | 0.2949 | 0.2949 | | 0.2807 | 0.2807 | | 1,315.2281 | 1,315.2281 | 0.2513 | | 1,321.5100 |
| **Total** | **0.6863** | **6.4416** | **7.6972** | **0.0137** | | **0.2949** | **0.2949** | | **0.2807** | **0.2807** | | **1,315.2281** | **1,315.2281** | **0.2513** | | **1,321.5100** |

## 3.5 Building Construction - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0210 | 0.7485 | 0.1988 | 2.6000e-003 | 0.0677 | 8.5000e-004 | 0.0685 | 0.0195 | 8.1000e-004 | 0.0203 | | 276.1953 | 276.1953 | 0.0109 | | 276.4669 |
| Worker | 0.0655 | 0.0342 | 0.4844 | 1.7700e-003 | 0.2054 | 1.2100e-003 | 0.2066 | 0.0545 | 1.1200e-003 | 0.0556 | | 176.1460 | 176.1460 | 3.2200e-003 | | 176.2264 |
| **Total** | **0.0865** | **0.7827** | **0.6832** | **4.3700e-003** | **0.2731** | **2.0600e-003** | **0.2751** | **0.0740** | **1.9300e-003** | **0.0759** | | **452.3413** | **452.3413** | **0.0141** | | **452.6934** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.6863 | 6.4416 | 7.6972 | 0.0137 | | 0.2949 | 0.2949 | | 0.2807 | 0.2807 | 0.0000 | 1,315.2281 | 1,315.2281 | 0.2513 | | 1,321.5100 |
| **Total** | **0.6863** | **6.4416** | **7.6972** | **0.0137** | | **0.2949** | **0.2949** | | **0.2807** | **0.2807** | **0.0000** | **1,315.2281** | **1,315.2281** | **0.2513** | | **1,321.5100** |

## 3.5 Building Construction - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0210 | 0.7485 | 0.1988 | 2.6000e-003 | 0.0677 | 8.5000e-004 | 0.0685 | 0.0195 | 8.1000e-004 | 0.0203 | | 276.1953 | 276.1953 | 0.0109 | | 276.4669 |
| Worker | 0.0655 | 0.0342 | 0.4844 | 1.7700e-003 | 0.2054 | 1.2100e-003 | 0.2066 | 0.0545 | 1.1200e-003 | 0.0556 | | 176.1460 | 176.1460 | 3.2200e-003 | | 176.2264 |
| **Total** | **0.0865** | **0.7827** | **0.6832** | **4.3700e-003** | **0.2731** | **2.0600e-003** | **0.2751** | **0.0740** | **1.9300e-003** | **0.0759** | | **452.3413** | **452.3413** | **0.0141** | | **452.6934** |

## 3.5 Building Construction - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.6398 | 5.9591 | 7.6636 | 0.0137 | | 0.2552 | 0.2552 | | 0.2428 | 0.2428 | | 1,315.5267 | 1,315.5267 | 0.2492 | | 1,321.7562 |
| **Total** | **0.6398** | **5.9591** | **7.6636** | **0.0137** | | **0.2552** | **0.2552** | | **0.2428** | **0.2428** | | **1,315.5267** | **1,315.5267** | **0.2492** | | **1,321.7562** |

## 3.5 Building Construction - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0204 | 0.7398 | 0.1930 | 2.5800e-003 | 0.0677 | 8.3000e-004 | 0.0685 | 0.0195 | 8.0000e-004 | 0.0203 | | 274.3708 | 274.3708 | 0.0107 | | 274.6373 |
| Worker | 0.0618 | 0.0311 | 0.4494 | 1.6900e-003 | 0.2054 | 1.2000e-003 | 0.2066 | 0.0545 | 1.1000e-003 | 0.0556 | | 168.9689 | 168.9689 | 2.9200e-003 | | 169.0419 |
| **Total** | **0.0822** | **0.7709** | **0.6424** | **4.2700e-003** | **0.2731** | **2.0300e-003** | **0.2751** | **0.0740** | **1.9000e-003** | **0.0759** | | **443.3397** | **443.3397** | **0.0136** | | **443.6792** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.6398 | 5.9591 | 7.6636 | 0.0137 | | 0.2552 | 0.2552 | | 0.2428 | 0.2428 | 0.0000 | 1,315.5267 | 1,315.5267 | 0.2492 | | 1,321.7562 |
| **Total** | **0.6398** | **5.9591** | **7.6636** | **0.0137** | | **0.2552** | **0.2552** | | **0.2428** | **0.2428** | **0.0000** | **1,315.5267** | **1,315.5267** | **0.2492** | | **1,321.7562** |

### 3.5 Building Construction - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0204 | 0.7398 | 0.1930 | 2.5800e-003 | 0.0677 | 8.3000e-004 | 0.0685 | 0.0195 | 8.0000e-004 | 0.0203 | | 274.3708 | 274.3708 | 0.0107 | | 274.6373 |
| Worker | 0.0618 | 0.0311 | 0.4494 | 1.6900e-003 | 0.2054 | 1.2000e-003 | 0.2066 | 0.0545 | 1.1000e-003 | 0.0556 | | 168.9689 | 168.9689 | 2.9200e-003 | | 169.0419 |
| **Total** | **0.0822** | **0.7709** | **0.6424** | **4.2700e-003** | **0.2731** | **2.0300e-003** | **0.2751** | **0.0740** | **1.9000e-003** | **0.0759** | | **443.3397** | **443.3397** | **0.0136** | | **443.6792** |

### 3.6 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 2.7810 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1808 | 1.2188 | 1.8101 | 2.9700e-003 | | 0.0609 | 0.0609 | | 0.0609 | 0.0609 | | 281.4481 | 281.4481 | 0.0159 | | 281.8443 |
| **Total** | **2.9618** | **1.2188** | **1.8101** | **2.9700e-003** | | **0.0609** | **0.0609** | | **0.0609** | **0.0609** | | **281.4481** | **281.4481** | **0.0159** | | **281.8443** |

## 3.6 Architectural Coating - 2024

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0131 | 6.8500e-003 | 0.0969 | 3.5000e-004 | 0.0411 | 2.4000e-004 | 0.0413 | 0.0109 | 2.2000e-004 | 0.0111 | | 35.2292 | 35.2292 | 6.4000e-004 | | 35.2453 |
| **Total** | **0.0131** | **6.8500e-003** | **0.0969** | **3.5000e-004** | **0.0411** | **2.4000e-004** | **0.0413** | **0.0109** | **2.2000e-004** | **0.0111** | | **35.2292** | **35.2292** | **6.4000e-004** | | **35.2453** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 2.7810 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1808 | 1.2188 | 1.8101 | 2.9700e-003 | | 0.0609 | 0.0609 | | 0.0609 | 0.0609 | 0.0000 | 281.4481 | 281.4481 | 0.0159 | | 281.8443 |
| **Total** | **2.9618** | **1.2188** | **1.8101** | **2.9700e-003** | | **0.0609** | **0.0609** | | **0.0609** | **0.0609** | **0.0000** | **281.4481** | **281.4481** | **0.0159** | | **281.8443** |

## 3.6 Architectural Coating - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0131 | 6.8500e-003 | 0.0969 | 3.5000e-004 | 0.0411 | 2.4000e-004 | 0.0413 | 0.0109 | 2.2000e-004 | 0.0111 | | 35.2292 | 35.2292 | 6.4000e-004 | | 35.2453 |
| **Total** | **0.0131** | **6.8500e-003** | **0.0969** | **3.5000e-004** | **0.0411** | **2.4000e-004** | **0.0413** | **0.0109** | **2.2000e-004** | **0.0111** | | **35.2292** | **35.2292** | **6.4000e-004** | | **35.2453** |

## 3.6 Architectural Coating - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 2.7810 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1709 | 1.1455 | 1.8091 | 2.9700e-003 | | 0.0515 | 0.0515 | | 0.0515 | 0.0515 | | 281.4481 | 281.4481 | 0.0154 | | 281.8319 |
| **Total** | **2.9519** | **1.1455** | **1.8091** | **2.9700e-003** | | **0.0515** | **0.0515** | | **0.0515** | **0.0515** | | **281.4481** | **281.4481** | **0.0154** | | **281.8319** |

### 3.6 Architectural Coating - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0124 | 6.2300e-003 | 0.0899 | 3.4000e-004 | 0.0411 | 2.4000e-004 | 0.0413 | 0.0109 | 2.2000e-004 | 0.0111 | | 33.7938 | 33.7938 | 5.8000e-004 | | 33.8084 |
| **Total** | **0.0124** | **6.2300e-003** | **0.0899** | **3.4000e-004** | **0.0411** | **2.4000e-004** | **0.0413** | **0.0109** | **2.2000e-004** | **0.0111** | | **33.7938** | **33.7938** | **5.8000e-004** | | **33.8084** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 2.7810 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1709 | 1.1455 | 1.8091 | 2.9700e-003 | | 0.0515 | 0.0515 | | 0.0515 | 0.0515 | 0.0000 | 281.4481 | 281.4481 | 0.0154 | | 281.8319 |
| **Total** | **2.9519** | **1.1455** | **1.8091** | **2.9700e-003** | | **0.0515** | **0.0515** | | **0.0515** | **0.0515** | **0.0000** | **281.4481** | **281.4481** | **0.0154** | | **281.8319** |

### 3.6 Architectural Coating - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0124 | 6.2300e-003 | 0.0899 | 3.4000e-004 | 0.0411 | 2.4000e-004 | 0.0413 | 0.0109 | 2.2000e-004 | 0.0111 | | 33.7938 | 33.7938 | 5.8000e-004 | | 33.8084 |
| **Total** | **0.0124** | **6.2300e-003** | **0.0899** | **3.4000e-004** | **0.0411** | **2.4000e-004** | **0.0413** | **0.0109** | **2.2000e-004** | **0.0111** | | **33.7938** | **33.7938** | **5.8000e-004** | | **33.8084** |

### 3.7 Paving - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.5601 | 5.1988 | 8.5601 | 0.0132 | | 0.2412 | 0.2412 | | 0.2227 | 0.2227 | | 1,267.6371 | 1,267.6371 | 0.4017 | | 1,277.6786 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.5601** | **5.1988** | **8.5601** | **0.0132** | | **0.2412** | **0.2412** | | **0.2227** | **0.2227** | | **1,267.6371** | **1,267.6371** | **0.4017** | | **1,277.6786** |

## 3.7 Paving - 2025

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0322 | 0.0162 | 0.2337 | 8.8000e-004 | 0.1068 | 6.2000e-004 | 0.1074 | 0.0283 | 5.7000e-004 | 0.0289 | | 87.8639 | 87.8639 | 1.5200e-003 | | 87.9018 |
| **Total** | **0.0322** | **0.0162** | **0.2337** | **8.8000e-004** | **0.1068** | **6.2000e-004** | **0.1074** | **0.0283** | **5.7000e-004** | **0.0289** | | **87.8639** | **87.8639** | **1.5200e-003** | | **87.9018** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.5601 | 5.1988 | 8.5601 | 0.0132 | | 0.2412 | 0.2412 | | 0.2227 | 0.2227 | 0.0000 | 1,267.6371 | 1,267.6371 | 0.4017 | | 1,277.6786 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.5601** | **5.1988** | **8.5601** | **0.0132** | | **0.2412** | **0.2412** | | **0.2227** | **0.2227** | **0.0000** | **1,267.6371** | **1,267.6371** | **0.4017** | | **1,277.6786** |

### 3.7 Paving - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0322 | 0.0162 | 0.2337 | 8.8000e-004 | 0.1068 | 6.2000e-004 | 0.1074 | 0.0283 | 5.7000e-004 | 0.0289 | | 87.8639 | 87.8639 | 1.5200e-003 | | 87.9018 |
| **Total** | **0.0322** | **0.0162** | **0.2337** | **8.8000e-004** | **0.1068** | **6.2000e-004** | **0.1074** | **0.0283** | **5.7000e-004** | **0.0289** | | **87.8639** | **87.8639** | **1.5200e-003** | | **87.9018** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.0556 | 4.1962 | 11.2065 | 0.0457 | 4.3041 | 0.0350 | 4.3391 | 1.1513 | 0.0326 | 1.1839 | | 4,629.473 7 | 4,629.473 7 | 0.1454 | | 4,633.108 6 |
| Unmitigated | 1.0556 | 4.1962 | 11.2065 | 0.0457 | 4.3041 | 0.0350 | 4.3391 | 1.1513 | 0.0326 | 1.1839 | | 4,629.473 7 | 4,629.473 7 | 0.1454 | | 4,633.108 6 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Junior College (2Yr) | 798.00 | 673.80 | 72.60 | 1,718,323 | 1,718,323 |
| Total | 798.00 | 673.80 | 72.60 | 1,718,323 | 1,718,323 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Junior College (2Yr) | 9.50 | 7.30 | 7.30 | 6.40 | 88.60 | 5.00 | 92 | 7 | 1 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Junior College (2Yr) | 0.581705 | 0.037849 | 0.193793 | 0.109044 | 0.014574 | 0.005304 | 0.018664 | 0.026966 | 0.002656 | 0.002072 | 0.005755 | 0.000900 | 0.000719 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Junior College (2Yr) | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

### 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Junior College (2Yr) | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.4560 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| Unmitigated | 1.4560 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1714 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.2840 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 5.6000e-004 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| **Total** | **1.4560** | **6.0000e-005** | **6.1100e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | **0.0131** | **0.0131** | **3.0000e-005** | | **0.0140** |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1714 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.2840 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 5.6000e-004 | 6.0000e-005 | 6.1100e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 0.0131 | 0.0131 | 3.0000e-005 | | 0.0140 |
| **Total** | **1.4560** | **6.0000e-005** | **6.1100e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | **0.0131** | **0.0131** | **3.0000e-005** | | **0.0140** |

## 7.0 Water Detail

## 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

# 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

# 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|
| Emergency Generator | 1 | 0 | 50 | 359 | 0.73 | Diesel |

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 10.1 Stationary Sources

**Unmitigated/Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | lb/day | | | | | | | | | | lb/day | | | | | |
| Emergency Generator - Diesel (300 - 600 HP) | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | | **0.0000** |

## 11.0 Vegetation

# 2118 Milvia Street Project - GHG

## Bay Area AQMD Air District, Annual

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Junior College (2Yr) | 60.00 | 1000sqft | 0.26 | 60,000.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 64 |
| **Climate Zone** | 5 | | | **Operational Year** | 2030 |
| **Utility Company** | User Defined | | | | |
| **CO2 Intensity (lb/MWhr)** | 0 | **CH4 Intensity (lb/MWhr)** | 0 | **N2O Intensity (lb/MWhr)** | 0 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project would enroll in East Bay Community Power Brilliant 100 (100% carbon-free electricity)

Land Use - Lot acreage per project site details

Construction Phase - Construction schedule per College, architectural coating starts halfway though building construction

Off-road Equipment -

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Off-road Equipment - Equipment per College

Trips and VMT -

Demolition - 25 ksf is existing sf of building to be demolished

Grading - Export per College

Architectural Coating - per BAAQMD Reg 8 Rule 3

Vehicle Trips - Weekday trip rate per TIS

Energy Use - Electricity use reduced by 30% per 2019 Title 24. No natural gas use.

Water And Wastewater - No outdoor water use per site plan

Construction Off-road Equipment Mitigation - per College: watering 2x daily

Mobile Land Use Mitigation -

Water Mitigation - Indoor water use reduced 20% per 2016 CalGreen. Low-flow appliances per Sustainability Plan.

Stationary Sources - Emergency Generators and Fire Pumps - Per BAAQMD Regulation 9 Rule 8, operational hours assumed to be 50 hours per year for testing and maintenance

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblArchitecturalCoating | EF_Nonresidential_Exterior | 150.00 | 100.00 |
| tblArchitecturalCoating | EF_Residential_Exterior | 150.00 | 100.00 |
| tblConstructionPhase | NumDays | 5.00 | 200.00 |
| tblConstructionPhase | NumDays | 100.00 | 523.00 |
| tblConstructionPhase | NumDays | 10.00 | 67.00 |
| tblConstructionPhase | NumDays | 2.00 | 32.00 |
| tblConstructionPhase | NumDays | 1.00 | 33.00 |
| tblEnergyUse | NT24NG | 0.74 | 0.00 |
| tblEnergyUse | T24E | 4.14 | 2.90 |
| tblEnergyUse | T24NG | 33.46 | 0.00 |
| tblGrading | MaterialExported | 0.00 | 1,500.00 |
| tblLandUse | LotAcreage | 1.38 | 0.26 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 8.00 |
| tblVehicleTrips | WD_TR | 27.49 | 13.30 |
| tblWater | OutdoorWaterUseRate | 4,603,063.05 | 0.00 |

## 2.0 Emissions Summary

## 2.1 Overall Construction

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2022 | 0.0508 | 0.4898 | 0.4057 | 7.9000e-004 | 0.0155 | 0.0235 | 0.0390 | 2.7500e-003 | 0.0220 | 0.0248 | 0.0000 | 69.4791 | 69.4791 | 0.0160 | 0.0000 | 69.8794 |
| 2023 | 0.1111 | 1.0755 | 1.0639 | 2.3300e-003 | 0.1353 | 0.0464 | 0.1817 | 0.0620 | 0.0439 | 0.1059 | 0.0000 | 206.2035 | 206.2035 | 0.0353 | 0.0000 | 207.0870 |
| 2024 | 0.2973 | 1.0286 | 1.2188 | 2.5700e-003 | 0.0371 | 0.0430 | 0.0800 | 0.0101 | 0.0411 | 0.0511 | 0.0000 | 227.0590 | 227.0590 | 0.0325 | 0.0000 | 227.8724 |
| 2025 | 0.1267 | 0.2814 | 0.3676 | 7.5000e-004 | 0.0106 | 0.0111 | 0.0217 | 2.8600e-003 | 0.0106 | 0.0135 | 0.0000 | 66.5077 | 66.5077 | 9.5100e-003 | 0.0000 | 66.7455 |
| **Maximum** | **0.2973** | **1.0755** | **1.2188** | **2.5700e-003** | **0.1353** | **0.0464** | **0.1817** | **0.0620** | **0.0439** | **0.1059** | **0.0000** | **227.0590** | **227.0590** | **0.0353** | **0.0000** | **227.8724** |

## 2.1 Overall Construction

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2022 | 0.0508 | 0.4898 | 0.4057 | 7.9000e-004 | 8.9000e-003 | 0.0235 | 0.0324 | 1.7600e-003 | 0.0220 | 0.0238 | 0.0000 | 69.4790 | 69.4790 | 0.0160 | 0.0000 | 69.8794 |
| 2023 | 0.1111 | 1.0755 | 1.0639 | 2.3300e-003 | 0.0772 | 0.0464 | 0.1236 | 0.0323 | 0.0439 | 0.0762 | 0.0000 | 206.2033 | 206.2033 | 0.0353 | 0.0000 | 207.0868 |
| 2024 | 0.2973 | 1.0286 | 1.2188 | 2.5700e-003 | 0.0371 | 0.0430 | 0.0800 | 0.0101 | 0.0411 | 0.0511 | 0.0000 | 227.0588 | 227.0588 | 0.0325 | 0.0000 | 227.8722 |
| 2025 | 0.1267 | 0.2814 | 0.3676 | 7.5000e-004 | 0.0106 | 0.0111 | 0.0217 | 2.8600e-003 | 0.0106 | 0.0135 | 0.0000 | 66.5077 | 66.5077 | 9.5100e-003 | 0.0000 | 66.7455 |
| **Maximum** | **0.2973** | **1.0755** | **1.2188** | **2.5700e-003** | **0.0772** | **0.0464** | **0.1236** | **0.0323** | **0.0439** | **0.0762** | **0.0000** | **227.0588** | **227.0588** | **0.0353** | **0.0000** | **227.8722** |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **32.58** | **0.00** | **20.05** | **39.49** | **0.00** | **15.71** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| **Quarter** | **Start Date** | **End Date** | **Maximum Unmitigated ROG + NOX (tons/quarter)** | **Maximum Mitigated ROG + NOX (tons/quarter)** |
|---|---|---|---|---|
| **1** | **10-3-2022** | **1-2-2023** | 0.5448 | 0.5448 |
| **2** | **1-3-2023** | **4-2-2023** | 0.3418 | 0.3418 |
| **3** | **4-3-2023** | **7-2-2023** | 0.2811 | 0.2811 |
| **4** | **7-3-2023** | **10-2-2023** | 0.2804 | 0.2804 |
| **5** | **10-3-2023** | **1-2-2024** | 0.2806 | 0.2806 |
| **6** | **1-3-2024** | **4-2-2024** | 0.2605 | 0.2605 |
| **7** | **4-3-2024** | **7-2-2024** | 0.2629 | 0.2629 |
| **8** | **7-3-2024** | **10-2-2024** | 0.4008 | 0.4008 |

| | | | | |
|---|---|---|---|---|
| **9** | **10-3-2024** | **1-2-2025** | 0.4010 | 0.4010 |
| **10** | **1-3-2025** | **4-2-2025** | 0.3724 | 0.3724 |
| **11** | **4-3-2025** | **7-2-2025** | 0.0228 | 0.0228 |
| | | **Highest** | 0.5448 | 0.5448 |

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.2657 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.1123 | 0.5829 | 1.2933 | 5.9300e-003 | 0.6390 | 3.9100e-003 | 0.6430 | 0.1714 | 3.6400e-003 | 0.1751 | 0.0000 | 547.6371 | 547.6371 | 0.0171 | 0.0000 | 548.0634 |
| Stationary | 0.0147 | 0.0412 | 0.0376 | 7.0000e-005 | | 2.1700e-003 | 2.1700e-003 | | 2.1700e-003 | 2.1700e-003 | 0.0000 | 6.8353 | 6.8353 | 9.6000e-004 | 0.0000 | 6.8593 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 15.8333 | 0.0000 | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.9337 | 0.0000 | 0.9337 | 0.0959 | 2.2600e-003 | 4.0058 |
| **Total** | **0.3927** | **0.6241** | **1.3314** | **6.0000e-003** | **0.6390** | **6.0800e-003** | **0.6451** | **0.1714** | **5.8100e-003** | **0.1772** | **16.7670** | **554.4735** | **571.2404** | **1.0496** | **2.2600e-003** | **598.1559** |

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.2657 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.1123 | 0.5829 | 1.2933 | 5.9300e-003 | 0.6390 | 3.9100e-003 | 0.6430 | 0.1714 | 3.6400e-003 | 0.1751 | 0.0000 | 547.6371 | 547.6371 | 0.0171 | 0.0000 | 548.0634 |
| Stationary | 0.0147 | 0.0412 | 0.0376 | 7.0000e-005 | | 2.1700e-003 | 2.1700e-003 | | 2.1700e-003 | 2.1700e-003 | 0.0000 | 6.8353 | 6.8353 | 9.6000e-004 | 0.0000 | 6.8593 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 15.8333 | 0.0000 | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.7469 | 0.0000 | 0.7469 | 0.0767 | 1.8100e-003 | 3.2047 |
| **Total** | **0.3927** | **0.6241** | **1.3314** | **6.0000e-003** | **0.6390** | **6.0800e-003** | **0.6451** | **0.1714** | **5.8100e-003** | **0.1772** | **16.5802** | **554.4735** | **571.0537** | **1.0305** | **1.8100e-003** | **597.3548** |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **1.11** | **0.00** | **0.03** | **1.83** | **19.91** | **0.13** |

# 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 10/3/2022 | 1/3/2023 | 5 | 67 | |
| 2 | Site Preparation | Site Preparation | 1/4/2023 | 2/19/2023 | 5 | 33 | |
| 3 | Grading | Grading | 2/20/2023 | 4/4/2023 | 5 | 32 | |
| 4 | Building Construction | Building Construction | 4/5/2023 | 4/4/2025 | 5 | 523 | |
| 5 | Architectural Coating | Architectural Coating | 7/1/2024 | 4/4/2025 | 5 | 200 | |
| 6 | Paving | Paving | 4/5/2025 | 4/11/2025 | 5 | 5 | |

**Acres of Grading (Site Preparation Phase): 16.5**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 90,000; Non-Residential Outdoor: 30,000; Striped Parking Area: 0 (Architectural Coating – sqft)**

**<u>OffRoad Equipment</u>**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Excavators | 1 | 8.00 | 158 | 0.38 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Grading | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Grading | Rollers | 1 | 8.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 4.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Building Construction | Pumps | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 7.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 7.00 | 132 | 0.36 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 4 | 10.00 | 0.00 | 114.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 2 | 5.00 | 0.00 | 188.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 4 | 25.00 | 10.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 5.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

## 3.2 Demolition - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0119 | 0.0000 | 0.0119 | 1.8100e-003 | 0.0000 | 1.8100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0494 | 0.4754 | 0.3959 | 7.2000e-004 | | 0.0234 | 0.0234 | | 0.0220 | 0.0220 | 0.0000 | 63.2611 | 63.2611 | 0.0158 | 0.0000 | 63.6552 |
| **Total** | **0.0494** | **0.4754** | **0.3959** | **7.2000e-004** | **0.0119** | **0.0234** | **0.0354** | **1.8100e-003** | **0.0220** | **0.0238** | **0.0000** | **63.2611** | **63.2611** | **0.0158** | **0.0000** | **63.6552** |

## 3.2 Demolition - 2022

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.1000e-004 | 0.0137 | 3.1200e-003 | 4.0000e-005 | 9.6000e-004 | 4.0000e-005 | 1.0000e-003 | 2.6000e-004 | 4.0000e-005 | 3.0000e-004 | 0.0000 | 4.1266 | 4.1266 | 2.1000e-004 | 0.0000 | 4.1318 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 9.3000e-004 | 6.2000e-004 | 6.7000e-003 | 2.0000e-005 | 2.5700e-003 | 2.0000e-005 | 2.5800e-003 | 6.8000e-004 | 2.0000e-005 | 7.0000e-004 | 0.0000 | 2.0914 | 2.0914 | 4.0000e-005 | 0.0000 | 2.0925 |
| **Total** | **1.3400e-003** | **0.0143** | **9.8200e-003** | **6.0000e-005** | **3.5300e-003** | **6.0000e-005** | **3.5800e-003** | **9.4000e-004** | **6.0000e-005** | **1.0000e-003** | **0.0000** | **6.2180** | **6.2180** | **2.5000e-004** | **0.0000** | **6.2243** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 5.3700e-003 | 0.0000 | 5.3700e-003 | 8.1000e-004 | 0.0000 | 8.1000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0494 | 0.4754 | 0.3959 | 7.2000e-004 | | 0.0234 | 0.0234 | | 0.0220 | 0.0220 | 0.0000 | 63.2610 | 63.2610 | 0.0158 | 0.0000 | 63.6551 |
| **Total** | **0.0494** | **0.4754** | **0.3959** | **7.2000e-004** | **5.3700e-003** | **0.0234** | **0.0288** | **8.1000e-004** | **0.0220** | **0.0228** | **0.0000** | **63.2610** | **63.2610** | **0.0158** | **0.0000** | **63.6551** |

## 3.2 Demolition - 2022

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.1000e-004 | 0.0137 | 3.1200e-003 | 4.0000e-005 | 9.6000e-004 | 4.0000e-005 | 1.0000e-003 | 2.6000e-004 | 4.0000e-005 | 3.0000e-004 | 0.0000 | 4.1266 | 4.1266 | 2.1000e-004 | 0.0000 | 4.1318 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 9.3000e-004 | 6.2000e-004 | 6.7000e-003 | 2.0000e-005 | 2.5700e-003 | 2.0000e-005 | 2.5800e-003 | 6.8000e-004 | 2.0000e-005 | 7.0000e-004 | 0.0000 | 2.0914 | 2.0914 | 4.0000e-005 | 0.0000 | 2.0925 |
| **Total** | **1.3400e-003** | **0.0143** | **9.8200e-003** | **6.0000e-005** | **3.5300e-003** | **6.0000e-005** | **3.5800e-003** | **9.4000e-004** | **6.0000e-005** | **1.0000e-003** | **0.0000** | **6.2180** | **6.2180** | **2.5000e-004** | **0.0000** | **6.2243** |

## 3.2 Demolition - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 3.7000e-004 | 0.0000 | 3.7000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.3200e-003 | 0.0124 | 0.0117 | 2.0000e-005 | | 5.8000e-004 | 5.8000e-004 | | 5.5000e-004 | 5.5000e-004 | 0.0000 | 1.9468 | 1.9468 | 4.8000e-004 | 0.0000 | 1.9588 |
| **Total** | **1.3200e-003** | **0.0124** | **0.0117** | **2.0000e-005** | **3.7000e-004** | **5.8000e-004** | **9.5000e-004** | **6.0000e-005** | **5.5000e-004** | **6.1000e-004** | **0.0000** | **1.9468** | **1.9468** | **4.8000e-004** | **0.0000** | **1.9588** |

## 3.2 Demolition - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 1.0000e-005 | 2.8000e-004 | 9.0000e-005 | 0.0000 | 7.3000e-004 | 0.0000 | 7.3000e-004 | 1.8000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.1221 | 0.1221 | 1.0000e-005 | 0.0000 | 0.1223 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 8.0000e-005 | 0.0000 | 8.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 0.0619 | 0.0619 | 0.0000 | 0.0000 | 0.0619 |
| **Total** | **4.0000e-005** | **3.0000e-004** | **2.8000e-004** | **0.0000** | **8.1000e-004** | **0.0000** | **8.1000e-004** | **2.0000e-004** | **0.0000** | **2.0000e-004** | **0.0000** | **0.1840** | **0.1840** | **1.0000e-005** | **0.0000** | **0.1842** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 1.7000e-004 | 0.0000 | 1.7000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.3200e-003 | 0.0124 | 0.0117 | 2.0000e-005 | | 5.8000e-004 | 5.8000e-004 | | 5.5000e-004 | 5.5000e-004 | 0.0000 | 1.9468 | 1.9468 | 4.8000e-004 | 0.0000 | 1.9588 |
| **Total** | **1.3200e-003** | **0.0124** | **0.0117** | **2.0000e-005** | **1.7000e-004** | **5.8000e-004** | **7.5000e-004** | **3.0000e-005** | **5.5000e-004** | **5.8000e-004** | **0.0000** | **1.9468** | **1.9468** | **4.8000e-004** | **0.0000** | **1.9588** |

## 3.2 Demolition - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 1.0000e-005 | 2.8000e-004 | 9.0000e-005 | 0.0000 | 7.3000e-004 | 0.0000 | 7.3000e-004 | 1.8000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.1221 | 0.1221 | 1.0000e-005 | 0.0000 | 0.1223 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 8.0000e-005 | 0.0000 | 8.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 0.0619 | 0.0619 | 0.0000 | 0.0000 | 0.0619 |
| **Total** | **4.0000e-005** | **3.0000e-004** | **2.8000e-004** | **0.0000** | **8.1000e-004** | **0.0000** | **8.1000e-004** | **2.0000e-004** | **0.0000** | **2.0000e-004** | **0.0000** | **0.1840** | **0.1840** | **1.0000e-005** | **0.0000** | **0.1842** |

## 3.3 Site Preparation - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 8.8300e-003 | 0.0000 | 8.8300e-003 | 9.6000e-004 | 0.0000 | 9.6000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.8200e-003 | 0.1021 | 0.0648 | 1.6000e-004 | | 3.7400e-003 | 3.7400e-003 | | 3.4400e-003 | 3.4400e-003 | 0.0000 | 14.1068 | 14.1068 | 4.5600e-003 | 0.0000 | 14.2209 |
| **Total** | **8.8200e-003** | **0.1021** | **0.0648** | **1.6000e-004** | **8.8300e-003** | **3.7400e-003** | **0.0126** | **9.6000e-004** | **3.4400e-003** | **4.4000e-003** | **0.0000** | **14.1068** | **14.1068** | **4.5600e-003** | **0.0000** | **14.2209** |

## 3.3 Site Preparation - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.8000e-004 | 0.0156 | 4.8100e-003 | 7.0000e-005 | 1.5900e-003 | 3.0000e-005 | 1.6200e-003 | 4.4000e-004 | 3.0000e-005 | 4.6000e-004 | 0.0000 | 6.7473 | 6.7473 | 3.2000e-004 | 0.0000 | 6.7553 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.2000e-004 | 1.4000e-004 | 1.5600e-003 | 1.0000e-005 | 6.5000e-004 | 0.0000 | 6.6000e-004 | 1.7000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.5106 | 0.5106 | 1.0000e-005 | 0.0000 | 0.5108 |
| **Total** | **7.0000e-004** | **0.0157** | **6.3700e-003** | **8.0000e-005** | **2.2400e-003** | **3.0000e-005** | **2.2800e-003** | **6.1000e-004** | **3.0000e-005** | **6.4000e-004** | **0.0000** | **7.2579** | **7.2579** | **3.3000e-004** | **0.0000** | **7.2661** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 3.9800e-003 | 0.0000 | 3.9800e-003 | 4.3000e-004 | 0.0000 | 4.3000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.8200e-003 | 0.1021 | 0.0647 | 1.6000e-004 | | 3.7400e-003 | 3.7400e-003 | | 3.4400e-003 | 3.4400e-003 | 0.0000 | 14.1068 | 14.1068 | 4.5600e-003 | 0.0000 | 14.2209 |
| **Total** | **8.8200e-003** | **0.1021** | **0.0647** | **1.6000e-004** | **3.9800e-003** | **3.7400e-003** | **7.7200e-003** | **4.3000e-004** | **3.4400e-003** | **3.8700e-003** | **0.0000** | **14.1068** | **14.1068** | **4.5600e-003** | **0.0000** | **14.2209** |

## 3.3 Site Preparation - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 4.8000e-004 | 0.0156 | 4.8100e-003 | 7.0000e-005 | 1.5900e-003 | 3.0000e-005 | 1.6200e-003 | 4.4000e-004 | 3.0000e-005 | 4.6000e-004 | 0.0000 | 6.7473 | 6.7473 | 3.2000e-004 | 0.0000 | 6.7553 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.2000e-004 | 1.4000e-004 | 1.5600e-003 | 1.0000e-005 | 6.5000e-004 | 0.0000 | 6.6000e-004 | 1.7000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.5106 | 0.5106 | 1.0000e-005 | 0.0000 | 0.5108 |
| **Total** | **7.0000e-004** | **0.0157** | **6.3700e-003** | **8.0000e-005** | **2.2400e-003** | **3.0000e-005** | **2.2800e-003** | **6.1000e-004** | **3.0000e-005** | **6.4000e-004** | **0.0000** | **7.2579** | **7.2579** | **3.3000e-004** | **0.0000** | **7.2661** |

## 3.4 Grading - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0964 | 0.0000 | 0.0964 | 0.0530 | 0.0000 | 0.0530 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0206 | 0.1996 | 0.1646 | 3.2000e-004 | | 9.5100e-003 | 9.5100e-003 | | 8.9200e-003 | 8.9200e-003 | 0.0000 | 27.5778 | 27.5778 | 6.5600e-003 | 0.0000 | 27.7418 |
| **Total** | **0.0206** | **0.1996** | **0.1646** | **3.2000e-004** | **0.0964** | **9.5100e-003** | **0.1059** | **0.0530** | **8.9200e-003** | **0.0619** | **0.0000** | **27.5778** | **27.5778** | **6.5600e-003** | **0.0000** | **27.7418** |

## 3.4 Grading - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.3000e-004 | 2.7000e-004 | 3.0300e-003 | 1.0000e-005 | 1.2600e-003 | 1.0000e-005 | 1.2700e-003 | 3.4000e-004 | 1.0000e-005 | 3.4000e-004 | 0.0000 | 0.9902 | 0.9902 | 2.0000e-005 | 0.0000 | 0.9907 |
| **Total** | **4.3000e-004** | **2.7000e-004** | **3.0300e-003** | **1.0000e-005** | **1.2600e-003** | **1.0000e-005** | **1.2700e-003** | **3.4000e-004** | **1.0000e-005** | **3.4000e-004** | **0.0000** | **0.9902** | **0.9902** | **2.0000e-005** | **0.0000** | **0.9907** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0434 | 0.0000 | 0.0434 | 0.0238 | 0.0000 | 0.0238 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0206 | 0.1996 | 0.1646 | 3.2000e-004 | | 9.5100e-003 | 9.5100e-003 | | 8.9200e-003 | 8.9200e-003 | 0.0000 | 27.5778 | 27.5778 | 6.5600e-003 | 0.0000 | 27.7418 |
| **Total** | **0.0206** | **0.1996** | **0.1646** | **3.2000e-004** | **0.0434** | **9.5100e-003** | **0.0529** | **0.0238** | **8.9200e-003** | **0.0328** | **0.0000** | **27.5778** | **27.5778** | **6.5600e-003** | **0.0000** | **27.7418** |

## 3.4 Grading - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.3000e-004 | 2.7000e-004 | 3.0300e-003 | 1.0000e-005 | 1.2600e-003 | 1.0000e-005 | 1.2700e-003 | 3.4000e-004 | 1.0000e-005 | 3.4000e-004 | 0.0000 | 0.9902 | 0.9902 | 2.0000e-005 | 0.0000 | 0.9907 |
| **Total** | **4.3000e-004** | **2.7000e-004** | **3.0300e-003** | **1.0000e-005** | **1.2600e-003** | **1.0000e-005** | **1.2700e-003** | **3.4000e-004** | **1.0000e-005** | **3.4000e-004** | **0.0000** | **0.9902** | **0.9902** | **2.0000e-005** | **0.0000** | **0.9907** |

## 3.5 Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0706 | 0.6674 | 0.7462 | 1.3200e-003 | | 0.0323 | 0.0323 | | 0.0308 | 0.0308 | 0.0000 | 115.1233 | 115.1233 | 0.0221 | 0.0000 | 115.6755 |
| **Total** | **0.0706** | **0.6674** | **0.7462** | **1.3200e-003** | | **0.0323** | **0.0323** | | **0.0308** | **0.0308** | **0.0000** | **115.1233** | **115.1233** | **0.0221** | **0.0000** | **115.6755** |

## 3.5 Building Construction - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.1400e-003 | 0.0736 | 0.0212 | 2.5000e-004 | 6.3300e-003 | 8.0000e-005 | 6.4100e-003 | 1.8300e-003 | 8.0000e-005 | 1.9100e-003 | 0.0000 | 24.0868 | 24.0868 | 1.0000e-003 | 0.0000 | 24.1118 |
| Worker | 6.4500e-003 | 4.1200e-003 | 0.0457 | 1.6000e-004 | 0.0191 | 1.2000e-004 | 0.0192 | 5.0700e-003 | 1.1000e-004 | 5.1800e-003 | 0.0000 | 14.9299 | 14.9299 | 2.9000e-004 | 0.0000 | 14.9372 |
| **Total** | **8.5900e-003** | **0.0777** | **0.0669** | **4.1000e-004** | **0.0254** | **2.0000e-004** | **0.0256** | **6.9000e-003** | **1.9000e-004** | **7.0900e-003** | **0.0000** | **39.0167** | **39.0167** | **1.2900e-003** | **0.0000** | **39.0490** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0706 | 0.6674 | 0.7462 | 1.3200e-003 | | 0.0323 | 0.0323 | | 0.0308 | 0.0308 | 0.0000 | 115.1232 | 115.1232 | 0.0221 | 0.0000 | 115.6754 |
| **Total** | **0.0706** | **0.6674** | **0.7462** | **1.3200e-003** | | **0.0323** | **0.0323** | | **0.0308** | **0.0308** | **0.0000** | **115.1232** | **115.1232** | **0.0221** | **0.0000** | **115.6754** |

## 3.5 Building Construction - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.1400e-003 | 0.0736 | 0.0212 | 2.5000e-004 | 6.3300e-003 | 8.0000e-005 | 6.4100e-003 | 1.8300e-003 | 8.0000e-005 | 1.9100e-003 | 0.0000 | 24.0868 | 24.0868 | 1.0000e-003 | 0.0000 | 24.1118 |
| Worker | 6.4500e-003 | 4.1200e-003 | 0.0457 | 1.6000e-004 | 0.0191 | 1.2000e-004 | 0.0192 | 5.0700e-003 | 1.1000e-004 | 5.1800e-003 | 0.0000 | 14.9299 | 14.9299 | 2.9000e-004 | 0.0000 | 14.9372 |
| **Total** | **8.5900e-003** | **0.0777** | **0.0669** | **4.1000e-004** | **0.0254** | **2.0000e-004** | **0.0256** | **6.9000e-003** | **1.9000e-004** | **7.0900e-003** | **0.0000** | **39.0167** | **39.0167** | **1.2900e-003** | **0.0000** | **39.0490** |

## 3.5 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0899 | 0.8439 | 1.0083 | 1.8000e-003 | | 0.0386 | 0.0386 | | 0.0368 | 0.0368 | 0.0000 | 156.3033 | 156.3033 | 0.0299 | 0.0000 | 157.0498 |
| **Total** | **0.0899** | **0.8439** | **1.0083** | **1.8000e-003** | | **0.0386** | **0.0386** | | **0.0368** | **0.0368** | **0.0000** | **156.3033** | **156.3033** | **0.0299** | **0.0000** | **157.0498** |

## 3.5 Building Construction - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.8100e-003 | 0.0988 | 0.0277 | 3.4000e-004 | 8.5900e-003 | 1.1000e-004 | 8.7000e-003 | 2.4800e-003 | 1.1000e-004 | 2.5900e-003 | 0.0000 | 32.4774 | 32.4774 | 1.3300e-003 | 0.0000 | 32.5108 |
| Worker | 8.2300e-003 | 5.0500e-003 | 0.0575 | 2.2000e-004 | 0.0259 | 1.6000e-004 | 0.0260 | 6.8800e-003 | 1.5000e-004 | 7.0300e-003 | 0.0000 | 19.4654 | 19.4654 | 3.6000e-004 | 0.0000 | 19.4743 |
| **Total** | **0.0110** | **0.1039** | **0.0852** | **5.6000e-004** | **0.0345** | **2.7000e-004** | **0.0347** | **9.3600e-003** | **2.6000e-004** | **9.6200e-003** | **0.0000** | **51.9428** | **51.9428** | **1.6900e-003** | **0.0000** | **51.9851** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0899 | 0.8438 | 1.0083 | 1.8000e-003 | | 0.0386 | 0.0386 | | 0.0368 | 0.0368 | 0.0000 | 156.3031 | 156.3031 | 0.0299 | 0.0000 | 157.0497 |
| **Total** | **0.0899** | **0.8438** | **1.0083** | **1.8000e-003** | | **0.0386** | **0.0386** | | **0.0368** | **0.0368** | **0.0000** | **156.3031** | **156.3031** | **0.0299** | **0.0000** | **157.0497** |

## 3.5 Building Construction - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.8100e-003 | 0.0988 | 0.0277 | 3.4000e-004 | 8.5900e-003 | 1.1000e-004 | 8.7000e-003 | 2.4800e-003 | 1.1000e-004 | 2.5900e-003 | 0.0000 | 32.4774 | 32.4774 | 1.3300e-003 | 0.0000 | 32.5108 |
| Worker | 8.2300e-003 | 5.0500e-003 | 0.0575 | 2.2000e-004 | 0.0259 | 1.6000e-004 | 0.0260 | 6.8800e-003 | 1.5000e-004 | 7.0300e-003 | 0.0000 | 19.4654 | 19.4654 | 3.6000e-004 | 0.0000 | 19.4743 |
| **Total** | **0.0110** | **0.1039** | **0.0852** | **5.6000e-004** | **0.0345** | **2.7000e-004** | **0.0347** | **9.3600e-003** | **2.6000e-004** | **9.6200e-003** | **0.0000** | **51.9428** | **51.9428** | **1.6900e-003** | **0.0000** | **51.9851** |

## 3.5 Building Construction - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0218 | 0.2026 | 0.2606 | 4.7000e-004 | | 8.6800e-003 | 8.6800e-003 | | 8.2600e-003 | 8.2600e-003 | 0.0000 | 40.5765 | 40.5765 | 7.6900e-003 | 0.0000 | 40.7686 |
| **Total** | **0.0218** | **0.2026** | **0.2606** | **4.7000e-004** | | **8.6800e-003** | **8.6800e-003** | | **8.2600e-003** | **8.2600e-003** | **0.0000** | **40.5765** | **40.5765** | **7.6900e-003** | **0.0000** | **40.7686** |

## 3.5 Building Construction - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 7.1000e-004 | 0.0253 | 6.9700e-003 | 9.0000e-005 | 2.2300e-003 | 3.0000e-005 | 2.2600e-003 | 6.4000e-004 | 3.0000e-005 | 6.7000e-004 | 0.0000 | 8.3742 | 8.3742 | 3.4000e-004 | 0.0000 | 8.3827 |
| Worker | 2.0200e-003 | 1.1900e-003 | 0.0138 | 5.0000e-005 | 6.7200e-003 | 4.0000e-005 | 6.7600e-003 | 1.7900e-003 | 4.0000e-005 | 1.8200e-003 | 0.0000 | 4.8465 | 4.8465 | 8.0000e-005 | 0.0000 | 4.8485 |
| **Total** | **2.7300e-003** | **0.0265** | **0.0208** | **1.4000e-004** | **8.9500e-003** | **7.0000e-005** | **9.0200e-003** | **2.4300e-003** | **7.0000e-005** | **2.4900e-003** | **0.0000** | **13.2206** | **13.2206** | **4.2000e-004** | **0.0000** | **13.2312** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0218 | 0.2026 | 0.2606 | 4.7000e-004 | | 8.6800e-003 | 8.6800e-003 | | 8.2600e-003 | 8.2600e-003 | 0.0000 | 40.5764 | 40.5764 | 7.6900e-003 | 0.0000 | 40.7686 |
| **Total** | **0.0218** | **0.2026** | **0.2606** | **4.7000e-004** | | **8.6800e-003** | **8.6800e-003** | | **8.2600e-003** | **8.2600e-003** | **0.0000** | **40.5764** | **40.5764** | **7.6900e-003** | **0.0000** | **40.7686** |

## 3.5 Building Construction - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 7.1000e-004 | 0.0253 | 6.9700e-003 | 9.0000e-005 | 2.2300e-003 | 3.0000e-005 | 2.2600e-003 | 6.4000e-004 | 3.0000e-005 | 6.7000e-004 | 0.0000 | 8.3742 | 8.3742 | 3.4000e-004 | 0.0000 | 8.3827 |
| Worker | 2.0200e-003 | 1.1900e-003 | 0.0138 | 5.0000e-005 | 6.7200e-003 | 4.0000e-005 | 6.7600e-003 | 1.7900e-003 | 4.0000e-005 | 1.8200e-003 | 0.0000 | 4.8465 | 4.8465 | 8.0000e-005 | 0.0000 | 4.8485 |
| **Total** | **2.7300e-003** | **0.0265** | **0.0208** | **1.4000e-004** | **8.9500e-003** | **7.0000e-005** | **9.0200e-003** | **2.4300e-003** | **7.0000e-005** | **2.4900e-003** | **0.0000** | **13.2206** | **13.2206** | **4.2000e-004** | **0.0000** | **13.2312** |

## 3.6 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.1836 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0119 | 0.0804 | 0.1195 | 2.0000e-004 | | 4.0200e-003 | 4.0200e-003 | | 4.0200e-003 | 4.0200e-003 | 0.0000 | 16.8515 | 16.8515 | 9.5000e-004 | 0.0000 | 16.8752 |
| **Total** | **0.1955** | **0.0804** | **0.1195** | **2.0000e-004** | | **4.0200e-003** | **4.0200e-003** | | **4.0200e-003** | **4.0200e-003** | **0.0000** | **16.8515** | **16.8515** | **9.5000e-004** | **0.0000** | **16.8752** |

## 3.6 Architectural Coating - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.3000e-004 | 5.1000e-004 | 5.8000e-003 | 2.0000e-005 | 2.6100e-003 | 2.0000e-005 | 2.6200e-003 | 6.9000e-004 | 1.0000e-005 | 7.1000e-004 | 0.0000 | 1.9614 | 1.9614 | 4.0000e-005 | 0.0000 | 1.9623 |
| **Total** | **8.3000e-004** | **5.1000e-004** | **5.8000e-003** | **2.0000e-005** | **2.6100e-003** | **2.0000e-005** | **2.6200e-003** | **6.9000e-004** | **1.0000e-005** | **7.1000e-004** | **0.0000** | **1.9614** | **1.9614** | **4.0000e-005** | **0.0000** | **1.9623** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.1836 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0119 | 0.0804 | 0.1195 | 2.0000e-004 | | 4.0200e-003 | 4.0200e-003 | | 4.0200e-003 | 4.0200e-003 | 0.0000 | 16.8515 | 16.8515 | 9.5000e-004 | 0.0000 | 16.8752 |
| **Total** | **0.1955** | **0.0804** | **0.1195** | **2.0000e-004** | | **4.0200e-003** | **4.0200e-003** | | **4.0200e-003** | **4.0200e-003** | **0.0000** | **16.8515** | **16.8515** | **9.5000e-004** | **0.0000** | **16.8752** |

## 3.6 Architectural Coating - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.3000e-004 | 5.1000e-004 | 5.8000e-003 | 2.0000e-005 | 2.6100e-003 | 2.0000e-005 | 2.6200e-003 | 6.9000e-004 | 1.0000e-005 | 7.1000e-004 | 0.0000 | 1.9614 | 1.9614 | 4.0000e-005 | 0.0000 | 1.9623 |
| **Total** | **8.3000e-004** | **5.1000e-004** | **5.8000e-003** | **2.0000e-005** | **2.6100e-003** | **2.0000e-005** | **2.6200e-003** | **6.9000e-004** | **1.0000e-005** | **7.1000e-004** | **0.0000** | **1.9614** | **1.9614** | **4.0000e-005** | **0.0000** | **1.9623** |

## 3.6 Architectural Coating - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0946 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 5.8100e-003 | 0.0390 | 0.0615 | 1.0000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | 0.0000 | 8.6811 | 8.6811 | 4.7000e-004 | 0.0000 | 8.6929 |
| **Total** | **0.1004** | **0.0390** | **0.0615** | **1.0000e-004** | | **1.7500e-003** | **1.7500e-003** | | **1.7500e-003** | **1.7500e-003** | **0.0000** | **8.6811** | **8.6811** | **4.7000e-004** | **0.0000** | **8.6929** |

## 3.6 Architectural Coating - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-004 | 2.4000e-004 | 2.7700e-003 | 1.0000e-005 | 1.3400e-003 | 1.0000e-005 | 1.3500e-003 | 3.6000e-004 | 1.0000e-005 | 3.6000e-004 | 0.0000 | 0.9693 | 0.9693 | 2.0000e-005 | 0.0000 | 0.9697 |
| **Total** | **4.0000e-004** | **2.4000e-004** | **2.7700e-003** | **1.0000e-005** | **1.3400e-003** | **1.0000e-005** | **1.3500e-003** | **3.6000e-004** | **1.0000e-005** | **3.6000e-004** | **0.0000** | **0.9693** | **0.9693** | **2.0000e-005** | **0.0000** | **0.9697** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0946 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 5.8100e-003 | 0.0390 | 0.0615 | 1.0000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | 0.0000 | 8.6811 | 8.6811 | 4.7000e-004 | 0.0000 | 8.6929 |
| **Total** | **0.1004** | **0.0390** | **0.0615** | **1.0000e-004** | | **1.7500e-003** | **1.7500e-003** | | **1.7500e-003** | **1.7500e-003** | **0.0000** | **8.6811** | **8.6811** | **4.7000e-004** | **0.0000** | **8.6929** |

## 3.6 Architectural Coating - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-004 | 2.4000e-004 | 2.7700e-003 | 1.0000e-005 | 1.3400e-003 | 1.0000e-005 | 1.3500e-003 | 3.6000e-004 | 1.0000e-005 | 3.6000e-004 | 0.0000 | 0.9693 | 0.9693 | 2.0000e-005 | 0.0000 | 0.9697 |
| **Total** | **4.0000e-004** | **2.4000e-004** | **2.7700e-003** | **1.0000e-005** | **1.3400e-003** | **1.0000e-005** | **1.3500e-003** | **3.6000e-004** | **1.0000e-005** | **3.6000e-004** | **0.0000** | **0.9693** | **0.9693** | **2.0000e-005** | **0.0000** | **0.9697** |

## 3.7 Paving - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.4000e-003 | 0.0130 | 0.0214 | 3.0000e-005 | | 6.0000e-004 | 6.0000e-004 | | 5.6000e-004 | 5.6000e-004 | 0.0000 | 2.8750 | 2.8750 | 9.1000e-004 | 0.0000 | 2.8977 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **1.4000e-003** | **0.0130** | **0.0214** | **3.0000e-005** | | **6.0000e-004** | **6.0000e-004** | | **5.6000e-004** | **5.6000e-004** | **0.0000** | **2.8750** | **2.8750** | **9.1000e-004** | **0.0000** | **2.8977** |

## 3.7 Paving - 2025

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.0000e-005 | 5.0000e-005 | 5.3000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.1853 | 0.1853 | 0.0000 | 0.0000 | 0.1854 |
| **Total** | **8.0000e-005** | **5.0000e-005** | **5.3000e-004** | **0.0000** | **2.6000e-004** | **0.0000** | **2.6000e-004** | **7.0000e-005** | **0.0000** | **7.0000e-005** | **0.0000** | **0.1853** | **0.1853** | **0.0000** | **0.0000** | **0.1854** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.4000e-003 | 0.0130 | 0.0214 | 3.0000e-005 | | 6.0000e-004 | 6.0000e-004 | | 5.6000e-004 | 5.6000e-004 | 0.0000 | 2.8750 | 2.8750 | 9.1000e-004 | 0.0000 | 2.8977 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **1.4000e-003** | **0.0130** | **0.0214** | **3.0000e-005** | | **6.0000e-004** | **6.0000e-004** | | **5.6000e-004** | **5.6000e-004** | **0.0000** | **2.8750** | **2.8750** | **9.1000e-004** | **0.0000** | **2.8977** |

### 3.7 Paving - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.0000e-005 | 5.0000e-005 | 5.3000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.1853 | 0.1853 | 0.0000 | 0.0000 | 0.1854 |
| **Total** | **8.0000e-005** | **5.0000e-005** | **5.3000e-004** | **0.0000** | **2.6000e-004** | **0.0000** | **2.6000e-004** | **7.0000e-005** | **0.0000** | **7.0000e-005** | **0.0000** | **0.1853** | **0.1853** | **0.0000** | **0.0000** | **0.1854** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| Category | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.1123 | 0.5829 | 1.2933 | 5.9300e-003 | 0.6390 | 3.9100e-003 | 0.6430 | 0.1714 | 3.6400e-003 | 0.1751 | 0.0000 | 547.6371 | 547.6371 | 0.0171 | 0.0000 | 548.0634 |
| Unmitigated | 0.1123 | 0.5829 | 1.2933 | 5.9300e-003 | 0.6390 | 3.9100e-003 | 0.6430 | 0.1714 | 3.6400e-003 | 0.1751 | 0.0000 | 547.6371 | 547.6371 | 0.0171 | 0.0000 | 548.0634 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Junior College (2Yr) | 798.00 | 673.80 | 72.60 | 1,718,323 | 1,718,323 |
| Total | 798.00 | 673.80 | 72.60 | 1,718,323 | 1,718,323 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Junior College (2Yr) | 9.50 | 7.30 | 7.30 | 6.40 | 88.60 | 5.00 | 92 | 7 | 1 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Junior College (2Yr) | 0.585795 | 0.036515 | 0.193581 | 0.106455 | 0.012789 | 0.005274 | 0.019465 | 0.028415 | 0.002699 | 0.001789 | 0.005626 | 0.000921 | 0.000676 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Junior College (2Yr) | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Junior College (2Yr) | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Junior College (2Yr) | 538800 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Junior College (2Yr) | 538800 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.2657 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| Unmitigated | 0.2657 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0313 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.2343 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.0000e-005 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| **Total** | **0.2657** | **0.0000** | **5.5000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **1.0700e-003** | **1.0700e-003** | **0.0000** | **0.0000** | **1.1400e-003** |

## 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0313 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.2343 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.0000e-005 | 0.0000 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0700e-003 | 1.0700e-003 | 0.0000 | 0.0000 | 1.1400e-003 |
| **Total** | **0.2657** | **0.0000** | **5.5000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **1.0700e-003** | **1.0700e-003** | **0.0000** | **0.0000** | **1.1400e-003** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 0.7469 | 0.0767 | 1.8100e-003 | 3.2047 |
| Unmitigated | 0.9337 | 0.0959 | 2.2600e-003 | 4.0058 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Junior College (2Yr) | 2.94294 / 0 | 0.9337 | 0.0959 | 2.2600e-003 | 4.0058 |
| **Total** | | **0.9337** | **0.0959** | **2.2600e-003** | **4.0058** |

### 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Junior College (2Yr) | 2.35435 / 0 | 0.7469 | 0.0767 | 1.8100e-003 | 3.2047 |
| **Total** | | **0.7469** | **0.0767** | **1.8100e-003** | **3.2047** |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| Unmitigated | 15.8333 | 0.9357 | 0.0000 | 39.2263 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Junior College (2Yr) | 78 | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| **Total** | | **15.8333** | **0.9357** | **0.0000** | **39.2263** |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Junior College (2Yr) | 78 | 15.8333 | 0.9357 | 0.0000 | 39.2263 |
| **Total** | | **15.8333** | **0.9357** | **0.0000** | **39.2263** |

# 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

# 10.0 Stationary Equipment

## Fire Pumps and Emergency Generators

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|
| Emergency Generator | 1 | 0 | 50 | 359 | 0.73 | Diesel |

## Boilers

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

## User Defined Equipment

| Equipment Type | Number |
|---|---|

# 10.1 Stationary Sources

## Unmitigated/Mitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Emergency Generator - Diesel (300 - 600 HP) | 0.0147 | 0.0412 | 0.0376 | 7.0000e-005 | | 2.1700e-003 | 2.1700e-003 | | 2.1700e-003 | 2.1700e-003 | 0.0000 | 6.8353 | 6.8353 | 9.6000e-004 | 0.0000 | 6.8593 |
| **Total** | **0.0147** | **0.0412** | **0.0376** | **7.0000e-005** | | **2.1700e-003** | **2.1700e-003** | | **2.1700e-003** | **2.1700e-003** | **0.0000** | **6.8353** | **6.8353** | **9.6000e-004** | **0.0000** | **6.8593** |

# 11.0 Vegetation

| Step 1: Enter Facility Data | |
|---|---|
| Plant Name | 230 kW, 359 HP Diesel Generator |
| Plant No. | Berkeley City College |

| Step 4: Specify Source Type | |
|---|---|
| Does facility have only diesel backup generators? | yes |
| Is this analysis for a gas station? | no |

Note: Default generic distance multiplier used if source is not a generator or gas station.

| Step 2: Estimate Distance | |
|---|---|
| What is the distance (m) from the facility boundary to the MEI? | 0 |

| Step 5: Read Estimates | | |
|---|---|---|
| Total Cancer Risk | 1.673 | per 1,000,000 |
| Total Chronic Hazard | 0.000 | |
| Total PM2.5 Concentration | 0.002 | $\mu g/m^3$ |

Step 3: Enter Emissions Data

| Chemical Name | CAS No. | Rate | Risk | Hazard | Concentration |
|---|---|---|---|---|---|
| | (dashes removed) | (lb/day) | (# / 1,000,000) | (index) | (µg/m3) |
| Fine Particulate Matter (PM2.5) | | 1.19E-03 | | | 0.00 |
| 1,1,1-Trichloroethane | 71556 | 0.00E+00 | | | |
| 1,1,2,2-Tetrachloroethane | 79345 | 0.00E+00 | | | |
| 1,1,2-Trichloroethane | 79005 | 0.00E+00 | | | |
| 1,1-Dichloroethane | 75343 | 0.00E+00 | | | |
| 1,1-Dichloroethylene | 75354 | 0.00E+00 | | | |
| 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin | 3268879 | 0.00E+00 | | | |
| 1,2,3,4,6,7,8,9-Octachlorodibenzofuran | 39001020 | 0.00E+00 | | | |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 35822469 | 0.00E+00 | | | |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran | 67562394 | 0.00E+00 | | | |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran | 55673897 | 0.00E+00 | | | |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 39227286 | 0.00E+00 | | | |
| 1,2,3,4,7,8-Hexachlorodibenzofuran | 70648269 | 0.00E+00 | | | |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 57653857 | 0.00E+00 | | | |
| 1,2,3,6,7,8-Hexachlorodibenzofuran | 57117449 | 0.00E+00 | | | |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | 19408743 | 0.00E+00 | | | |
| 1,2,3,7,8,9-Hexachlorodibenzofuran | 72918219 | 0.00E+00 | | | |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | 40321764 | 0.00E+00 | | | |
| 1,2,3,7,8-Pentachlorodibenzofuran | 57117416 | 0.00E+00 | | | |
| 1,2-Dibromo-3-chloropropane | 96128 | 0.00E+00 | | | |
| 1,2-Dibromoethane | 106934 | 0.00E+00 | | | |
| 1,2-Dichloroethane | 107062 | 0.00E+00 | | | |
| 1,2-Epoxybutane | 106887 | 0.00E+00 | | | |
| 1,3-Butadiene | 106990 | 0.00E+00 | | | |
| 1,3-Propane sultone | 1120714 | 0.00E+00 | | | |
| 1,4-Dichlorobenzene | 106467 | 0.00E+00 | | | |
| 1,4-Dioxane | 123911 | 0.00E+00 | | | |
| 1,6-Dinitropyrene | 42397648 | 0.00E+00 | | | |
| 1,8-Dinitropyrene | 42397659 | 0.00E+00 | | | |
| 1-Nitropyrene | 5522430 | 0.00E+00 | | | |
| 2',3,4,4',5-PeCB | 65510443 | 0.00E+00 | | | |
| 2,3',4,4',5,5'-HxCB | 52663726 | 0.00E+00 | | | |
| 2,3',4,4',5-PeCB | 31508006 | 0.00E+00 | | | |
| 2,3,3',4,4',5'-HxCB | 69782907 | 0.00E+00 | | | |
| 2,3,3',4,4',5,5'-HpCB | 39635319 | 0.00E+00 | | | |
| 2,3,3',4,4',5-HxCB | 38380084 | 0.00E+00 | | | |
| 2,3,3',4,4'-PeCB | 32598144 | 0.00E+00 | | | |
| 2,3,4,4',5-PeCB | 74472370 | 0.00E+00 | | | |
| 2,3,4,6,7,8-hexachlorodibenzofuran | 60851345 | 0.00E+00 | | | |
| 2,3,4,7,8-Pentachlorodibenzofuran | 57117314 | 0.00E+00 | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin and related compo | 1746016 | 0.00E+00 | | | |
| 2,3,7,8-Tetrachlorodibenzofuran | 51207319 | 0.00E+00 | | | |
| 2,4,6-Trichlorophenol | 88062 | 0.00E+00 | | | |
| 2,4-Diaminoanisole | 615054 | 0.00E+00 | | | |
| 2,4-Diaminotoluene | 95807 | 0.00E+00 | | | |
| 2,4-Dinitrotoluene | 121142 | 0.00E+00 | | | |
| 2-Aminoanthraquinone | 117793 | 0.00E+00 | | | |
| 2-Nitrofluorene | 607578 | 0.00E+00 | | | |
| 3,3',4,4',5,5'-HxCB | 32774166 | 0.00E+00 | | | |
| 3,3',4,4',5-PeCB | 57465288 | 0.00E+00 | | | |
| 3,3',4,4'-TCB | 32598133 | 0.00E+00 | | | |
| 3,3-Dichlorobenzidine | 91941 | 0.00E+00 | | | |
| 3,4,4'5-TCB | 70362504 | 0.00E+00 | | | |
| 3-Methylcholanthrene | 56495 | 0.00E+00 | | | |
| 4,4-Methylene bis(2-chloroaniline) | 101144 | 0.00E+00 | | | |
| 4,4-Methylenedianiline | 101779 | 0.00E+00 | | | |
| 4-Chloro-ortho-phenylenediamine | 95830 | 0.00E+00 | | | |
| 4-Dimethylaminoazobenzene | 60117 | 0.00E+00 | | | |
| 4-Nitropyrene | 57835924 | 0.00E+00 | | | |
| 5-Methylchrysene | 3697243 | 0.00E+00 | | | |
| 5-Nitroacenaphthene | 602879 | 0.00E+00 | | | |
| 6-Nitrochrysene | 7496028 | 0.00E+00 | | | |
| 7,12-Dimethylbenz(a)anthracene | 57976 | 0.00E+00 | | | |
| 7H-dibenzo(c,g)carbazole | 194592 | 0.00E+00 | | | |
| Acetaldehyde | 75070 | 0.00E+00 | | | |
| Acetamide | 60355 | 0.00E+00 | | | |
| Acrolein | 107028 | 0.00E+00 | | | |
| Acrylamide | 79061 | 0.00E+00 | | | |
| Acrylic Acid | 79107 | 0.00E+00 | | | |
| Acrylonitrile | 107131 | 0.00E+00 | | | |
| Allyl chloride | 107051 | 0.00E+00 | | | |
| Ammonia | 7664417 | 0.00E+00 | | | |
| Aniline | 62533 | 0.00E+00 | | | |
| Arsenic | 7440382 | 0.00E+00 | | | |
| Arsine | 7784421 | 0.00E+00 | | | |
| Asbestos [1/(100 PCM fibers/m^3)]^-1 | 1332214 | 0.00E+00 | | | |
| Benz(a)anthracene | 56553 | 0.00E+00 | | | |
| Benzene | 71432 | 0.00E+00 | | | |
| Benzidine | 92875 | 0.00E+00 | | | |
| Benzo(a)pyrene | 50328 | 0.00E+00 | | | |
| Benzo(b)fluoranthene | 205992 | 0.00E+00 | | | |
| Benzo(j)fluoranthene | 205823 | 0.00E+00 | | | |
| Benzo(k)fluoranthene | 207089 | 0.00E+00 | | | |
| Benzyl Chloride | 100447 | 0.00E+00 | | | |
| Beryllium | 7440417 | 0.00E+00 | | | |
| Bis(2-chloroethyl) Ether | 111444 | 0.00E+00 | | | |
| Bis(2-chloromethyl) Ether | 542881 | 0.00E+00 | | | |
| Cadmium | 7440439 | 0.00E+00 | | | |
| Caprolactam | 105602 | 0.00E+00 | | | |
| Carbon Disulfide | 75150 | 0.00E+00 | | | |
| Carbon Monoxide | 630080 | 0.00E+00 | | | |
| Carbon Tetrachloride | 56235 | 0.00E+00 | | | |
| Carbonyl Sulfide | 463581 | 0.00E+00 | | | |
| Chlorinated paraffins (Avg. chain length C12; approx. 6( | 108171262 | 0.00E+00 | | | |
| Chlorine | 7782505 | 0.00E+00 | | | |
| Chlorine Dioxide | 10049044 | 0.00E+00 | | | |
| Chlorite | 7758192 | 0.00E+00 | | | |
| Chlorobenzene | 108907 | 0.00E+00 | | | |
| Chlorodibromomethane | 124481 | 0.00E+00 | | | |
| Chloroethane (Ethyl Chloride) | 75003 | 0.00E+00 | | | |
| Chloroform | 67663 | 0.00E+00 | | | |
| Chloropicrin | 76062 | 0.00E+00 | | | |
| Chromic Trioxide | 1333820 | 0.00E+00 | | | |
| Chromium-hexavalent | 18540299 | 0.00E+00 | | | |

| | | | | |
|---|---|---|---|---|
| Barium chromate2 | 10294403 | 0.00E+00 | | |
| Calcium chromate2 | 13765190 | 0.00E+00 | | |
| Lead chromate2 | 7758976 | 0.00E+00 | | |
| Sodium dichromate2 | 10588019 | 0.00E+00 | | |
| Strontium chromate2 | 7789062 | 0.00E+00 | | |
| CHROMIC TRIOXIDE (as chromic acid mist) | 1333820 | 0.00E+00 | | |
| Chrysene | 218019 | 0.00E+00 | | |
| Copper | 7440508 | 0.00E+00 | | |
| Copper and Copper Compounds | 7440508 | 0.00E+00 | | |
| Cresol Mixtures | 1319773 | 0.00E+00 | | |
| Cupferron | 135206 | 0.00E+00 | | |
| Cyanide | 57125 | 0.00E+00 | | |
| Di(2-ethylhexyl)phthalate | 117817 | 0.00E+00 | | |
| Dibenz(a-h)acridine | 226368 | 0.00E+00 | | |
| Dibenz(a-h)anthracene | 53703 | 0.00E+00 | | |
| Dibenz(a-j)acridine | 224420 | 0.00E+00 | | |
| Dibenzo(a-e)pyrene | 192654 | 0.00E+00 | | |
| Dibenzo(a-h)pyrene | 189640 | 0.00E+00 | | |
| Dibenzo(a-i)pyrene | 189559 | 0.00E+00 | | |
| Dibenzo(a-l)pyrene | 191300 | 0.00E+00 | | |
| Diesel Exhaust Particulate | 85105 | 1.19E-03 | 1.67E+00 | 4.49E-04 |
| Diethanolamine | 111422 | 0.00E+00 | | |
| Dimethylformamide | 68122 | 0.00E+00 | | |
| Direct Black 38 (Technical Grade) | 1937377 | 0.00E+00 | | |
| Direct Blue 6 (Technical Grade) | 2602462 | 0.00E+00 | | |
| Direct Brown 95 (Technical Grade) | 16071866 | 0.00E+00 | | |
| Epichlorohydrin | 106898 | 0.00E+00 | | |
| Ethylbenzene | 100414 | 0.00E+00 | | |
| Ethylene Glycol | 107211 | 0.00E+00 | | |
| Ethylene Glycol Monobutyl Ether | 111762 | 0.00E+00 | | |
| Ethylene Glycol Monoethyl Ether | 110805 | 0.00E+00 | | |
| Ethylene Glycol Monoethyl Ether Acetate | 111159 | 0.00E+00 | | |
| Ethylene Glycol Monomethyl Ether | 109864 | 0.00E+00 | | |
| Ethylene Glycol Monomethyl Ether Acetate | 110496 | 0.00E+00 | | |
| Ethylene Oxide | 75218 | 0.00E+00 | | |
| Ethylene Thiourea | 96457 | 0.00E+00 | | |
| Fluorides | 1101 | 0.00E+00 | | |
| Formaldehyde (gas) | 50000 | 0.00E+00 | | |
| Glutaraldehyde | 111308 | 0.00E+00 | | |
| Hexachlorobenzene | 118741 | 0.00E+00 | | |
| Hexachlorocyclohexane (Technical Grade) | 608731 | 0.00E+00 | | |
| Hexachlorocyclohexane- Alpha Isomer | 319846 | 0.00E+00 | | |
| Hexachlorocyclohexane- Beta Isomer | 319857 | 0.00E+00 | | |
| Hexachlorocyclohexane- Gamma Isomer | 58899 | 0.00E+00 | | |
| Hydrazine | 302012 | 0.00E+00 | | |
| Hydrogen Chloride | 7647010 | 0.00E+00 | | |
| Hydrogen Cyanide | 74908 | 0.00E+00 | | |
| Hydrogen Fluoride | 7664393 | 0.00E+00 | | |
| Hydrogen Selenide | 7783075 | 0.00E+00 | | |
| Hydrogen Sulfide | 7783064 | 0.00E+00 | | |
| Indeno(1-2-3-c-d)pyrene | 193395 | 0.00E+00 | | |
| Isophorone | 78591 | 0.00E+00 | | |
| Isopropyl Alcohol | 67630 | 0.00E+00 | | |
| Lead Acetate | 301042 | 0.00E+00 | | |
| Lead and Lead Compounds | 7439921 | 0.00E+00 | | |
| Lead Phosphate | 7446277 | 0.00E+00 | | |
| Lead Subacetate | 1335326 | 0.00E+00 | | |
| m-CRESOL | 108394 | 0.00E+00 | | |
| m-XYLENE | 108383 | 0.00E+00 | | |
| Maleic Anhydride | 108316 | 0.00E+00 | | |
| Manganese & Manganese Compounds | 7439965 | 0.00E+00 | | |
| Mercury (Inorganic) | 7439976 | 0.00E+00 | | |
| Mercuric chloride | 7487947 | 0.00E+00 | | |
| Methanol | 67561 | 0.00E+00 | | |
| Methyl Bromide | 74839 | 0.00E+00 | | |
| Methyl Ethyl Ketone | 78933 | 0.00E+00 | | |
| Methyl Isocyanate | 624839 | 0.00E+00 | | |
| Methyl Tertiary Butyl Ether | 1634044 | 0.00E+00 | | |
| Methylene Chloride (Dichloromethane) | 75092 | 0.00E+00 | | |
| Methylene Diphenyl Isocyanate (MDI) | 101688 | 0.00E+00 | | |
| Michlers Ketone | 90948 | 0.00E+00 | | |
| n-Hexane | 110543 | 0.00E+00 | | |
| n-Nitroso-n-methylethylamine | 10595956 | 0.00E+00 | | |
| n-Nitrosodi-n-Butylamine | 924163 | 0.00E+00 | | |
| n-Nitrosodi-n-Propylamine | 621647 | 0.00E+00 | | |
| n-Nitrosodiethylamine | 55185 | 0.00E+00 | | |
| n-Nitrosodimethylamine | 62759 | 0.00E+00 | | |
| n-Nitrosodiphenylamine | 86306 | 0.00E+00 | | |
| n-Nitrosomorpholine | 59892 | 0.00E+00 | | |
| n-Nitrosopiperidine | 100754 | 0.00E+00 | | |
| n-Nitrosopyrrolidine | 930552 | 0.00E+00 | | |
| Naphthalene | 91203 | 0.00E+00 | | |
| Nickel and Nickel Compounds | 7440020 | 0.00E+00 | | |
| Nickel acetate | 373024 | 0.00E+00 | | |
| Nickel carbonate | 3333673 | 0.00E+00 | | |
| Nickel carbonyl | 13463393 | 0.00E+00 | | |
| Nickel hydroxide | 12054487 | 0.00E+00 | | |
| Nickelocene | 1271289 | 0.00E+00 | | |
| Nickel Oxide | 1313991 | 0.00E+00 | | |
| Nickel Refinery Dust | 1146 | 0.00E+00 | | |
| Nickel Subsulfide | 12035722 | 0.00E+00 | | |
| Nitric Acid | 7697372 | 0.00E+00 | | |
| Nitrogen Dioxide | 10102440 | 0.00E+00 | | |
| o-CRESOL | 95487 | 0.00E+00 | | |
| o-XYLENE | 95476 | 0.00E+00 | | |
| Oleum | 8014957 | 0.00E+00 | | |
| Ozone | 10028156 | 0.00E+00 | | |
| p-Chloro-o-toluidine | 95692 | 0.00E+00 | | |
| p-Cresidine | 120718 | 0.00E+00 | | |
| p-CRESOL | 106445 | 0.00E+00 | | |
| p-Nitrosodiphenylamine | 156105 | 0.00E+00 | | |
| p-XYLENE | 106423 | 0.00E+00 | | |
| Pentachlorophenol | 87865 | 0.00E+00 | | |
| Perchloroethylene | 127184 | 0.00E+00 | | |
| Phenol | 108952 | 0.00E+00 | | |
| Phosgene | 75445 | 0.00E+00 | | |
| Phosphine | 7803512 | 0.00E+00 | | |
| Phosphoric Acid | 7664382 | 0.00E+00 | | |
| Phthalic Anhydride | 85449 | 0.00E+00 | | |
| Polychlorinated Biphenyls | 1336363 | 0.00E+00 | | |
| Potassium Bromate | 7758012 | 0.00E+00 | | |
| Propylene | 115071 | 0.00E+00 | | |
| Propylene Glycol Monomethyl Ether | 107982 | 0.00E+00 | | |
| Propylene oxide | 75569 | 0.00E+00 | | |
| Selenium | 7782492 | 0.00E+00 | | |
| Selenium sulfide | 7446346 | 0.00E+00 | | |
| Silica (crystalline, respirable) | 7631869 | 0.00E+00 | | |
| Sodium hydroxide | 1310732 | 0.00E+00 | | |
| Styrene | 100425 | 0.00E+00 | | |
| Sulfates | 9960 | 0.00E+00 | | |
| Sulfur Dioxide | 7446095 | 0.00E+00 | | |
| Sulfuric Acid | 7664939 | 0.00E+00 | | |

| | | | | |
|---|---|---|---|---|
| Sulfur Trioxide | 7446719 | 0.00E+00 | | |
| Tertiary-butyl acetate | 540885 | 0.00E+00 | | |
| Tetrachloroethylene | 127184 | 0.00E+00 | | |
| Thioacetamide | 62555 | 0.00E+00 | | |
| Toluene | 108883 | 0.00E+00 | | |
| Toluene Diisocyanates | 26471625 | 0.00E+00 | | |
| Toluene Diisocyanates (2,4 and 2, 6) | 584849 | 0.00E+00 | | |
| Toluene Diisocyanates (2,4 and 2, 6) | 91087 | 0.00E+00 | | |
| Trichloroethylene | 79016 | 0.00E+00 | | |
| Triethylamine | 121448 | 0.00E+00 | | |
| Urethane | 51796 | 0.00E+00 | | |
| Vanadium pentoxide | 1314621 | 0.00E+00 | | |
| Vinyl acetate | 108054 | 0.00E+00 | | |
| Vinyl chloride | 75014 | 0.00E+00 | | |
| Xylenes (technical mixture of m, o, p-isomers) | 1330207 | 0.00E+00 | | |
| Vanadium | 7440622 | 0.00E+00 | | |
| | **TOTAL UNADJUSTED Risk Values** | **1.673** | **0.000** | **0.002** |

## N2O Operational GHG Emission Mobile Calculations

Project Code & Title: 20-10138, 2118 Milvia Street Berkeley City College Project

| Vehicle Population Breakdown* | |
|---|---|
| 5460005 | Gasoline vehicles |
| 271191 | Diesel vehicles |
| 95.3% | Gasoline vehicle % |
| 4.7% | Diesel vehicle % |

| VMT per Vehicle Type | |
|---|---|
| 1718323 | Project VMT (CalEEMod output) |
| 1637015 | Gasoline vehicle VMT |
| 81308 | Diesel vehicle VMT |

| Gasoline Vehicles | |
|---|---|
| 95.3% | Gasoline vehicle % |
| 0.5829 | Tons per year mobile NOX emissions (annual output in CalEEMod) |
| 0.56 | Gasoline vehicle tons per year NOX emissions |
| 0.0406 | Tons per year N2O emissions for gasoline vehicles** |
| 0.0368 | Metric tons per year N2O emissions for gasoline vehicles |

| Diesel Vehicles | |
|---|---|
| 1.60 | grams N2O per gallon of fuel for diesel vehicles** |
| 22.99 | Diesel average miles per gallon* |
| 0.06961 | grams per mile N2O for diesel vehicles |
| 5659.8 | grams per year N2O for diesel vehicles |
| 0.0056598 | Metric tons per year N2O emissions for diesel vehicles |

| CO2e Emissions from N2O | |
|---|---|
| 0.0425 | Metric tons per year from gasoline + diesel vehicles |
| 298 | GWP of N2O*** |
| **12.7** | **CO2e emissions per year from N2O emissions from gasoline + diesel vehicles** |

### Sources

***Vehicle population source:**
EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Air District
Region: Bay Area AQMD
Calendar Year: 2030
Season: Annual
Vehicle Classification: EMFAC2011 Categories

****Methodology source:**
EMFAC2017 Volume III - Technical Documentation
https://www.arb.ca.gov/msei/emfac2011-faq.htm

*****GWP source:**
Intergovernmental Panel on Climate Change (IPCC). 2007.
AR4 Climate Change 2007: The Physical Science Basis.
Contrbution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

# Appendix CR

Cultural Resources Report (Confidential)

# FINAL

# CULTURAL RESOURCES REPORT FOR THE BERKELEY CITY COLLEGE 2118 MILVIA STREET PROJECT, ALAMEDA COUNTY, CALIFORNIA

*Prepared for:*

Aileen Mahoney
Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, CA 94612

and

Bob Parks
Peralta Community College District
501 5th Avenue
Oakland, California 94606

*Prepared by:*


Ellie Reese, M.A.,
Shauna Mundt, M.A.,
Samantha Schell, B.A., and
Dave Daly, M.A.
Pacific Legacy, Inc.
900 Modoc Street
Berkeley, California 94707


PL#3759.01
USGS 7.5’ Quadrangle: Oakland West

February 2021

## CONFIDENTIAL INFORMATION

Archaeological remains and historic period built environment resources can be damaged or destroyed through uncontrolled public disclosure of information regarding their location. This document contains sensitive information regarding the nature and location of cultural resources, which should not be disclosed to unauthorized persons.

Information regarding the location, character or ownership of certain historic properties may be exempt from public disclosure pursuant to the National Historic Preservation Act (54 USC 300101 et seq.) and the Archaeological Resources Protection Act (Public Law 96-95 and amendments). In addition, access to such information is restricted by law, pursuant to Section 6254.10 of the California State Government Code.

# SUMMARY


This report summarizes the cultural resource investigation completed for the Berkeley City College 2118 Milvia Street Project (Project). The Peralta Community College District proposes to demolish the existing building at 2118 Milvia Street and construct a new six-story building as part of Berkeley City College. The proposed building would have a total floor area of 37,760 square feet and house general education facilities (anthropology lab, art studio, classrooms, communications lab), faculty and administrative offices, outdoor meeting area on the rooftop patio, student services (health center, mental wellness, community resource centers), and learning resource center. The cultural resources investigation assists the Peralta Community College District in partial compliance with the requirements of the California Environmental Quality Act (CEQA). The cultural resources investigation for the Project was carried out under contract between Rincon Consultants, Inc. and Pacific Legacy, Inc. The purpose of the investigation was to identify prehistoric or historic period resources within the Project Area that may be adversely affected by construction related activities.

Pacific Legacy's cultural resources investigation included a review of environmental, ethnographic, prehistoric, and historic period data for the Project Area, and Native American outreach. Pacific Legacy requested a records search and literature review through the California Historical Resources Information System (CHRIS) at the Northwest Information Center (NWIC). The record search revealed no cultural resources in the Project Area and 88 resources within a 0.25-mile radius.

Pacific Legacy completed a Native American Communication and Sacred Land database search. The review of the Native American Heritage Commission's (NAHC) Sacred Land database was positive. Pacific Legacy reached out to ten Native American tribal contacts identified by the NAHC. To date, two tribal representatives have responded with concerns about the Project.

Based on the results of the records search, contact with the NAHC and Native American tribal representatives and a review of archival and environmental data, the Project should have no effect on cultural resources or historic properties. No historic properties will be affected by the proposed undertaking, and no known prehistoric or historic resources will be impacted by the Project. Archaeological testing of the existing building's footprint is recommended between demolition and construction.

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## Appendices

# 1.0 INTRODUCTION

This Cultural Resources Report (CRR) summarizes the cultural resources investigation completed for the Berkeley City College 2118 Milvia Street Project, (Project). The Peralta Community College District proposes to demolish the existing building at 2118 Milvia Street and construct a new six-story building as part of Berkeley City College. (see Appendix A, Figures 1 and 2). The cultural resources investigation assists the Peralta Community College District in partial compliance with the requirements of the California Environmental Quality Act (CEQA). The cultural resources investigation for the Project was carried out under contract between Rincon Consultants, Inc. and Pacific Legacy, Inc. The purpose of the investigation was to identify prehistoric or historic period resources within the Project Area that may be adversely affected by construction related activities. Peralta Community College District is the CEQA Lead Agency for the Project. The cultural resources investigation included archival research, records search, and contact with the NAHC and Native American tribal representatives. The urban environment and existing building at 2118 Milvia Street prevents conducting an intensive pedestrian survey of the Project Area. Archaeological Extended Phase I testing of the western and northeastern portion of the existing building's footprint is recommended between demolition and construction to determine if any surface or buried prehistoric or historic period resources are present in the Project Area.

## 1.1 PROJECT LOCATION

The Project Area is located at 2118 Milvia Street, on the northwest corner of Milvia Street and Center Street in the City of Berkeley (Assessor's Parcel Number 57-2022-5-1) in Alameda County. The Project Area is 11,326 square feet (0.26 acres) in size. The Project Area is located in Unsectioned Rancho San Antonio (Peralta) Grant land. Appendix A, Figure 1 depicts the Project Area on the Oakland West, California, 7.5-minute USGS topographic map.

## 1.2 PROJECT DESCRIPTION

The proposed Project would involve demolition of the existing building at 2118 Milvia Street (Assessor's Parcel Number 57-2022-5-1) and construction of a new six-story building as part of Berkeley City College. The proposed building would have a total floor area of 37,760 square feet of general education facilities (anthropology lab, art studio, classrooms, communications lab, and storage), faculty facilities (offices and support), administrative offices (offices, reception area, storage, workrooms, work stations), outdoor meeting area (rooftop patio, staging, and storage), student services and learning communities (health center, mental wellness, veterans center, multicultural resource center, undocumented community resource center, bookstore, student lounge, and meeting/quiet rooms), learning resource center (offices, study area, open area, computer lab, and storage), building services (building entrance and operations). The proposed building would be six stories tall and support rooftop solar panels.

The proposed Project would not include on-site vehicle parking, similar to existing conditions at the site. Bicycle parking is proposed on the building's first floor adjacent to the main entrance. No modifications to existing street parking are proposed. Pedestrians would access the building from double-door entrances on Milvia Street and doors to the two proposed stairwells at the northeast corner of the site along Milvia and center of the site along Center Street.

The project would also include a loading dock within the first floor, accessed by a garage door and pedestrian door on Center Street at the southwest corner of the project site. Additionally, the electrical facility room on the first floor would be accessed from double doors facing Center Street.

The Project would include utility connections for water, wastewater, stormwater drainage, power, and telecommunications services in accordance with requirements of applicable utility providers. These utilities would connect to existing infrastructure near the site. Pacific Gas & Electric (PG&E) and East Bay Community Energy (EBCE) would provide electrical service; PG&E would provide natural gas service; East Bay Municipal Utility District (EBMUD) would provide water service; the City of Berkeley would provide stormwater, wastewater, and solid waste services. The project would rely on existing public services, including but not limited to, City of Berkeley police and fire protection, and parks and open spaces provided by the City of Berkeley, East Bay Regional Parks District, the County of Alameda, and the State of California.

The Project would also include an on-site emergency generator on the sixth floor of the building, in the mechanical equipment area.

The maximum depth of excavation would be approximately 5 feet and the total amount of exported soil associated with excavation would be approximately 1,500 cubic yards. Project construction would not require pile-driving or other vibration-intensive equipment.

The proposed Project's objectives are to:

- Provide adequate classroom space to serve projected future student enrollment and address the projected space needs.
- Construct a new educational facility in close proximity to the main Berkeley City College campus building and associated parking.
- Accommodate new specific needs, such as non-class laboratories, food services, and increased needs for existing facilities, including general classrooms, class laboratories, office and conference space, and meeting space.
- Provide facilities that support the vision of Berkeley City College, including academic excellence, student learning, multiculturalism and diversity, quality and collegial workplace, innovation, and flexibility.

### 1.3 Regulatory Compliance

The Project is subject to CEQA, as codified at *PRC Sections 21000 et seq*., which requires lead agencies to determine if a proposed Project would have a significant effect on archaeological resources. As defined in *PRC Section 21083.2*, a "unique" archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;

- Has a special and particular quality such as being the oldest of its type or the best available example of its type;
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In addition, the CEQA Guidelines define historical resources as: (1) a resource in the California Register of Historical Resources (CRHR); (2) a resource included in a local register of historical resources, as defined in *PRC Section 5020.1(k)* or identified as significant in a historical resource survey meeting the requirements of *PRC Section 5024.1(g)*; or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the Lead Agency's determination is supported by substantial evidence in light of the whole record.

If a Lead Agency determines that an archaeological site is a historical resource, the provisions of *PRC Section 21084.1* and *CEQA Guidelines Section 15064.5* would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site is to be treated in accordance with the provisions of *PRC Section 21083* regarding unique archaeological resources. The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of a Project on that resource shall not be considered a significant effect on the environment (*CEQA Guidelines Section 15064[c][4]*).

The CRHR is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code [PRC] *Section 5024.1[a]*). The eligibility criteria for inclusion on the CRHR are based on National Register of Historic Places (NRHP) criteria (*PRC Section 5024.1[b]*). Certain resources are determined by the statute to be automatically included in the California CRHR, including California properties formally determined eligible for, or listed in, the NRHP.

To be eligible for the CRHR, a prehistoric or historic period property must be significant at the local, state, and/or federal level under one or more of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. It is associated with the lives of persons important in our past;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4. It has yielded, or may be likely to yield, information important in prehistory or history.

For a resource to be eligible for the CRHR, it must also retain enough of its character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. An historic resource that does not retain sufficient integrity to meet the NRHP criteria may still be eligible for listing in the CRHR.

### 1.4 Project Area

The Project Area includes those areas that may be affected by Project activities, namely the demolition of the building at 2118 Milvia Street and the construction of the new building. The proposed depth of disturbance is 5 feet. Appendix A, Figure 2 presents the Project Area on a true color orthophoto.

### 1.5 Dates of Review and Personnel

Between December 2020 and January 2021, Pacific Legacy personnel completed a review of environmental, ethnographic, prehistoric, and historic period data for the Project Area, and Native American outreach. The review yielded positive results for the presence of cultural resources, which are discussed in greater detail in Section 4.0. Pacific Legacy's cultural resources staff are professionally qualified in the field of prehistoric and historical archaeology. Hannah Ballard, M.A., served as Principal Investigator. Ms. Ballard has over 23 years of experience in cultural resources management and California archaeology. Ellie Reese, M.A., served as Senior Historian and completed the literature review and historical and archival research. Ms. Reese has 35 years of experience in cultural resources management and California archaeology. Shauna Mundt, M.A. and Dave Daly, M.A., contributed to the reporting effort. Ms. Mundt has six years of experience in California archaeology, and Mr. Daly has 13 years of experience in California archaeology. Pacific Legacy's senior staff meets the professional requirements of the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (Federal Register, Vol. 48, No. 190).

# 2.0 PROJECT SETTING

The Project Area's natural environment has played a large role in shaping its cultural history. The locations and characteristics of Native American habitation sites, procurement areas, and travel routes were influenced by local physiography, flora, and fauna as were later historic period settlements, infrastructural developments, and commercial enterprises. The following discussion draws on these sources and presents a brief overview of the Project area's natural environment so that its cultural history may be better understood.

## 2.1 PHYSICAL SETTING

The Project Area is located in downtown Berkeley, two blocks west of the University of California, Berkeley (UC Berkeley) campus. The area is primarily characterized by an urban landscape that includes commercial businesses, residential housing, city parks, and the UC Berkeley campus and its associated elements, though several Regional Parks and Recreation Areas including Tilden Regional Park and Siesta Valley Recreation Area are less than 3 miles to the east. The San Francisco Bay is 1.8 miles west of the Project Area.

The modern environment is substantially different from those of late prehistoric and early historic times due to the introduction of a number of plant and animal species, extirpation of indigenous plant and animal species, draining and filling of wetlands, and alteration of the landscape for urban use.

## 2.2 PHYSIOGRAPHY, GEOLOGY, AND SOILS

The Project Area lies east of the San Francisco Bay and is situated on the remnant of a fan terrace. Soils in the Project Area consist of Tierra Loam, which is a moderately well-drained soil series (SoilWeb 2020). These soils date to the Holocene through the Historical Era (11,800-150 years BP), and therefore have a very high sensitivity for buried resources (Meyer and Rosenthal 2007:13). More recent modeling by Byrd et al. (2017: 4-1 through 4-14) indicates that the Project area is not on a Holocene landform has moderate sensitivity for surface sites and lowest sensitivity for buried sites (2017:4-3, 4-5, 4-8), although this model is not as locally refined as Meyer and Rosenthal (2007).

## 2.3 CLIMATE, FLORA, AND FAUNA

### 2.3.1 Climate and Hydrology

The Project Area's climate is typically Mediterranean, consisting of cool, wet winters and warm, somewhat dry summers that are moderated by coastal cooling/moisture. Rainfall is generally limited to the winter months (December through March), with some rain occurring earlier in the fall and later into spring. There is an unnamed drainage or creek approximately 1,550 feet east on the UC Berkeley campus, El Cerrito Creek is approximately 2.15 miles to the north, and Wildcat Creek is approximately 1.8 miles to the east/northeast.

### 2.3.2 Flora and Fauna

Vegetation communities within the San Francisco Bay Area vary greatly based on location, with the Project Area situated within saltwater marshes/grasslands as depicted by Mayfield (1978). Mayfield describes grasslands as an aggregation of perennial grasses and forbs, that included various Stipa species such as purple needlegrass (*Stipa pulchra*) and hairgrass (*Deschampsia elongata).* Mayfield describes the saltwater marshes as large areas of tidal marsh, with species such as cordgrass (*Spartina foliosa*) and pickleweed (*Salicornia spp*.).

Terrestrial animal species present in these habitats include tule elk (*Cervus elaphus nannodes*), pronghorn (*Antilocapra americana*), black-tailed deer (*Odocoilus hemionus*), grizzly bear (*Ursus arctos)*, coyote (*Canus latrans),* and many avian species (Mayfield 1978). Aquatic animal species available include several pinnipeds (e.g. seals), various shellfish such as abalone (*Haliotis rufescens*), and a variety of fish species such as silver salmon (*Oncorhynchus kisutch*) and jacksmelt (*Atherinopsis californiensis*) (Moratto 1984: 219).

# 3.0 PREHISTORY AND HISTORY OF THE PROJECT AREA

## 3.1 PREHISTORIC ARCHAEOLOGY AND ETHNOGRAPHIC BACKGROUND

### 3.1.1 Prehistoric Archaeology

In 1902, with Max Uhle's (1907) excavation of the Emeryville Shellmound (CA-ALA-309), the archaeological investigation of the San Francisco Bay area began in earnest. From his experience in Peru, Uhle had developed an understanding of stratified archaeological deposits. From an analysis of burials, artifacts and stratigraphy, Uhle (1907:37) concluded that "there is some support for the suggestion that cultural differences are expressed in the history of the mound." Further investigations by Nels Nelson (1906 [1996]) affirmed the bulk of Uhle's original analysis of the deposit.

Nelson (1909, 1910) continued his investigations of the prehistory of the Bay Area with a survey of the shellmounds around the Bay and a more extensive excavation of the Ellis Landing Shellmound (CA-CCO-295) near Richmond. Despite the limited amount of funding, a few important studies were undertaken in the Bay Area between 1915 and 1948. These studies include Gifford's (1916) comparative analysis of the composition of California shellmounds; Loud's (1924) excavation of the Stege Mound in Richmond; and, Schenck's (1926) excavations at the Emeryville Shellmound. Bay Area archaeological investigations did not flourish until Robert Heizer and his students from the UC Berkeley initiated full scale fieldwork throughout central California in the 1940s.

In the 1970s, Fredrickson (1973, 1974) refined the more general Central California Taxonomic System, which had broad temporal components identified as the Early, Middle and Late Horizons (cf. Table 2-1). Fredrickson subdivided these broad temporal units as the Paleoindian (10,000-6000 BC), Lower Archaic (6000-3000 BC), Middle Archaic (Early Horizon 3000-500 BC), Upper Archaic (Middle Horizon 500 BC-AD 900), Lower Emergent (Late Horizon-AD 900-1500), and Upper Emergent (AD 1500-1800).

Discrete temporal periods within the San Francisco Bay region were further refined by Milliken et al. (2007), who refined an earlier chronology developed by Milliken and Bennyhoff (1993:386) by integrating AMS radiocarbon data collected from 103 well-provenienced *Olivella biplicata* shell beads. Building on earlier chronological sequences, Milliken et al. (2007:105) distinguish multiple bead horizons to refine "significant variation in time and space" in Bay Area prehistory. These bead horizons include the Early Period/Middle Period Transition (EMT); M1, M2, M3, and M4 horizons in the Middle Period; the Middle Period/Late Period Transition (MLT); and L1 and L2 horizons in the Late Period. Each bead horizon is associated with distinct *Olivella* bead types (Milliken et al. 2007; see also Milliken 2009).

Archaeological evidence suggests an increase in population over time, with a correlation between permanent settlements and larger populations in later periods (Breschini and Haversat 1992). Changes in subsistence strategies from the Early Period's hunter-gatherer mode to permanently settled villages by the Late Period can be traced to improvements in food storage technology, a focus on staple food exploitation, and an increase in socio-political complexity as evidenced through long-distance trade networks. The general pattern shows that coastal sites were focused on gathering and processing, while village locations were found slightly inland. As the population increased and became more dispersed during the Late Period, Middle Period sites appear to have been abandoned rather than continuously occupied (Jones and Klar 2005).

Koenig et al. (2001:15-16) presented the development of cultural chronology and taxonomic frameworks for prehistoric cultures in the San Francisco Bay Area which are summarized briefly here. The initial Central California Taxonomic System (CCTS) defined a framework for relationships between chronological cultural sequences and the various environmental zones found in the California landscape (Beardsley 1948, 1954). Beardsley identified three main facies that represented changes in cultures over time within the San Francisco Bay Area: the Ellis Landing facies representing the Middle horizon, the Emeryville facies representing the Phase 1 of the Late horizon, and the Fernandez facies (based on CA-CCO-259) representing Phase 2 of the Late horizon. Fredrickson (1973, 1974) expanded on the earlier concept of a chronological taxonomic framework and divided California prehistory into major cultural periods that represented distinctive social, technological and material traits and "patterns," which consisted of separate coexisting cultures that exhibited similar cultural traits across multiple regions. Fredrickson also adopted spatially nesting units (ranging from the smallest to largest): site, locality, district, and region.

### 3.1.2 Ethnographic Background

The Project Area falls within the traditional territory of the Ohlone people, also known as the Costanoan. Linguistic evidence suggests the Ohlone moved into the Bay Area from the east sometime around A.D. 500 (Moratto 1984). Spanish accounts describe Ohlone territory as stretching from San Pablo Bay to as far south as Monterey Bay and Salinas. Prior to the arrival of the Spanish in 1769, the Ohlone consisted of 50 or more autonomous land-holding tribelets consisting of 50 to 500 individuals. Each group had one or more permanent village sites. Prior to European contact, the Ohlone did not regard themselves as a unified cultural entity but rather as different groups associated through ritual, trade, inter-marriage, and occasional conflict. At least eight dialects of the Ohlone language have been identified. The APE lies within the area (Richmond to El Cerrito) where the spoken dialect is known as Chochenyo, or Huichin (Levy 1978).

The Ohlone tribelet chiefs could be either men or women. The office was passed down patrilineally and subject to the approval of the community. The chief served as the leader of a tribal council of elders, and all served as advisors to the community without coercive authority or power. The only exception to this was during times of war. Warfare was not uncommon, often arising through territorial disputes, and occurred between the various Ohlone tribelets and between the Ohlone and their Esselen neighbors to the south. The Ohlone were grouped into clans and divided into deer and bear moieties. Households consisted of patrilineally extended families of up to 15 people. Marriage was fairly informal, and the couple would settle in the groom's father's household. Chochenyo speakers typically cremated their dead, though occasionally the deceased would be buried if insufficient fuel could be procured for a pyre (Levy 1978).

Trade networks were extensive throughout pre-contact California, and the Ohlone traded coastal resources such as shellfish and salt with inland groups such as the Miwok and Yokuts. Piñon nuts were the only known imported food source, and these were received via trade with the Yokuts. The Ohlone practiced controlled burning to sustain yields of seed bearing annuals and to reduce the threat of catastrophic wildfires. Acorns were the staple of the Ohlone diet, and four species of oak (Coast live oak, valley oak, Tanbark oak, and California black oak) were the most important to their

**Table 3-1. Cultural and Temporal Chronology for the Bay Area and the North Coast Ranges.**

| Temporal Periods (Fredrickson 1973, 1974) | Temporal Periods (Milliken et al. 2007) | San Francisco Bay Cultural Pattern | North Coast Cultural Pattern | Napa Valley Cultural Pattern |
|---|---|---|---|---|
| Upper Emergent<br>(AD 1500 – 1800) | Terminal Late Period<br>(AD 1550 – 1800) | Augustine Pattern<br>Emeryville Aspect | Augustine Pattern<br>Clear Lake Aspect | Augustine Pattern<br>St. Helena Aspect |
| Lower Emergent, or Late Horizon<br>(AD 900 – 1500) | Initial Late Period<br>(AD 1050 – 1550)<br>-------------<br>Middle/Late Period Transition<br>(AD 1000 – 1050)<br>-------------<br>Upper Middle Period<br>(AD 430 – 1050)<br>Lower Middle Period<br>(500 BC – AD 430)<br>-------------<br>Early/Middle Period Transition<br>(500 – 200 BC) | | | |
| Upper Archaic, or Middle Horizon<br>(500 BC – AD 900) | | UPPER BERKELEY PATTERN<br>Ellis Landing Aspect | BERKELEY PATTERN<br>Houx Aspect | Berkeley Pattern<br>Houx Aspect |
| Middle Archaic, or Early Horizon<br>(3000 – 500 BC) | Early Period<br>(3500 – 500 BC) | Lower Berkeley Pattern<br>Stege Aspect | Mendocino Pattern<br>Mendocino Aspect | Mendocino Pattern<br>Hultman Aspect |
| Lower Archaic<br>(6000 – 3000 BC) | Early Holocene<br>(8000 – 3500 BC) | | Borax Lake Pattern<br>BORAX LAKE ASPECT | Borax Lake Pattern |
| Paleoindian<br>(10,000 – 6000 BC) | | | Post Pattern | |

subsistence. The acorns were ground and the meal leached to remove tannins before being made into mush or acorn bread. Seeds and nuts from a number of plants including buckeye, California laurel, dock, tarweed, chia, holly-leaf cherry, and digger pine were part of the Ohlone diet. Wild onion and cattail roots were also eaten (Levy 1978, Margolin 1978).

The Ohlone hunted and consumed a variety of animals including black-tailed deer, elk, antelope, grizzly bear, mountain lion, sea lion, whale, dog, skunk, raccoon, rabbit, squirrel, and woodrat. Waterfowl were the most important avian species for the Ohlone, especially various geese and duck species. Fish and shellfish species were also obtained, and they comprised a staple of the Ohlone diet. Steelhead trout, sturgeon, salmon, and lampreys, generally captured with nets, were the most important species. Sinew-backed bows and self-bows were both made by the Ohlone. Arrows were tipped with stone or bone points. Nets were also used in hunting ducks, quail, and rabbits (Margolin 1978).

## 3.2 Historical Context

The historic period in California is generally discussed in terms of three periods of political land control. These include the Spanish Period (1769-1822), the Mexican Period (1822-1848), and American Period (1848-present). The following section explores each of these periods in turn, drawing substantially on prior research reported in Hoover et al. (1990), City of Berkeley (2003), Cohen (2007), and Archives & Architecture, LLC (2015).

### 3.2.1 Spanish Period (1769-1821)

As early as the late sixteenth century, the native inhabitants of coastal California made occasional contact with the crews of European sailing vessels—the landings of Sir Francis Drake and Sebastian Cermeño in what is today Marin County are two well-known examples—but such interactions were isolated occurrences (Lightfoot and Simmons 1998; Schneider 2009). Large scale, land-based exploration and settlement did not occur until the second half of the eighteenth century.

Spanish interest in settling Alta California began in earnest in the 1760s with rumors that Russia was planning to expand their colonial sphere southward from Alaska into California. In response, the Spanish government sent the Portolá expedition, headed by Capt. Gaspar de Portolá with Father Junípero Serra and Spanish settlers, northward from Mexico in 1769 to establish Mission San Diego and the first presidio. The expedition then travelled as far north as the San Francisco Bay Area. This success was followed by establishing a series of twenty-one missions constructed along El Camino Real on the California coast and on El Camino Viejo in the interior valley ending with Mission San Francisco Solano in Sonoma County in 1823.

Spain used its tripartite colonization system in the Alta California region consisting of pueblos, presidios, and missions (Hoover et al. 1990). The Franciscan missions were used to convert the native population to Catholicism while presenting an example of life as practiced by gente de razon (people of reason) with the intent of creating new Spanish citizens to settle the region (Cohen 2007:Chapter 1). The presidios were military forts established at key harbors like San Francisco to control native populations and provide military protection from external invasion. Pueblos were civilian settlements designed to provide a politically reliable population that was not under ecclesiastical control. Settlers signed contracts of enlistment and served essentially as representatives of the Spanish crown in frontier areas in exchange for land, livestock, tools, and military protection (Bean and Rawls 1983; Beck and Haase 1980; Hoover et al. 1990).

The earliest exploration of the Berkeley region was on March 27, 1772, when Lieutenant Pedro Fages' expedition traveled across the western Berkeley hills and Strawberry Creek during an unsuccessful attempt to reach Point Reyes by land from Monterey (Garcia and Associates 2003:19). During the late eighteenth and early nineteenth century, the Spanish colonists settled near the Mission San Francisco de Asís (established in 1776), south on the San Francisco Peninsula, near Mission San José, along the East Bay shore, and along the shoreline of the north and south San Francisco Bay (Garcia and Associates (2003:20). In 1820, the Spanish government issued a large land grant (44,800-acres) to Don Luís María Peralta, a retired sergeant in the Spanish army, that included most of the East Bay (from El Cerrito to San Leandro, Berkeley and Oakland) (City of Berkeley 2003:IV.C-1). This land grant was called Rancho San Antonio and includes the Project Area. Luís Peralta never lived on the Rancho San Antonio land grant, preferring his home in San Jose. Instead, he had his son, Antonio, build an adobe and live there to secure the grant (Cohen 2007:Chapter 1). The Peralta adobe was located in the portion of the Rancho that is now Oakland (Hoover et al. 1990:9).

### 3.2.2 Mexican period (1822-1848)

In 1821, Mexico became independent from Spain after an eleven-year revolution. The newly established Mexican government colonized their northern frontier by secularizing the mission lands in 1834. The Secularization Act of 1834 gave the Mexican Governor of Alta California the power to redistribute the vast mission land holdings in the form of individual private grants. Although the original intent of missionization of the native population was to turn mission lands over to the newly created citizens, this generally did not occur. The Mexican land grants went mostly to wealthy or politically-connected Mexican or immigrant settlers (Archives & Architecture 2015:14). Between 1835 and 1846, much of the land used by the missions was divided into private ranches or ranchos. These ranchos were located primarily in coastal regions of California. The Mexican Government granted these large tracts of land to Californio citizens as a reward for loyal service. Secularization brought an influx of Mexican settlers into California and allowed for the emergence of a new class of wealthy landowners known as los rancheros. This led to an expansion of ranching and agricultural activities in California that became known as the "hide and tallow trade" (Hoover et al. 1990).

In the East Bay Region of San Francisco Bay, Don Luís Peralta's 1820 Spanish land grant was patented by the Mexican Government and, in 1842, Don Luís divided it among his four sons who moved onto their portions of the rancho with their families and retainers. Ignacio Peralta, the oldest son, received the southern end of the grant near modern San Leandro. Antonio Peralta remained in the current east and central Oakland area. Vicente Peralta received the Encinal de Temescal, which included modern north Oakland, Piedmont and Emeryville. Jose Domingo Peralta, inherited the northern portion of Rancho San Antonio that included Berkeley and part of Emeryville. Jose Domingo settled along Codornices Creek near modern Hopkins Street in Albany and raised cattle for the hide and tallow trade that supported the Mexican colonial economy (City of Berkeley 2003:IV.C-2; Hoover et al. 1990:9).

In 1828, the Mexican Government relaxed the immigration policies previously in place and opened the door to increasing foreign settlement in Alta California. Overland immigration of Americans began in the early 1840s and increased over time. By 1846, when the United States declared war on Mexico, the American population in Alta California was large enough to easily occupy the region when war broke out (Archives & Architecture 2007:15).

In the 1840s, relations between Mexico and the United States became strained as the United States expanded westward toward the Pacific Ocean. These political stresses erupted into the Mexican-American War, which lasted from 1846 to 1848. Following the end of the Mexican-American War and the signing of the 1848 Treaty of Guadalupe Hidalgo, California became the 31st state within the United States of America in 1850 (Hoover et al. 1990).

### 3.2.3 American period (1848-Present)

During the transition to American government, James Marshall discovered gold on the American River while surveying a prospective sawmill site and announced the find at Sutter's Fort. The discovery of gold on January 24, 1848 brought tens of thousands of gold seekers from the United States, Europe, Mexico, South America, and Asia to the once-remote Mexican province. Starting in the late 1840s, the population of the San Francisco Bay Area and the Central Valley grew exponentially as the Gold Rush brought prospectors west. The influx of population created booming markets for food, lumber and other products, resulting in the establishment of sawmills, farms, dairies, ranches and other industries throughout the state during the 1850s. Those who did not find their fortune in gold country settled as farmers or ranchers in rural areas of California. The market for agricultural products encouraged settlement of the less mountainous portions of the countryside in what became Alameda, Santa Clara, and San Mateo Counties (Panich et al. 2009:69).

Under the Treaty of Guadalupe Hidalgo, the preceding Mexican property rights were to be preserved (Archives Architecture 2015:16). Due to the Gold Rush population settlement boom, many of the Mexican ranchos were overrun by land-hungry squatters who believed that all territory ceded by Mexico was in the public domain and disputed the Mexican land claims. The boundaries of the Mexican grants were often only roughly described which led to further property boundary confusion. In 1851, the United States government created the California Land Claims Commission to investigate Mexican land claims and determine legal ownership of the new American property. The process was time-consuming, expensive, and often put Mexican landowners at a disadvantage. The Land Commission met from 1852-1856, and the resulting land patent process and often resulting lawsuits took an average of seventeen years to resolve (Hoover et al. 1990:xv; Laffey1989:6).

Although the Peralta sons were awarded their land patent for Rancho San Antonio in 1856, the Rancho was lost in the long run to internal family litigation, land sales, unscrupulous lawyers and squatters (Archives and Architecture 2015:16). Luis Peralta died in 1851 as the Land Commission started handling land claims. His will clearly left the property to his sons and he had advised them to hold on to their property and not sell it to Anglo buyers. The sons, however, were not united in their response to the challenges of squatters and property legal matters. Antonio and Vicente Peralta sold off their lands almost immediately, bowing to the inevitable. Ignacio Peralta held his southern ranch parcel until his death in 1874, in part because one of his daughters married William Toler, a former U.S. Navy ensign who helped negotiate the government process. Jose Domingo Peralta, who owned the northern rancho parcel, refused to sell his land, litigated against squatters, and lost most of his land to his unscrupulous lawyer, Horace Carpentier, who represented not only his interests but his adversaries' interests as well. He was left with his 300 homestead acres and died a pauper (Cohen 2007:Chapter 1).

### 3.2.4 City of Berkeley

The future City of Berkeley formed from the north portion of Oakland and initially consisted of two separate villages connected by Strawberry Creek which flowed down from the future University of

California, Berkeley campus to the bay. One of the two villages was originally called Ocean View and was located along the western bay shore (Hoover et al. 1990:21). In the early 1850s, two seamen, James H. Jacobs and William J. Bowen, squatted on Peralta lands in the Berkeley area. Jacobs established Jacob's Landing, a dock along the bay shore at Strawberry Creek and built a house nearby. Bowen established a road house and stage stop along the Contra Costa Road (future San Pablo Avenue) stage route in 1853 (City of Berkeley 2006:IV.C-2). By 1857, Ocean View had established a village of 25 residences, a grocery store, a hotel, a saloon and a school, as well as several industries (the Pioneer Starch and Grist Mill on Second Street and a lumber yard at the foot of future Hearst Street) (City of Berkeley 2006:IV.C-2). As the Ocean View community grew during the 1860s and 1870s, it was comprised of a multi-ethnic mix of farmers, artisans, mill laborers, and farm laborers (Garcia and Associates 2003:24). The 1869 completion of the Transcontinental Railroad terminating in Oakland resulted in a Southern Pacific rail line that crossed Ocean View. By 1878, a rail stop was established at Third and Delaware (City of Berkeley 2006:IV.C-3; Figures 1998:61).

Meanwhile, in 1852, four men — Francis Shattuck, George Blake, James Leonard, and William Hillegass — each claimed 160-acre parcels in the area that would become Downtown Berkeley. These parcels are depicted on the 1852 Kellerberger's Map that first shows subdivisions of the Ranch San Antonio (Archives and Architecture 2015:17). In the same year, Shattuck was elected to the City of Oakland Board of Supervisors. Shattuck was instrumental in laying out a new county road which ran along the boundary between Shattuck and Blake's parcels and then intersected the Mexican-era Temescal Road that ran between the homes of Domingo (Albany) and Vicente Peralta (Oakland). This road eventually became Shattuck Avenue.

In 1861, an early telegraph line was installed along future Telegraph and Claremont Avenues which opened access to development along the corridor in the east Berkeley area. In 1873, the University of California moved to the eastern uphill portions of Berkeley from Oakland and a community, East Berkeley, formed around it (Hoover et al.1990:21-22). In 1874, the Berkeley Land and Town Improvement Association (BLTIA) formed to establish a street grid plan including University Avenue, a water company, and promote land sales and development in Ocean View. In 1878, Ocean View (West Berkeley) and the University community (East Berkeley) merged and became the City of Berkeley.

Transportation and civic improvements during the 1870s and 1880s in Berkeley included a horse-drawn stage line that connected with Oakland, ferry service to San Francisco, and the installation of gas streetlights and telephone service (Garcia and Associates 2003:26). Water service was primarily through private wells in West Berkeley (Figures 1998:61). The University of California had its own water supply and East Berkeley was eventually supplied with water by the Berkeley Water works in the 1880s (Cohen 2007:Chapter 12). In 1903, the Key System, a line of electric trains that connected Bay Area cities, extended along Shattuck Avenue to Downtown Berkeley, which provided easy access to the commercial district (Archives and Architecture 2015:24). The route also connected Oakland and Berkeley to the to San Francisco ferry, which simplified transportation across the bay.

The presence of numerous educational institutions in Berkeley affected the framework of the city as it developed and was necessary for the growth of East Berkeley. The University of California started as the Contra Costa Academy, founded in 1853 in Oakland (Archives and Architecture 2015:19). By 1855, the academic institution was renamed and incorporated as the College of California (Merritt

1928:340). In 1868, the College of California legally transitioned to the University of California, however, the institution did not complete its move to its current location in Berkeley until 1873 when the campus construction was completed (Merritt 1928:344). The first East Berkeley elementary school, the Center Street School, was completed shortly after the university in 1879 (Cohen 20017: Chapter 12). The presence of the university drew more settlement, infrastructure such as University Avenue in 1874, and a commercial district slowly developed during the 1890s-1900s along Shattuck Avenue (Archives and Architecture 2015).

Other educational institutions in Berkeley included the California Institute for the Deaf, Dumb, and Blind (moved to Berkeley in 1869); the Harmon Seminary (est. 1882); St. Joseph's Presentation Convent (est. 1878); and more recently the Starr King School for the Ministry (est. 1904); and the Berkeley City College (Starr King School for the Ministry 2021; Woods 1883:794, 797). Originally called the Berkeley Learning Pavilion, the Berkeley City College was founded in 1974 as the fourth community college in the Peralta Community College District. It was originally a "college without walls" providing adult education at several locations. In 1978, it changed its name to Vista College and developed a permanent site in the 1990s-early 2000s. In 2006, it changed its name to Berkeley City College (Berkeley City College 2021).

### 3.2.5 Project Area History

In the nineteenth century, the 2118 Milvia Street Project Area was located on the north side of Strawberry Creek within the Francis K. Shattuck parcel. The Shattuck Lot No. 68 is depicted on the 1852 Julius Kellersberger Map of the Ranchos of Vincent and Domingo Peralta (Archives and Architecture 2015:18). Shattuck built a house on the east side of his parcel at later 2222 Shattuck Avenue and the Project Area was undeveloped (Cohen 2007:Chapter 7). By 1878, the Shattuck lands were subdivided and Center Street was present on the Thompson and West Map 16, but the land was not developed (Thompson and West 1878:Map 16). The 1884 Dingee Map first depicts South Milvia Street intersecting Center Street to meet Milvia Street to the north (Dingee and King 1884).

In the 1890s, the area between Milvia Street and Shattuck Avenue was primarily single-family residential with the commercial district concentrated along Shattuck. The 1894 Sanborn Insurance Map depicts residential dwellings along the east side of the Center/Milvia Street intersection, but none at the project parcel which is just off the map to the left (see Figure 3-1). This is likely because it was adjacent to Strawberry Creek and likely an area that flooded.

By 1911, the neighborhood had become increasingly a mixed residential and commercial area. The immediate intersection of Milvia and Center Streets was not developed, though there was development surrounding it. The 1911 Sanborn plat indicates there were two single-family dwellings (206 and 208 Milvia Street) directly north of the Project Area and more residential households to the east (see Figure 3-2). The F. W. Foss Lumber Company sheds and lumber piles were adjacent to the Project Area to the west along Center Street. The F. W. Foss Company was established in 1903 at 2143 Shattuck Avenue providing "wood, coal, hay and grain" (Husted 1903:588). The Foss Company expanded and by 1915 dealt in lumber, fuel, feed, and building materials at 1977 Center Street (Polk-Husted Directory Company 1915:945). The company continued lumber sales until 1930 and went out of business during the Great Depression (R.L. Polk and Company 1930:1549).

By 1929, the neighborhood had developed several new elements. To the west and southwest of the Project Area, the City of Berkeley was developing a Civic Center area. The original City Hall was


**Figure 3-1. Project Vicinity Development and Project Area ca. 1894 (Sanborn Insurance Company 1894).**

built in 1908-1909 (Cerny et al. 1998:7-2). It is located a block west of the Project Area on Grove Street (now Martin Luther King Way). During the 1920s, the City started buying up parcels in the block bounded by Center, Milvia, Grove and Allston with the intent of building a Civic Center park with the City Hall at the west (Grove Street) end (Aronovici 2012). In 1928, the Veteran's Building was built along Center Street flanking the north side of the prospective civic plaza. As depicted in the 1929 Sanborn Insurance Map, it replaced over half of the Foss Company land depicted in 1911 (see Figure 3-3). The two eastern Foss Company lumber sheds closest to the vacant Project Area remained. The Foss Company lime shed at the west end of their property became an apartment house (Sanborn Insurance Company 1929).

Starting in 1937, the 1907 Berkeley High School Little Theater auditorium flanking the south side of the civic park was renovated and enlarged and became a Community Theater in 1950. In 1938, at the east end of the civic plaza, the WPA built the Federal Land Bank building, which became the New City Hall in 1977 (Cerny et al. 1998:7-6). In 1940, Berkeley passed a bond act that allowed the City of Berkeley to complete its civic plaza across from the Project Area (Aronovici 2012). To match the


**Figure 3-2. Project Vicinity Development and Project Area ca. 1911 (Sanborn Insurance Company 1911).**

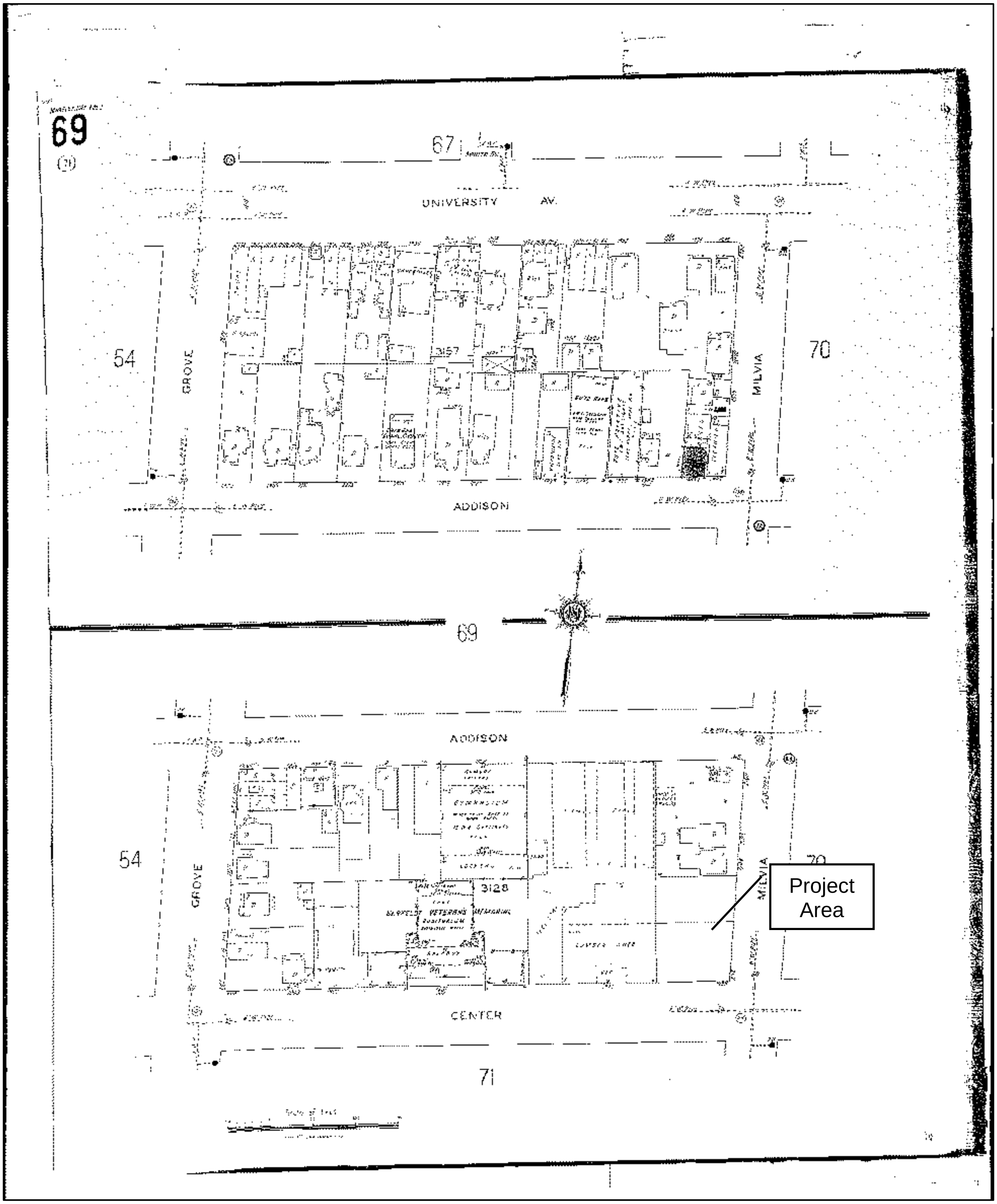


**Figure 3-3. Project Vicinity Development and Project Area ca 1929 (Sanborn Insurance Company 1929).**

larger buildings along the plaza, the last of the Foss lumber yard sheds along Center Street were replaced in 1947 by the six-story State Farm Insurance Company building (Cerny et al. 1998:7-10).

This building, which is adjacent to the west side of the Project Area, was sold in 1963, and is now City of Berkeley offices (Cerny et al. 1998:7-10).

Until 1941, the Project Area appears to have remained a vacant lot until it became a gas station. In 1941, R. A. Fairchild and H. R. White are listed in Polk's Oakland Directory under "Gasoline and Oil Service Stations" at 1999 Center Street (R.L. Polk and Company 1941:1083), then the address of the Project Area. A 1946 aerial photograph depicts an L-shaped building facing Center Street on the Center/Milvia Street corner and cars are parked to the north on the parcel (NETROnline 2021a). The 1950 Sanborn Insurance Map also confirms the presence of a gas station on the Project Area parcel. The map depicts a one-story, L-shaped building with two gasoline tanks along Center and a rear tank marked "Greasing" to the north (see Figure 3-4).

During the 1950s, the parcel continued to be a gas station. A 1951 telephone book lists "Fairchild's Service Station" continued to operate at Center and Milvia (Pacific Telephone and Telegraph Company 1951:176). In 1952, the Nirenstein's National Realty Map of the Berkeley Business Section depicts gas stations on three of four corners of the Center/Milvia Street intersection. The Project Area corner gas station was marked "Signal Service Station" and owned by Signal Oil Company (Nirenstein 1952). By 1955, the gas station was known as "Civic Center Auto Service" managed by W. E. Neale and J. George Hamburg, which continued to operate through at least 1957 (Berkeley High School 1955: advertisement; Pacific Telephone Company 1957:601). A 1965 aerial photograph demonstrates the gas station building was still extant at that time (University of California Santa Barbara 1965).

In 1966, the gas station was replaced by a new three-story building, 2118 Milvia Street, that faces Milvia Street (City of Berkeley 2009:6). Aerial photographs for 1968, 1988, 1993 and 2002 demonstrate this building corresponds to the current building on the Project Area parcel (NETROnline 2021b, 2021c, 2021d, 2021e). The 2118 Milvia Street building was previously occupied by the City of Berkeley as municipal office space for the Planning and Permits Departments, among others, and is now vacant.

In summary, the Project Area parcel remained undeveloped until approximately 1941 when a gas and oil service station was built on the property. There were three tanks located in the southeast quadrant of the parcel, based on the 1950 Sanborn Insurance map. The presence of the tanks indicates that the southeast portion of the parcel has been previously disturbed by tank excavation. In 1966, the gas station was removed and replaced with a three-story office building. It is currently undetermined whether the fuel tanks were removed, which would have caused more disturbance in the southeast parcel area. A 2011 Colliers International realty sales packet for the current 2118 Milvia Street office building indicates that it does not have a basement (Colliers International 2011). If the current building has a shallow foundation or footings, there is potential for the buried historical or prehistoric deposits in the west half or northeast portion of the parcel. Historical deposits could be associated with the Foss Lumberyard or adjacent early twentieth century households at 2106 and 2108 Milvia Street. Since the parcel was vacant for most of the historic period, it might be difficult to determine a clear association with a particular source for any historical archaeological deposits. The proximity of the historical alignment of Strawberry Creek to the Project Area suggests that there also could be buried prehistoric deposits present. Any prehistoric deposits would likely be significant if intact.

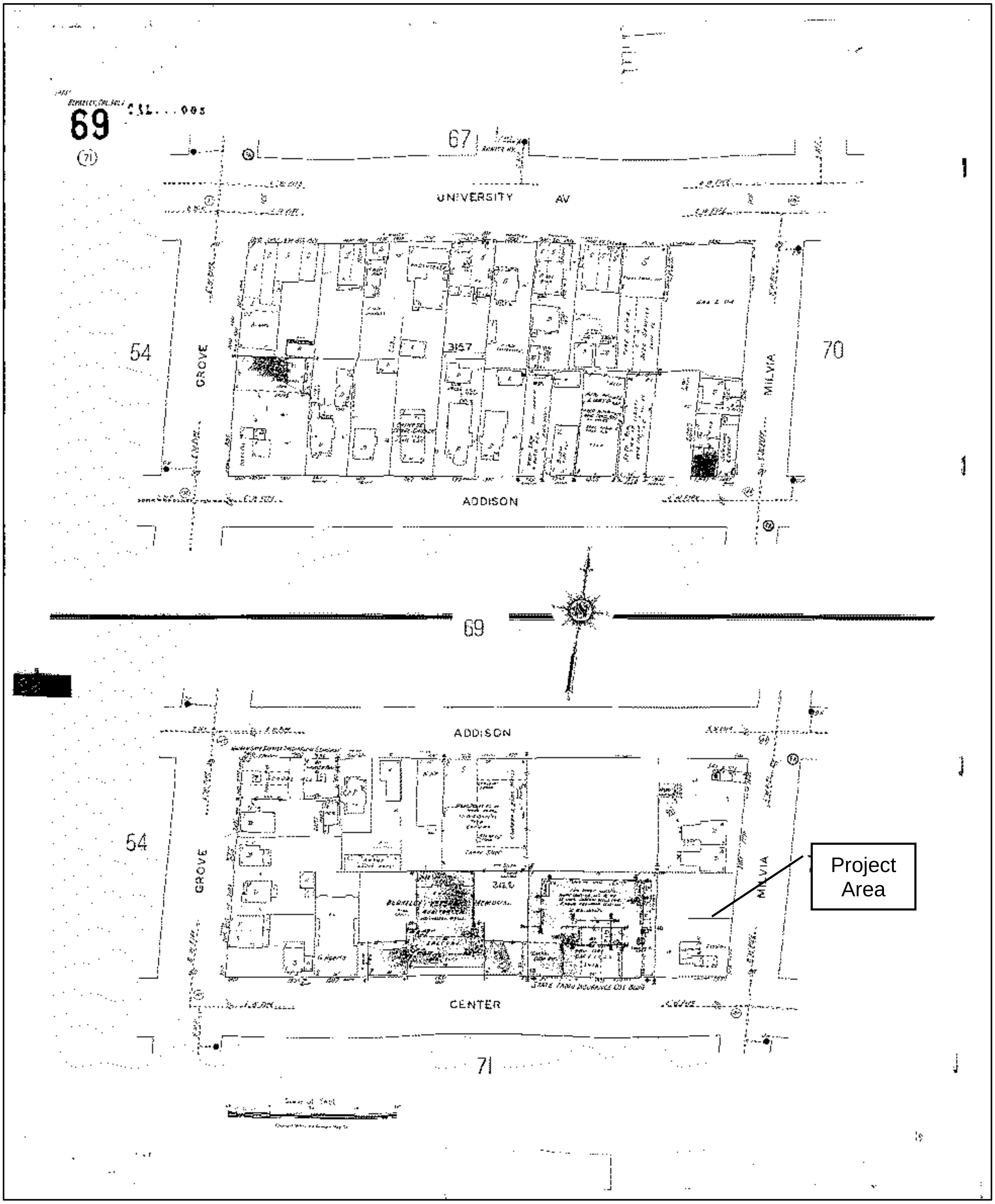


**Figure 3-4. Project Vicinity and Project Area ca. 1950 (Sanborn Insurance Company 1950).**

# 4.0 SOURCES CONSULTED

## 4.1 ARCHIVAL AND RECORDS SEARCH

On January 12, 2021, at the request of Pacific Legacy, Northwest Information Center (NWIC) staff conducted a record and information search at the NWIC of the California Historical Resources Information System (CHRIS), Sonoma State University in Rohnert Park (NWIC File No. 20-1219). Records for known cultural resources and previous cultural resource studies within a 0.25-mile radius of the Project Area were examined, as well as historic maps. The search also included the examination of several references and databases on file at the NWIC. Those references included the following historic registers maintained by the State of California:

- NRHP Directory of Determinations of Eligibility (California Office of Historic Preservation, Volumes I and II 1990);
- California Inventory of Historic Resources (California Department of Parks and Recreation 1976);
- California Office of Historic Preservation's Built Environment Resources Directory User's Guide (California Office of Historic Preservation 2019).

The archival and records search revealed that 32 previous studies have been conducted within the 0.25-mile radius, none of which overlap the Project Area (see Appendix B). Table 4-1 provides a complete list of the previous studies.

**Table 4-1. Previous Studies Conducted Within a 0.25-Mile Radius of the Project Area.**

| Study Number | Year | Author | Title | Type | Results |
|---|---|---|---|---|---|
| S-000799 | 1977 | David Chavez | Preliminary Cultural Resources Assessment of the East Bay Municipal Utility District (EBMUD) Wet Weather Facilities/Overflow Project Facilities Sites, Alameda and Contra Costa Counties, California | Archaeological, Field Study | Negative |
| *S-000799a* | 1979 | David Chavez | Supplement to Preliminary Cultural Resources Assessment of the East Bay Municipal Utility District (EBMUD) Wet Water Facilities/Overflow Project Facilities Sites, Alameda County, California | Archaeological, Field Study | |
| S-001972 | 1978 | Colin I. Busby and James C. Bard | An Archaeological Assessment of Nine Proposed Park Development Locations, City of Berkeley, California | Archaeological, Field Study | Negative |
| S-024284 | 2001 | Chris Jensen and Lorna Billat | Proposed Cellular Facility (Nextel Site Number: CA-067G/South Berkeley) in Downtown Berkeley, California (letter report) | Archaeological, Architectural/ Historical, Field Study | Negative |
| S-029541 | 2000 | Allen G. Pastron and R. Keith Brown | Historical and Cultural Resource Assessment, Proposed Telecommunications Facility, Site No. PL-386-02, 2000 Hearst Avenue, Berkeley, California (letter report) | Archaeological, Field Study | Negative |
| S-029543 | 2000 | Allen G. Pastron and R. Keith Brown | Historical and Cultural Resource Assessment, Proposed Telecommunications Facility, the Roof Tank, Site No. PL-386-04, 2054 University Avenue, Berkeley, California (letter report) | Archaeological, Field Study | Negative |

| Study Number | Year | Author | Title | Type | Results |
|---|---|---|---|---|---|
| S-029683 | 2005 | Lorna Billat | Roof Mounted Antennas, and Lease Area Inside Building, Downtown Berkeley/CA-2521, 2054 University Avenue, Berkeley, CA. | Archaeological, Architectural/ Historical, Field Study | Negative |
| S-038249 | 2010 | Suzanne Baker | Historic Property Survey Report, the Alameda County Transit District's East Bay Bus Rapid Transit Project in Berkeley, Oakland, and San Leandro | Archaeological, Architectural/ Historical, Field Study | Negative |
| *S-038249a* | 2010 | Suzanne Baker | Addendum to Positive Archaeological Survey Report for the Alameda County Transit District's East Bay Bus Rapid Transit Project in Berkeley, Oakland, and San Leandro, California | Archaeological, Field Study | |
| *S-038249b* | 2010 | Suzanne Baker | Addendum Historic Property Survey Report, the Alameda County Transit Project in Berkeley, Oakland, and San Leandro | Architectural/ Historical, Evaluation, Field Study | |
| *S-038249c* | 2010 | Suzanne Baker | Second Addendum to Positive Archaeological Survey Report for Alameda County Transit District's East Bay Bus Rapid Transit Project in Berkeley, Oakland, and San Leandro, California | Archaeological, Field Study | |
| *S-038249d* | 2005 | Suzanne Baker | Positive Archaeological Survey Report for the Alameda-Contra Costa Transit District's East Bay Bus Rapid Transit Project in Berkeley, Oakland, and San Leandro | Archaeological, Field Study | |
| *S-038249e* | 2006 | Milford Wayne Donaldson and Leslie T. Rogers | FTA051227A; National Register of Historic Places Determination of Eligibility for Properties within the Area of Potential Effects for the Proposed AC Transit Bus Rapid Transit Project, Alameda County, California | OHP Correspondence | |
| *S-038249f* | 2005 | JRP Historical Consulting | Finding of Effect for AC Transit East Bay Bus Rapid Transit Project | Architectural/ Historical, Evaluation, Management/ Planning, Other Research | |
| S-039397 | 2008 | Allen G. Pastron | Executive Summary of Results of On-Site Archaeological Monitoring and Evaluation at the 2055 Center Street Project, City of Berkeley, Alameda County, California (letter report) | Archaeological, Monitoring | Negative |
| S-040215 | 2013 | Michael Hibma | Architectural Significance Evaluations of Three Garages at 1931, 1933, and 1935 Addison Street, Berkeley, Alameda County, California (LSA Project #SEG1201) (letter report) | Architectural/ Historical, Evaluation, Field Study | Negative |
| S-042691 | 2013 | Michael Hibma | Eligibility Evaluation of 1974 University Avenue, Berkeley, Alameda County, California | Architectural/ Historical, Evaluation, Field Study | Negative |
| S-042755 | 2012 | Michael Hibma | A Cultural Resources Study and Historical Evaluation for the Acheson Commons Project, Berkeley, Alameda County, California | Architectural/ Historical, Evaluation, Field Study | Negative |
| *S-042755a* | 2014 | William A. Porter | Acheson Commons, Photo-Documentation & Context Report for 1970-1987 Shattuck Avenue/2101-2109 University Avenue, 2111-2113 University Avenue, 2129/2135-1/2 University Avenue, 2145 University Avenue, 1922/1924 Walnut Street, 1930 Walnut Street | Architectural/ Historical, Other Research | |
| S-045781 | 2014 | Carrie D. Wills and Kathleen A. Crawford | Cultural Resources Records Search and Site Visit Results for Sprint Nextel Candidate FN03XC010 (University), 2054 University | Archaeological, Field Study | Negative |

| Study Number | Year | Author | Title | Type | Results |
|---|---|---|---|---|---|
| | | | Avenue, #210, Berkeley, Alameda County, California (letter report) | | |
| S-046434 | 2015 | Christopher McMorris | Historic Resources, City of Berkeley Hearst Avenue Complete Streets Project (letter report) | Architectural/ Historical, Field Study | Negative |
| S-047147 | 2015 | Christopher McMorris and Sunshine Psota | Historic Property Survey Report, Hearst Avenue Complete Street Project, Berkeley, California, STPL 5057(044) | Archaeological, Architectural/ Historical, Management/ Planning | Negative |
| *S-047147a* | 2015 | Sunshine Psota | Archaeological Survey Report for the Hearst Avenue Complete Street Project in Berkeley, Alameda County: STPL 5057(044) | Archaeological, Field Study | |
| *S-047147b* | 2015 | Sunshine Psota | Extended Phase I Proposal for the Hearst Avenue Complete Street Project, Berkeley, Alameda County: STPL 5057(044) | Archaeological, Management/ Planning | |
| *S-047147c* | 2015 | Sunshine Psota | Results of Extended Phase I Investigations for Hearst Avenue Complete Street Project in Berkeley, Alameda County: STPL 5057(044) | Archaeological, Excavation | |
| S-047381 | 2015 | Meg Scantlebury | Downtown Berkeley BART Plaza and Transit Improvement Project Finding of Effect | Archaeological, Architectural/ Historical, Field Study | Negative |
| *S-047381a* | 2015 | Carol Roland-Nawi | FTA_2014_0521_001; Downtown Berkeley Bay Area Rapid Transit (BART) Plaza and Transit Area Improvements Project, Finding of Effect, Berkeley, Alameda County, CA | OHP Correspondence | |
| S-049123 | 2016 | Neal Kapitan | Historic Property Survey Report for Shattuck Avenue Reconfiguration and Pedestrian Safety Project, STPL 5057(045), Berkeley, Alameda County | Archaeological, Architectural/ Historical, Management/ Planning | Negative |
| *S-049123a* | 2016 | Neal Kapitan | Archaeological Survey Report: Shattuck Avenue Reconfiguration and Pedestrian Safety Project, Berkeley, Alameda County, California | Archaeological, Field Study | |
| *S-049123b* | 2016 | Michael Hibma | Finding of No Adverse Effect (Without Standard Condition): Shattuck Avenue Reconfiguration and Pedestrian Safety Project, Berkeley, Alameda County, California | Architectural/ Historical, Management/ Planning, Other Research | |
| *S-049123c* | 2015 | Archives and Architecture, LLC | Shattuck Avenue Commercial Corridor Historic Context and Survey | Architectural/ Historical, Evaluation, Field Study, Other Research | |
| *S-049123d* | 2016 | Jill Hupp and Julianne Polanco | FHWA_2016_0808_001 Finding of No Adverse Effect for the Proposed Shattuck Avenue Replacement and Pedestrian Safety Project, Berkeley, Alameda County, CA | OHP Correspondence | |

All studies on file with the NWIC at Sonoma State University, Rohnert Park, CA. The studies above are not listed in the bibliography.

The archival and records search revealed no previously recorded resources within the Project Area, and 88 resources within a 0.25-mile radius of the Project Area. Eighty-five of these resources are historic-period built environment resources, including two district resources: the Berkeley Historic Civic Center District (P-01-010094) and the Shattuck Avenue Downtown Historic District (P-01-011858). While the Project Area is not part of the Berkeley Historic Civic Center District (P-01-010094), it abuts the District's northeastern boundary. The three remaining resources are prehistoric period resources, two of which (P-01-000029 and P-01-010358) contained human remains. P-01-000029 was revealed while the homeowner was digging postholes. Multiple individuals were recovered in addition to a large cache of seashells. P-01-010358 was located alongside the bank of Strawberry Creek and contained at least one individual. These records for two of these sites (P-01-000029 and P-01-010358) were prepared based on archival data and have not been relocated in modern times thus their location and content is not confirmed. None of the prehistoric sites have been investigated or evaluated for the NRHP or the CRHR. Table 4-2 provides a complete list of the previously recorded resources.

**Table 4-2. Previously Recorded Cultural Resources within a 0.25-Mile Radius of the Project Area.**

| Resource Designation(s) | Period | Author | Date Recorded | Description | NRHP/ CRHR Status |
|---|---|---|---|---|---|
| ***Outside Project Area and within 0.25-Mile Radius*** | | | | | |
| P-01-000029<br>CA-ALA-000008 | Prehistoric | Pilling | 1949 | A prehistoric midden site with human burials, faunal bone, and lithic scatter. | NRHP/CRHR: Not evaluated |
| P-01-005107 | Historic | Robert Y. Feldman | 1977 | Golden Sheaf Bakery: 2071 Addison St. Building designed by Clinton Day and built in 1905. | 1S |
| | | Brian Horrigan | 1977 | | |
| | | Frank Maggi | 2015 | | |
| P-01-005108 | Historic | Betty Marvin | 1979 | American Railway Express/Swedberg Furniture: 2040-2070 Addison St. Brick building dating to 1895. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005109 | Historic | Anthony Buffington Bruce | 1978 | Underwood Bldg: 2110-2114 Addison St. Current Virginia Apartments building, the structure was built in the early 1900s. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005110 | Historic | Betty Marvin | 1978 | Terminal Place: 2113 Addison St. Currently an alleyway, this was originally planned by Frederick H. Dakin in 1906 as an arcade. | 7N |
| P-01-005111 | Historic | Betty Marvin | 1978 | Heywood Apartments: 2119 Addison St. Multi-family residential building in 1906. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005112 | Historic | Anthony Buffington Bruce | 1978 | Stadium Garage: 2020-2026 Addison St. Built in the 1920s as a commercial/garage business, it was renovated to house the Freight & Salvage Coffeehouse. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005153 | Historic | Betty Marvin | 1978 | Masonic Temple/Crocker National Bank: 2105 Bancroft Way<br>The Masonic Lodge was designed by Berkeley architect William Wharff and built in 1905. | 2S2 |
| | | Betty Marvin | 1981 | | |
| | | Betty Marvin | 1982 | | |
| | | Franklin Maggi | 2015 | | |
| P-01-005177 | Historic | Betty Marvin | 1978 | Greyhound Lines: 100-115 Berkeley Sq. The bus terminal was built in 1940-41. | 6Y |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005178 | Historic | Betty Marvin | 1978 | Southern Pacific Railroad Station: 130 Berkeley Sq.<br>The railroad station, built in 1938, now functions as a storefront. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005179 | Historic | Betty Marvin | 1978 | | 6Y |

| Resource Designation(s) | Period | Author | Date Recorded | Description | NRHP/ CRHR Status |
|---|---|---|---|---|---|
| | | F. Maggi, L. Dill, S. Winder | 2015 | Southern Pacific Office: 134 Berkeley Sq. This building housed the Berkeley train station from 1908 until 1938, before it was remodeled to serve as a storefront. | |
| P-01-005222 | Historic | Betty Marvin | 1978 | Mikkelson and Berry Building: 2124-2126 Center St. A Mission Revival-style commercial building dating from 1902. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005223 | Historic | Betty Marvin | 1977 | Ennor's Restaurant Building: 2128-2130 Center St. This Neoclassical commercial building was built in 1923. | 7J |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005224 | Historic | Betty Marvin | 1978 | Thomas Block: 2132-2154 Center St. A Mediterranean Revival-inspired commercial building constructed in 1904 and altered in 1925. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005423 | Historic | Brian Horrigan | 1977 | Berkeley Public Library: 2090 Kittredge St. The library was constructed in 1931 and renovated in the early 2000s. | 2S2 |
| | | Betty Marvin | 1981 | | |
| | | Toni Webb | 2004 | | |
| | | Franklin Maggi | 2015 | | |
| P-01-005424 | Historic | Betty Marvin | 1978 | Fox California Theater: 2115 Kittredge St. The Art Deco commercial building dates to 1930. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005425 | Historic | Betty Marvin | 1977 | A.H. Broad House: 2117-2119 Kittredge St. This mixed-use building was built around 1895 and altered in 1926. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005426 | Historic | Anthony Buffington Bruce | 1978 | Robert Elder House: 2124-2126 Kittridge St. This mixed-use building was built around 1895 and altered in 1926. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005427 | Historic | Anthony Buffington Bruce | 1979 | John C. Fitzpatrick House: 2138 Kittridge St. This mixed-use building was constructed in 1904 and added to in 1935. | 3S |
| | | Richard Schwartz | | | |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005428 | Historic | Betty Marvin | 1979 | Herb's Hamburgers: 2150 Kittridge St. This building has been demolished. | 3S |
| P-01-005558 | Historic | Carol Raiskin | 1979 | Shattuck Hotel: 2060-2086 Allston Way The hotel, which opened in 1910, has been remodeled and expanded multiple times since. | 3S |
| | | Tori Webb, Cindy Toffelmeir | 2004 | | |
| | | Franklin Maggi | 2015 | | |
| P-01-005559 | Historic | Gray Breschini | 1978 | Southern Pacific Station on Shattuck: Intersection with Berkeley Square Built in 1906, the building was later converted to commercial use. | 7N |
| P-01-005560 | Historic | Betty Marvin | 1978 | | 3S |

| Resource Designation(s) | Period | Author | Date Recorded | Description | NRHP/ CRHR Status |
|---|---|---|---|---|---|
| | | F. Maggi, L. Dill, S. Winder | 2015 | Palmer's Drugstore: 48 Shattuck Square This eclectic revival commercial building was built in 1926. | |
| P-01-005561 | Historic | Betty Marvin | 1978 | Roos-Bros.: 64 Shattuck Square This eclectic revival commercial building was built in 1926. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005562 | Historic | Betty Marvin | 1978 | Watkins Building: 82 Shattuck Square This eclectic revival commercial building was built in 1926. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005569 | Historic | Katherine R. Wright | 1978 | MacFarlane Building: 1979-1987 Shattuck Ave This commercial building was designed by architect Earl Bertz and built in 1925. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005570 | Historic | J. Brian Horrigan | 1977 | University and Shattuck Store Building 2001-2021 Shattuck Avenue Designed by John Galen Howard, this commercial building was constructed around 1910. | 3S |
| P-01-005571 | Historic | Anthony Bruce | 1978 | Heywood Building: 2014-2016 Shattuck Avenue This Venetian Gothic style commercial building dates from 1917; it was renovated and restored in 1994. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005572 | Historic | Betty Marvin | 1978 | S.H. Kress & Co.: 2036 Shattuck Avenue This commercial building was constructed in 1933. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005573 | Historic | Anthony Bruce | 1977 | Studio Building: 2045 Shattuck Avenue Built in 1906, this building has housed the California College of Arts and Crafts, The Berkeley Hotel, and various businesses. | 1S |
| | | Anthony Bruce | 1978 | | |
| | | Franklin Maggi | 2015 | | |
| P-01-005574 | Historic | Anthony Bruce | 1978 | Francis Shattuck Building: 2080 Addison Street This Neoclassical Revival style dates to 1901 and previously housed Metropolitan Life Insurance and the Native Sons of the Golden West. | 6Y |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005575 | Historic | Donna Dumont | 1979 | Mason-McDuffie Building: 2104 Addison St. This Mediterranean Revival style commercial building was constructed in 1928-29. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005576 | Historic | Betty Marvin | 1978 | V.D. Chase Building: 2109-2111 Shattuck Avenue This Classical Revival mixed-sue building was built in 1909 and remodeled several times since for use as hotels and apartments. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005577 | Historic | Betty Marvin | 1978 | Roy O. Long Co. Building: 2120-2122 Shattuck Avenue This Spanish Colonial Revival style building was constructed in 1927. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |

| Resource Designation(s) | Period | Author | Date Recorded | Description | NRHP/ CRHR Status |
|---|---|---|---|---|---|
| P-01-005578 | Historic | Charles S. Marinovich | 1979 | Great Western Building: 2150-2160 Shattuck Avenue The first suspended high-rise building in Northern California, this commercial building dates to 1969. | 2S2 |
| | | F. Maggi, S. Winder | 2015 | | |
| P-01-005579 | Historic | Betty Marvin | 1977 | Wright Block: 2151-2165 Shattuck Avenue This William Knowles-designed Renaissance Revival style commercial building dates to 1906. | 6Y |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005580 | Historic | Anthony Bruce | 1978 | Constitution Square Building: 2168-2180 Shattuck Avenue This commercial building was constructed in 1906. | 6Y |
| | | A. Castaneda and J. Pitti | 1980 | | |
| | | F. Maggi and S. Winder | 2015 | | |
| P-01-005581 | Historic | Betty Marvin | 1979 | F.W. Foss Company: 2177-2183 Shattuck Avenue This Eclectic Revival style commercial building was constructed in 1895 and has housed restaurants and jewelers. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005582 | Historic | Betty Marvin | 1978 | Samson Market: 2187 Shattuck Avenue This commercial building was constructed in 1922. | 6Y |
| | | F. Maggi, S. Winder | 2015 | | |
| P-01-005583 | Historic | Betty Marvin | 1978 | Hinkel Block: 2108-2112 Allston Way This Streamline Modern style commercial building was built in 1895. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005584 | Historic | Betty Marvin | 1979 | Radston's Stationery: 2225 Shattuck Avenue This Neoclassical commercial building was built in 1913. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005585 | Historic | Betty Marvin | 1978 | Amherst Hotel: 2231-2237 Shattuck Avenue This classical style commercial building dates to 1906. | 2S2 |
| P-01-005586 | Historic | Betty Marvin | 1978 | Blue and Gold Market; Wanger Block: 2110 Kittredge Street This commercial building was built in 1903. | 7N |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005587 | Historic | Anthony Buffington Bruce | 1978 | Homestead Loan Association: 2270 Shattuck Avenue This Neoclassical building was constructed in 1905 and has housed various banks. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005588 | Historic | Betty Marvin | 1978 | United Artists Theater: 2274 Shattuck Avenue This Art Deco style commercial building was constructed in 1932. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005589 | Historic | Ann Maria Celona | 1978 | Hezlett's Silk Store: 2277 Shattuck Avenue This Mediterranean Revival style commercial building dates to the mid-1920s. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |

| Resource Designation(s) | Period | Author | Date Recorded | Description | NRHP/ CRHR Status |
|---|---|---|---|---|---|
| P-01-005590 | Historic | Anthony Buffington Bruce | 1978 | Morse Block:<br>2276-2286 Shattuck Avenue<br>This Neoclassical commercial building dates to 1906. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005591 | Historic | Gary Breschin | 1977 | Tupper & Reed Building:<br>2275 Shattuck Avenue<br>This Storybook style commercial building was constructed in 1925. | 2S2 |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005592 | Historic | Betty Marvin | 1975 | Capdeville's University French Laundry:<br>2281-2283 Shattuck Avenue<br>This Art Moderne style commercial building dates to 1904. | 7N |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005593 | Historic | Betty Marvin | 1976 | Corder Building:<br>2300-2350 Shattuck Avenue<br>Designed by Berkeley architect James Plachek, this commercial building dates to 1925. | 2S2 |
| | | Betty Marvin | 1980 | | |
| | | OHP NPS | 1982 | | |
| | | Kathleen Kennedy | 2005 | | |
| | | Franklin Maggi | 2015 | | |
| P-01-005676 | Historic | Betty Marvin | 1978 | U.C. Theater: 2018-2036 University Ave<br>The Art Deco style theater was built in 1916-1917. | 7J |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005678 | Historic | Betty Marvin | 1978 | Joseph Davis Building:<br>2042 University Ave<br>This commercial building was built in 1905. | 3S |
| | | F. Maggi, L. Dill, S. Winder | 2015 | | |
| P-01-005679 | Historic | Betty Marvin | 1979 | Koerber Building:<br>2050-2054 University Ave<br>This commercial building was the first high-rise on University Ave. and the tallest building in town when completed in 1924 | 3S |
| | | Lorna Billat | 2004 | | |
| | | Daniella Thompson | 2009 | | |
| | | F. Maggi, S. Winder | 2015 | | |
| P-01-005680 | Historic | Katherine R. Wright | 1979 | Achesons Physicians Building:<br>2125-2135 University Ave<br>This commercial storefront was built in 1908. | 3S |
| | | Franklin Maggi | 2015 | | |
| P-01-005681 | Historic | Katherine R. Wright | 1978 | Achesons Physicians Building<br>2125-2135 University Ave<br>This commercial storefront was built in 1908. | 3S |
| | | Franklin Maggi | 2015 | | |
| P-01-005682 | Historic | Katherine R. Wright | 1978 | Berkeley Hardware Store<br>2145 University Ave<br>This commercial storefront was built in 1915. | 3S |
| | | Franklin Maggi | 2015 | | |
| P-01-005706 | Historic | Anthony Buffington Bruce | 1978 | Chamber of Commerce Building:<br>2140 Shattuck Avenue<br>Berkeley's first skyscraper (12 stories) was built in 1927. | 3S |
| | | Betty Marvin | 1984 | | |
| | | Franklin Maggi | 2015 | | |
| P-01-008285 | Historic | F. Maggi, S. Winder | 2015 | Campanile Hotel<br>2066-2070 University Ave.<br>This commercial structure was built in 1905. | 6Y |

| Resource Designation(s) | Period | Author | Date Recorded | Description | NRHP/ CRHR Status |
|---|---|---|---|---|---|
| P-01-010094 | Historic | Susan Cerney, Jerri Holan, Linda Perry | 1998 | Berkeley Historic Civic Center District | 3S |
| P-01-010496 | Prehistoric | Richard Schwartz | 2002 | Small shell and faunal bone fragments in disturbed ground near residences. | NRHP/CRHR: Not evaluated |
| P-01-010538 | Prehistoric | Richard Schwartz | 2001 | Prehistoric site based on historic photographs of the area. | NRHP/CRHR: Not evaluated |
| P-01-011384 | Historic | Michael Hibma | 2012 | 1931 Addison Street Commercial building built in 1931. | NRHP/CRHR: Not evaluated |
| P-01-011385 | Historic | Michael Hibma | 2012 | 1933 Addison Street Commercial building built in 1928. | NRHP/CRHR: Not evaluated |
| P-01-011386 | Historic | Michael Hibma | 2012 | 1935 Addison Street Commercial building built in 1925. | NRHP/CRHR: Not evaluated |
| P-01-011458 | Historic | Michael Hibma | 2012 | 1974 University Avenue Commercial building built in 1948 | NRHP/CRHR: Not evaluated |
| P-01-011834 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | Hotel Central: 2008-2012 Shattuck Avenue Neoclassical commercial building dates to 1917. | NRHP/CRHR: Not evaluated |
| P-01-011835 | Historic | Frank Maggi | 2015 | 2017 Shattuck Avenue This commercial building was built in the 1910s. | NRHP/CRHR: Not evaluated |
| P-01-011836 | Historic | F. Maggi, S. Winder | 2015 | First Savings Bank of Oakland Branch: 2033 Shattuck Avenue Designed by John Hudson Thomas, this commercial building was built in 1915. | NRHP/CRHR: Not evaluated |
| P-01-011837 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | Bowles Building: 2023 Shattuck Avenue This commercial building was built in 1915. | NRHP/CRHR: Not evaluated |
| P-01-011838 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | 2030 Addison Street This commercial building was built in 1986. | NRHP/CRHR: Not evaluated |
| P-01-011839 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | Woolsey Building: 2072-2074 Addison Street Originally built in 1922-1923, this commercial building has been extensively modified since. | NRHP/CRHR: Not evaluated |
| P-01-011840 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | 150 Berkeley Square This commercial building was originally constructed in 1958. | NRHP/CRHR: Not evaluated |
| P-01-011841 | Historic | F. Maggi, S. Winder | 2015 | San Francisco Federal Savings: 2000 Shattuck Avenue Built in 1927, this structure has housed several banks. | NRHP/CRHR: Not evaluated |
| P-01-011842 | Historic | F. Maggi, S. Winder | 2015 | Berkeley Tower: 2015 Shattuck Avenue This commercial building was built in 1983. | NRHP/CRHR: Not evaluated |

| Resource Designation(s) | Period | Author | Date Recorded | Description | NRHP/ CRHR Status |
|---|---|---|---|---|---|
| P-01-011843 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | 2020 Shattuck Avenue<br>This commercial building was constructed in 1910 and remodeled in 2013. | NRHP/CRHR: Not evaluated |
| P-01-011844 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | Bauml Building:<br>2024 Shattuck Avenue<br>This commercial building was built in 1927. | NRHP/CRHR: Not evaluated |
| P-01-011845 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | Boudin Bakery:<br>2116 Shattuck Avenue<br>A commercial building dating to c. 1938. | NRHP/CRHR: Not evaluated |
| P-01-011846 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | Norton Building:<br>2169-2175 Shattuck Avenue<br>A commercial building dating to 1905. | NRHP/CRHR: Not evaluated |
| P-01-011847 | Historic | F. Maggi, S. Winder | 2015 | J.C. Penney Co.:<br>2190 Shattuck Ave<br>A commercial building built in 1955-56. | NRHP/CRHR: Not evaluated |
| P-01-011848 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | The Luggage Center:<br>2219 Shattuck Ave<br>A commercial building dating to c. 1940. | NRHP/CRHR: Not evaluated |
| P-01-011849 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | 2301 Shattuck Avenue<br>A commercial building built in the late 1970s. | NRHP/CRHR: Not evaluated |
| P-01-011852 | Historic | F. Maggi, L. Dill, S. Winder | 2015 | Bank of America: 2119 Center Street<br>A commercial building constructed in 1974. | NRHP/CRHR: Not evaluated |
| P-01-011853 | Historic | F. Maggi, S. Winder | 2015 | 2058 University Avenue<br>A commercial storefront built around 1905. | NRHP/CRHR: Not evaluated |
| P-01-011854 | Historic | F. Maggi | 2015 | 2111 University Avenue<br>A commercial storefront built around 1911. | NRHP/CRHR: Not evaluated |
| P-01-011855 | Historic | F. Maggi | 2015 | Bachenheimer Building:<br>2117-2119 University Avenue<br>This mixed-use building was constructed in 2004. | NRHP/CRHR: Not evaluated |
| P-01-011856 | Historic | F. Maggi, S. Winder | 2015 | Martha Sell Building:<br>2154-2160 University Avenue<br>A commercial building from 1911-12. | NRHP/CRHR: Not evaluated |
| P-01-011857 | Historic | F. Maggi, S. Winder | 2015 | Ernest Alvah Heron Building:<br>2136-2140 University Avenue<br>A commercial building built in 1915-16. | NRHP/CRHR: Not evaluated |
| P-01-011858 | Historic | F. Maggi, S. Winder | 2015 | Shattuck Avenue Downtown Historic District<br>Contains elements: 5111, 5153, 5177, 5179, 5223, 5224, 5423-5427, 5558-5562, 5569-5584, 5586-5594, 5676, 5678-5682, 5706, 11834-11837, 11840-11857. | NRHP/CRHR: Not evaluated |

All cultural resource records are on file with the NWIC at Sonoma State University in Rohnert Park, CA. Resources outside of the Project Area are not listed in the bibliography.
California Historic Resource Codes:
1S - Individual property listed in NR by the Keeper. listed in the CR.
2S2 - Individual property determined eligible for NR by a consensus through Section 106 process. Listed in the CR.
3S - Appears eligible for NR as an individual property through survey evaluation.
6Y - Determined ineligible for NR by consensus through Section 106 process - Not evaluated for CR or Local Listing.
6Z – Found ineligible for NR, CR, or Local designation through survey evaluation.
7J - Received by OHP for evaluation or action but not yet evaluated.
7N - Needs to be reevaluated (Formerly NR Status Code 4)
7R – Identified in Reconnaissance Level Survey: Not evaluated.

## 4.2 Native American Communication

Pacific Legacy personnel submitted a Local Government Tribal Consultation List Request to the NAHC for a search of the Sacred Lands File as it encompasses the Project Area on December 21, 2020. Sarah Fonseca, Cultural Resources Analyst with the NAHC, responded to the request on January 12, 2021 and stated that the search was positive for the presence of known Native American resources within the Project Area, and advised contact with Amah Mutsun Tribal Band of Mission San Juan Bautista and the North Valley Yokuts Tribe for more information about the resources. Ms. Fonseca provided a list of ten tribal representatives or individuals with potential interest in and knowledge of the Project vicinity. All individuals on that list were contacted by Pacific Legacy via certified letter on January 15, 2021, and include Irene Zwierlein, Chairperson of the Amah Mutsun Tribal Band of Mission San Juan Bautista; Ann Marie Sayers, Chairperson of the Indian Canyon Mutsun Band of Costanoan; Kanyon Sayers-Roods, MLD Contact for the Indian Canyon Mutsun Band of Costanoan; Monica Arellano, Chairperson of the Muwekma Ohlone Indian Tribe of the SF Bay Area; Tony Cerda, Chairperson of the Costanoan Rumsen Carmel Tribe; Andrew Galvan of The Ohlone Indian Tribe; Donald Duncan, Chairperson of the Guidiville Indian Rancheria; Katherine Perez, Chairperson of the North Valley Yokuts Tribe; Timothy Perez, MLD Contact for the North Valley Yokuts Tribe; and Corrina Gould, Chairperson of The Confederated Villages of Lisjan (see Table 4-3 and Appendix C).

On January 29, 2021, Pacific Legacy archaeologist Dave Daly conducted follow-up calls and emails to all of the tribal representatives and individuals with potential interest in and knowledge of the Project vicinity. Irenne Zwierlein of the Amah Mutsun Tribal Band of Mission San Juan Bautista requested that a Native American monitor be present during demolition and construction activities, and that construction crews undergo cultural sensitivity training. Kanyon Sayers-Roods of the Indian Canyon Mutsun Band of Costanoan requested that a Native American monitor be present during demolition and construction activities, and that construction crews undergo cultural sensitivity training. She also recommended that the Project include public-facing information "hosting truth in history" about the Native peoples. Ms. Sayers followed up the phone call with an email dated March 23, 2021 re-iterating the previous recommendations and added a request to have Native American and archaeological monitors present on site at all times due to her understanding that the project APE overlaps or is near the boundary of a recorded and potentially eligible cultural site.

All correspondence between Pacific Legacy, the NAHC, Native American stakeholders, and potential Native American stakeholders, regarding the Project are included in Appendix C.

**Table 4-3. Native American Outreach by Pacific Legacy.**

| Organization | Contact | Letter | Phone | E-mail | Comments |
|---|---|---|---|---|---|
| Amah Mutsun Tribal Band of Mission San Juan Bautista | Irenne Zwierlein, Chairperson | 1/15/21 | (650) 851-7489 | amahmutsuntribal@gmail.com | 1/29/21: Mr. Daly spoke to Ms. Zwierlein, who requested that a Native American monitor be present and that construction crew undergo sensitivity training. |
| Costanoan Rumsen Carmel Tribe | Tony Cerda, Chairperson | 1/15/21 | (909) 629-6081 | rumsen@aol.com | 1/29/21: Number disconnected |
| Guidiville Indian Rancheria | Donald Duncan, Chairperson | 1/15/21 | (707) 462-3682 | admin@guidiville.net | 1/29/21: Mr. Daly left a message |
| Indian Canyon Mutsun Band of Costanoan | Kanyon Sayers-Roods, MLD Contact | 1/15/21 | (408) 673-0626 | kanyon@kanyonkonsulting.com | 1/29/21: Mr. Daly spoke to Ms. Kanyon Sayers-Roods, who requested that a Native American monitor be present and that construction crew undergo sensitivity training. She also recommended that the project include public-facing information "hosting truth in history" about the Native peoples.<br>Ms. Sayers followed up with an email on 3/23/21 repeating the communication via phone and included concern that the project APE overlaps or is near the boundary of a recorded and potentially eligible site and recommended a Native American and Archaeological monitor be present on site at all times. |
| Indian Canyon Mutsun Band of Costanoan | Ann Marie Sayers, Chairperson | 1/15/21 | (831) 637-4238 | ams@indiancanyon.org | 1/29/21: No answer. |
| Muwekma Ohlone Indian Tribe of the | Monica Arellano, Chairperson | 1/15/21 | (408) 205-9714 | marellano@muwekma.org | 1/29/21: the voicemail box was full and not accepting any messages. |
| North Valley Yokuts Tribe | Timothy Perez, MLD Contact | 1/15/21 | (209) 662-2788 | huskanam@gmail.comt | 1/29/21: Mr. Daly left a message. |
| North Valley Yokuts Tribe | Katherine Erolinda Perez, Chairperson | 1/15/21 | (209) 887-3415 | canutes@verizon.net | 1/29/21: Mr. Daly left a message |
| Confederated Villages of Lisjan | Corrina Gould, Chairperson | 1/15/21 | (510) 575-8408 | corrinagould@gmail.com | 1/29/21: Mr. Daly left a message |
| The Ohlone Indian Tribe | Andrew Galvan | 1/15/21 | (510) 882-0527 | chochenyo@aol.com | 1/29/21: Mr. Daly left a message |

Archaeological sites are not randomly distributed across the landscape, but rather tend to occur in specific geo-environmental settings. The San Francisco Bay area has been subject to rapid and profound geomorphic processes that altered where land and sea met, where rivers flowed, and what food resources were available in each context. Geoarchaeological studies have concluded that the potential for older landforms to contain buried sites is lower than younger landforms because the amount of time humans occupied older landforms is shorter than the time humans occupied younger landforms (Byrd et al 2017). The Project Area appears to be located on landforms with moderate sensitivity for surface sites and lower sensitivity for buried sites. The presence of the previously discovered archaeological sites and the proximity to Strawberry Creek indicates the potential for surface or near surface prehistoric deposits.

# 5.0 METHODS

The purpose of an archaeological survey is to identify any previously unrecorded cultural resources within the Project Area that may be affected by the Project. The survey is usually conducted by walking across the parcel in spaced transects and focusing on areas of exposed and/or disturbed soils. The exposed soils are investigated to determine whether there are cultural materials present or changes in the soil colors and types that might indicate an archaeological site deposit is present.

At 2118 Milvia Street in Berkeley, the entire parcel is covered by the existing building footprint. The building is surrounded by sidewalks and streets (Center and Milvia) on the east and south sides. The adjacent historical office building at 2180 Center Street to the west is also covered by the building footprint and paved areas. The area to the north is covered by a parking lot. There are no exposed soils to survey and investigate. Therefore, no pedestrian survey was completed for this Project Area. Instead, more extensive archival research was completed for the parcel to determine what the potential was for discovering historic period or prehistoric archaeological resources.

# 6.0 STUDY FINDINGS AND CONCLUSIONS

The records search revealed that no previously recorded cultural resources are within the Project Area, and that 88 are present within a 0.25-mile radius. Of these 85 are built environment resources and three are prehistoric archaeological sites. The Native American Consultation and Sacred Land database search was positive for the presence of known Native American resources within the Project Area. Consultation with Native American tribes did not identify this resource.

Archival research indicates that although neighboring parcels were developed as a lumber yard and early twentieth century residences, the Project Area remained vacant until the 1941 construction of a gas and oil service station. The service station had three underground tanks in the southeast portion of the parcel. In 1966, the current three-story office building in 1966 replaced the service station. It is not clear whether or not the underground tanks were removed.

The site sensitivity study indicates that the Project Area has the potential for Holocene to historic period occupation. The Project Area's proximity to Strawberry Creek and the presence of three prehistoric archaeological sites, albeit poorly documented, further indicate the potential for surface or buried sites within the Project Area. Historic period development indicates that the southeastern portion of the parcel was disturbed by the 1940s installation of buried oil and/or gas tanks. If the current office building has a shallow foundation or footings, there is potential for the buried historical or prehistoric deposits in the west half or northeast portion of the parcel. Historical deposits could be associated with the Foss Lumberyard or adjacent early twentieth century households at 2106 and 2108 Milvia Street. Since the parcel was vacant for most of the historic period, it is likely to be difficult to determine a clear association with a particular source for any historical archaeological deposits. Any intact prehistoric deposits would likely be significant.

Based on the results of the records search, contact with the NAHC and Native American tribal representatives, and a review of archival and environmental data, the Project has low potential to encounter significant historic period resources and moderate to high potential to encounter surface or buried prehistoric Native American resources within the western and northeastern portions of the Project Area. Post demolition surface survey and limited mechanical trenching/potholing testing in the northeast and western portions of the parcel is recommended to identify stratigraphy and presence or absence of cultural materials to 5-feet depth. If the final geotechnical investigation determines a deep foundation system is necessary, coring may be necessary to determine stratigraphy, depth of fill or native soils and disturbances. A more detailed workplan should be prepared to identify the methods and locations of testing units. This could potentially include a detailed geoarchaeological assessment. If cultural resources are identified they must be assessed for potential significance for listing on the CRHR. This may require the preparation of a research design and evaluative testing program.

# 7.0 REFERENCES CITED


Archives and Architecture, LLC

2015 Shattuck Avenue Commercial Corridor Historic Context and Survey. Report prepared for the City of Berkeley. Digital Document, https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_LPC/2015-09-03_LPC_ATT1_Shattuck%20Survery_Draft%20Final%20Report.pdf, accessed January 2021.

Aronovici, J. G

2012 The Evolution of Berkeley's Downtown Park. *Exactly Opposite, The Newsletter of the Berkeley Historical Society* 30(1):5-8.

Bean, W., and J. J. Rawls

1983 *California: An Interpretive History*. McGraw Hill, New York.

Beck, W. A., and Y. D. Haase

1980 *Historical Atlas of California*. University of Oklahoma Press, Norman, Oklahoma.

Bennyhoff, J. A., and Fredrickson, D. A.

1967 A Typology of Shell and Stone Beads from Central California. *Manuscript on file at the California Department of Parks and Recreation, Sacramento, California.*

Bennyhoff, James A. and Richard E. Hughes

1987 Shell Bead and Ornament Exchange Networks Between California and Western Great Basin. *Anthropological Papers of the American Museum of Natural History* 64:2. New York: American Museum of Natural History.

Berkeley, City of

2003 700 University Avenue Mixed Use Project: Draft Environmental Impact Report. Digital document, https://www.cityofberkeley.info/Planning_and_Development/Home/700_University_Avenue.aspx, accessed January 2021.

2009 Revised Historic Resource Matrix. Digital Ledger, https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_DAP/HistoricResourcesMatrix.pdf, accessed January 2021.

Berkeley City College

2021 History of Berkeley City College. Digital document, https://www.berkeleycitycollege.edu/wp/bccpub/files/2015/07/History_BCC.pdf, accessed January 2021.

Berkeley High School

1955 *Olla Podrida*. Berkeley High School Yearbook, available digitally, https://archive.org/details/ollapodridaunse_52/page/n1/mode/2up, accessed January 2021.

Breschini, G. S., and Haversat, T.

1992 *Baseline Archaeological Studies at Rancho San Carlos, Carmel Valley, Monterey County, California* (No. 36). Coyote Press.

Byrd, B. F., A. R. Whitaker, P. J. Mikkelsen and J. S. Rosenthal

2017 *San Francisco Bay-Delta Regional Context and Research Design for Native American Archaeological Resources, Caltrans District 4*. Electronic Document https://dot.ca.gov/programs/environmental-analysis/standard-environmental-reference-ser/other-guidance#sfbaydelta, accessed February 2021

Cerny, S., J. Holan, and L. Perry

1998 Berkeley Historic Civic Center District, National Register of Historic Places Registration Form, National Park Service. Digital Document, https://npgallery.nps.gov/GetAsset/6f3d22af-c1d9-408d-b942-8957b737ffef, accessed January 2021.

Cohen, Alan
2007 A History of Berkeley From the Ground Up. Berkeley Historical Society Online Resources, digital document, https://web.archive.org/web/20171014035224/http:/historyofberkeley.org/index.html, accessed January 2021.

Colliers International
2011 For Lease – Office Space, 2118 Milvia Street, Berkeley, CA, 94704. Colliers International realty attachment, https://www.colliersparrish.com/attachment.aspx?articleid=97977, accessed January 2021.

Dingee, W. J., and M. G. King
1884 *Map of Oakland, Berkeley, and Alameda*. William J. Dingee, Oakland. Digital image, https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~29564~1130609:Oakland,-Berkeley,-Alameda-?sort=Pub_List_No_InitialSort%2CPub_Date%2CPub_List_No%2CSeries_No&qvq=q:Dingee%201884%20%22Map%20of%20Oakland%2C%20Berkeley%2C%20and%20alameda%22;sort:Pub_List_No_InitialSort%2CPub_Date%2CPub_List_No%2CSeries_No;lc:RUMSEY~8~1&mi=0&trs=2, accessed January 2021.

Figuers, S.
1998 Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, CA. Electronic document accessed April 2016, http://www.waterboards.ca.gov/sanfranciscobay/water_issues/available_documents/figuers.pdf.

Fredrickson, David A.
1973 Early Cultures of the North Coast Ranges, California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis
1974 Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology* 1:41-53.

Garcia and Associates
2003 *Archaeological Survey Report (Positive), Public Improvement Projects and Maintenance in the West Berkeley Redevelopment Area, City of Berkeley, Alameda County, California.* Report on file at the Berkeley Redevelopment Agency, Berkeley, California and Caltrans District 4 Office, Oakland, California.

Gifford, Edward Winslow
1916 Composition of California Shellmounds. *University of California Publications in American Archaeology and Ethnology*. Vol. 12: No. 1. University of California Press, Berkeley, California

Hoover, M. B., H. E. Rensch, E. G. Rensch, and D. E. Kyle.
1990 *Historic Spots in California*. Fourth edition. Stanford University Press, Stanford, California.

Husted, F. M.
1903 *Husted's Oakland, Alameda, Berkeley Directory*. F. M. Husted, San Francisco, California

Jones, T. L., and Klar, K. A.
2005 Diffusionism reconsidered: linguistic and archaeological evidence for prehistoric Polynesian contact with southern California. *American Antiquity*, 457-484.

Koenig, Heidi, Jack Mc Ilroy, and Jack Meyer.
2001 Broadway/Jackson Street Interchange Improvement Project: Archaeological Survey Report, submitted to Caltrans District 4, Oakland.

Laffey, Glory Anne
1989 *Historical and Architectural Evaluation of the Buck Norred Ranch (APN 708-02-04) on Heaton Moor Drive in the City of San Jose County of Santa Clara.* Prepared by Archaeological Resource Management for Cisco Development.

Levy, Richard
1978 "Costanoan" in *Handbook of North American Indians*, vol. 8 (California), pp. 485–495. William C. Sturtevant, and Robert F. Heizer, eds. Smithsonian Institution, Washington, DC.

Lightfoot, K. G., and W. S. Simmons
1998 Culture Contact in Protohistoric California: Social Contexts of Native and European Encounters. *Journal of California and Great Basin Anthropology* 20(2):138-170.

Loud, Llewellyn
*1924 The Stege Mounds at Richmond, California. University of California Publications in American Archaeology and Ethnology*. Vol. 17: No. 6. University of California Press, Berkeley, California

Margolin, Malcolm
1978 *The Ohlone Way*. Heyday Books, Berkeley.

Mayfield, David W.
1978 Ecology of the Pre-Spanish San Francisco Bay Area. PhD Dissertation, Department of Geography, San Francisco State University.

Merritt, F. C.
1928 *The History of Alameda County California*. The S. J. Clark Publishing Company, Chicago, Illinois.

Meyer, Jack, and Jeff Rosenthal
2007 *Geoarchaeologyical Overview of the Nine Bay Area Counties in Caltrans District 4*. Submitted to the California department of Transportation, District 4, Oakland.

Milliken, Randall T.
2009 *Ethnohistory and Ethnogeography of the Coast Miwok and their Neighbors, 1783-1840*. Archaeological and Historical Consultants, Oakland. Prepared for the National Park Service, Cultural Resources and Museum Management Division, Golden Gate National Recreation Area, San Francisco.

Milliken, Randall T., and James A. Bennyhoff
1993 Temporal Bead Changes as Prehistoric California Grave Goods. In *There Grows a Green Tree: Papers in Honor of David A. Fredrickson,* edited by Greg White, Pat Mikkelsen, William R. Hildebrandt, and Mark E. Basgall, pp. 381-395. Center for Archaeological Research at Davis, Publications No. 1, Davis, California

Milliken, Randall, Richard T. Fitzgerald, Mark G. Hylkema, Randy Groza, Tom Origer, David G. Bieling, Alan Leventhal, Randy S. Wiberg, Andrew Gottsfield, Donna Gillette, Viviana Bellifemine, Eric Strother, Robert Cartier, and David A. Fredrickson.
2007 Punctuated Culture Change in the San Francisco Bay Area. In California Prehistory: Colonization, Culture, and Complexity, edited by Terry L. Jones and Kathryn A. Klar, pp. 99-123. Altamira Press, Lanham, Maryland.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press, Inc. Reprinted by Coyote Press 2004.

Nationwide Environmental Title Research LLC (NETROnline)
2021a 1946 Aerial Photograph of 2118 Milvia Street area. Available at https://www.historicaerials.com; search: 2118 Milvia Street, Berkeley, CA., accessed January 2021.
2021b 1968 Aerial Photograph of 2118 Milvia Street area. Available at https://www.historicaerials.com; search: 2118 Milvia Street, Berkeley, CA., accessed January 2021.
2021c 1988 Aerial Photograph of 2118 Milvia Street area. Available at https://www.historicaerials.com; search: 2118 Milvia Street, Berkeley, CA., accessed January 2021.
2021d 1993Aerial Photograph of 2118 Milvia Street area. Available at https://www.historicaerials.com; search: 2118 Milvia Street, Berkeley, CA., accessed January 2021.

2021e 2002 Aerial Photograph of 2118 Milvia Street area. Available at https://www.historicaerials.com; search: 2118 Milvia Street, Berkeley, CA., accessed January 2021.

Nelson, N.C.
1906 Excavation of the Emeryville Shellmound. Contributions of the University of California Archaeological Research Facility No. 54. Berkeley, California. Transcribed and Prefaced by Jack M. Broughton 1999.

Nirenstein, Nathan
1952 *Business Section, City of Berkeley, California*. Nirenstein's National Realty Map Company, Springfield, Massachusetts. Digital image, https://www.davidrumsey.com/luna/servlet/view/search/where/Berkeley%2B%2528Calif.%2529?q=%22Nirenstein%27s+National+Realty+Map+Company%22&sort=pub_list_no_initialsort%2Cpub_date%2Cpub_list_no%2Cseries_no, accessed January 2021.

Pacific Telephone and Telegraph Company
1951 *Oakland, Alameda, Albany, Berkeley, Emeryville, Piedmont, San Leandro, and Parts of El Cerrito and San Lorenzo Alphabetical Telephone Directory*. Pacific Telephone and Telegraph Company. Digital document available at www.ancestry.com. Accessed January 2021.

1957 *Oakland, Alameda, Albany, Berkeley, Emeryville, Piedmont, San Leandro, and Parts of El Cerrito and San Lorenzo Alphabetical Telephone Directory*. Pacific Telephone and Telegraph Company. Digital document available at www.ancestry.com. Accessed January 2021.

Panich, L., J. Holson, and A. Vanderslice
2009 *Historic Context and Archaeological/Architectural Survey Report for the Habitat Reserve Program, Alameda, San Francisco, Sam Joaquin, San Mateo, and Santa Clara Counties, California.* Report prepared for Environmental Science Associates. On file at Pacific Legacy Bay Area Office, Berkeley, California.

Polk, R. L., & Company
1930 *Polk's Oakland City Directory*. R.L. Polk & Company, Oakland, California.

1941 *Polk's Oakland City Directory*. R.L. Polk & Company, Oakland, California.

Polk-Husted Directory Company
1915 *Polk-Husted Directory Company's Oakland, Berkeley, and Alameda Directory*. Polk-Husted Directory Company, Oakland California.

Sanborn Insurance Company
1894 Sanborn Insurance Maps, Berkeley, California 1894, Volume 1, Sheet 7.
1911 Sanborn Insurance Maps, Berkeley, California 1911, Volume 1, Sheet 71.
1929 Sanborn Insurance Maps, Berkeley, California 1929, Volume 1, Sheet 69.
1950 Sanborn Insurance Maps, Berkeley, California 1950, Volume 1, Sheet 69.

Schenck, W. Egbert
1926 The Emeryville Shellmound Final Report. *University of California Publications in American Archaeology and Ethnology.* Vol. 23: No. 3. University of California Press, Berkeley, California

Schneider, T.
2009 Point Reyes National Seashore Sites, Olompali and McClure Sites. In, *Archaeology in America: An Encyclopedia*, F.P. McManamon, general editor, pp. 65-68. Greenwood Publishing Group, Westport, Connecticut.

Starr King School for the Ministry
2021 Our History. Digital document, https://www.sksm.edu/about/starr-king-schools-mission-and-history/, accessed January 2021.

Thompson and West
1878 Map 16, *Alameda County Atlas, 1878*. Thompson and West.

Uhle, Max
1907 The Emeryville Shellmound. *University of California Publications in American Archaeology and Ethnology*. Vol. 7: No. 1. University of California Press, Berkeley, California

University of California Santa Barbara
1965 Frame 15-140, Aerial Photograph Mosaic Index. Flight # CAS 65-130, Alameda County. Maps and Imagery Laboratory, digital image, https://mil.library.ucsb.edu/ap_indexes/cas65130/supplemental/cas-65-130_24.jpg, accessed January 2021.

Woods, M. W.
1883 *History of Alameda County, California*. Pacific Press, Oakland, California.

# Appendix GEO

Geotechnical Investigation

# GEOTECHNICAL INVESTIGATION AND FOUNDATION DESIGN
# BERKELEY CITY COLLEGE
# 2118 MILVIA STREET
# BERKELEY, CALIFORNIA

*Prepared for*

Noll & Tam Architects
729 Heinz Ave. #7
Berkeley, CA 94710

*Prepared by*


Terraphase Engineering Inc.
1404 Franklin Street, Suite 600
Oakland, California 94612


June 9, 2017

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engineering

June 9, 2017 0034.002.001

Merideth Marschak AIA, CSI, LEED AP
Noll & Tam Architects
729 Heinz Ave. #7
Berkeley, CA 94710

Subject: Geotechnical Investigation and Design Report, Proposed Berkeley City College, 2118 Milvia Street, Berkeley, California

Dear Ms. Marschak:

Terraphase Engineering Inc. (Terraphase) is pleased to present the attached Geotechnical Investigation and Foundation Design Report for the proposed Community College Site to be located at 2118 Milvia Street in Berkeley, California.

Terraphase appreciates this opportunity to provide consulting services to Noll & Tam Architects, and looks forward to being of further assistance as the project proceeds.

If you have any comments or questions concerning this report, please contact Jeff Raines at (510) 645-1853.

Sincerely,

Chris Alger, P.G. (C5020), C.E.G. (1564)
Principal Engineering Geologist

Jeff Raines, P.E. (C51120), G.E. (2762)
Principal Geotechnical Engineer

Attachment

CERTIFIED ENGINEERING GEOLOGIST
CHRISTOPHER S. ALGER
NO. 1564
EXP 2/19
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JEFFERY R RAINES
2762
EXP 9-30-17
GEOTECHNICAL
STATE OF CALIFORNIA

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# 1. INTRODUCTION

This report presents the results of the geotechnical investigation conducted by Terraphase Engineering Inc. (Terraphase) for the site of a proposed Berkeley City College building to be located at 2118 Milvia Street in Berkeley, California ("the Site"; Figure 1).

The report includes an assessment of the capacities of the existing foundation elements. We have included a site-specific seismic hazard assessment performed in accordance with ASCE 41 (2013) for use by the project structural engineers (Appendix D) in evaluating the structural performance of the building during earthquakes.

This report also includes our opinions concerning potential geotechnical constraints and geological hazards that may have an impact on site development and could potentially impede the performance of the proposed project. This assessment covers the requirements of California Geological Survey Note 48 (CGS 2013), *"Checklist for the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings".* This report was prepared in general accordance with California Educational Code Section 17212.5. Conclusions presented in this report are based in part on the published data discussed in this report, and on our experience with the types of geotechnical constraints applicable to sites located in Northern California. These conclusions should not be extrapolated to other areas outside the Site without our prior review and concurrence.

# 2. LOCATION AND SITE DESCRIPTION

The Site (Figure 1) is located in Alameda County in the City of Berkeley. It occupies 11,300 square feet on the northwest corner of Milvia and Center Streets in a commercial district within the city limits of Berkeley. Figure 2 presents the building footprint and the boring locations.

The center of the Site is located at a latitude of approximately 37.8707° North, and a longitude of approximately 122.2707° West. According to published topographic maps (Figure 3), it lies at an elevation of approximately 169 feet above mean sea level (msl), and is essentially flat. The local topography slopes to the west toward San Francisco Bay at an angle of approximately 100 feet per mile.

The 1903 Sanborn Fire Insurance Map of the area (Terraphase 2015) shows that the Site was a vacant lot in 1903 and that Milvia Street had not yet been extended between Addison and Center Streets. The 1929 Sanborn Map shows that the Site was still vacant, though Milvia Street extended between Addison and Center Streets. A gasoline service station was located across Milvia Street from the Site. Strawberry Creek is no longer shown above ground in 1929 having been routed through a subsurface culvert by that date. The 1950 Sanborn Map shows the Site had been developed as a gasoline service station. The RL Polk City Directory indicates that Fairchild and White was located at 1999 Center Street (the Site would be addressed as 1999 Center Street if the building on the Site fronted on Center Street) in 1943 – Environmental Data Resources (EDR) lists Fairchild and White as a former gasoline service station.

The Site was inspected at reconnaissance-level by Mr. Jeffery Raines, PE (51120) GE (2762) on January 26, 2015. No obvious surface evidence of potential geological hazards was evident at the Site on that date.

# 3. PURPOSE AND SCOPE OF SERVICES

Terraphase's scope of work included:

- conducted a review of geologic hazards data
- conducted a Site inspection
- Installed three borings at the Site to depths up to 50 feet below grade (Appendix B)
- Conducted laboratory testing on representative soil samples (Appendix C)
- Prepared a Site-Specific Seismic Hazard Assessment for the Site (Appendix D)
- prepared a report of pertinent findings with respect to seismic, geologic, and geotechnical engineering issues, including:
    - pertinent site maps showing the approximate project location
    - local geologic setting, faulting, and seismicity
    - site liquefaction potential, ground rupture potential, and other geologic and seismic hazards
    - flood inundation potential
    - Allowable foundation loads

# 4. SITE CONDITIONS

The local and regional geologic conditions herein are based upon our subsurface investigations, subsurface investigations at neighboring sites and our regional experience and available literature.

## 4.1 Geology and Soils

### 4.1.1 Regional Geology

The topography of the Bay Area consists of north- to northwest-trending mountain ranges and intervening valleys that are characteristic of the Coast Range geomorphic province. The Coast Ranges consist of the Mendocino Range to the north of San Francisco Bay, the Santa Cruz Mountains west of the Bay, and the Diablo Range to the east of the Bay.

The San Andreas Fault Zone lies to the west, and represents a major boundary that separates Franciscan Complex rocks on the North American Plate from Salinian basement rocks of the Pacific Plate.

The Coast Ranges represent northwest-southeast trending structural blocks comprised of a variety of lithologies that are juxtaposed by major geologic structures. The Coast Ranges-Sierran Block boundary zone lies many miles to the east of the site. To the west, the major boundary is the San Andreas Fault Zone, which separates Franciscan Complex rocks of the North American plate from the Salinian rocks on the Pacific plate. Oceanic crust Coast Ranges ophiolites within the Franciscan Complex have been deformed by a series of thrust faults, most of which appear to be inactive.

The geology of the San Francisco Bay Area is made up primarily of three different geologic provinces: the Salinian block, the Franciscan complex, and the Great Valley sequence. The Salinian block is located west of the San Andreas fault and is composed primarily of granitic rocks.

The Mesozoic Franciscan Complex is bounded on the east side by the Hayward fault and on the west side by the San Andreas fault. The Franciscan rocks represent terranes of former crust that have been accreted to North America by subduction and collision. These rocks are primarily deep marine sandstone and shale. However, chert and limestone are also found within the assemblage. Certain rocks of the Franciscan complex are prone to landslides.

To the east of the Hayward fault is the Great Valley sequence which in the Bay Area is composed primarily of Cretaceous and Tertiary marine sedimentary rocks in the Bay Area. These rocks are also prone to landsliding.

The Diablo Range extends from the Sacramento River Delta, south along the western side of the San Joaquin Valley. Rocks of the Mesozoic Great Valley are thrust upon Franciscan Complex basement along the San Joaquin Valley margin, and are covered locally by younger sediments of Paleocene to Pleistocene age.

Faults of the San Andreas system separate the Diablo Range from the remainder of the Coast Ranges. Mount Diablo is separated from the western East Bay hills by the Calaveras fault and from the southern extension of the Diablo Range by the Livermore Valley, an east-west-trending Cenozoic basin. The Diablo Range is bounded to the east by the Coast Range-Sierran Block boundary zone, which typically is represented by a series of blind and partially concealed thrust faults (Wong et al., 1988; Unruh and Moores, 1992). The eastern side of Mount Diablo is bounded by the San Joaquin fault (Sowers et al., 1992).

The Diablo Range comprises a series of large asymmetrical anticlines, with intervening synclines. The anticlines are composed of Franciscan Complex rocks, while the synclines contain younger rocks. The folds are frequently cut by east- and west-verging thrust faults. These thrust faults are displaced or truncated by strike-slip movement on the northwest-striking, right-lateral faults of the San Andreas fault system.

The complex arrangement of faults is the result of vigorous tectonic activity which have resulted in locally steep terrain (though not at the Site) with consequent landsliding hazards.

### 4.1.2 Local Geology

A cross-section of the Site is presented on Figure 5. A geological map (Graymer 2000) is presented on Figure 4. As shown on Figure 4, the local surficial geologic unit is Holocene age (less than 11,000 years old) alluvial fan and fluvial deposits. Graymer describes this unit as:

> *Alluvial fan deposits are brown or tan, medium dense to dense, gravely sand or sandy gravel that generally grades upward to sandy or silty clay. Near the distal fan edges, the fluvial deposits are typically brown, never reddish, medium dense sand that fines upward to sandy or silty clay. The best developed Holocene alluvial fans are on the San Francisco Bay plain. All other alluvial fans and fluvial deposits are confined to narrow valley floors.*

URS (2001) conducted a subsurface exploration approximately 1200 feet west of the Site in the same geologic unit as the Site. URS described the soils they encountered as, “stiff to very stiff silty and sandy clay, overlying hard clay and dense sand below depths of 40 feet.”

Kaldveer (1981) found Franciscan bedrock (sandstone) at 34 feet bgs at a site located 950 feet due east of the Site. Standard Penetration Test (SPT) blow counts ranged from 13 to >100 in Kaldveer’s borings.

Engeo (2013) conducted a geotechnical feasibility study of a site 640 feet southeast of the Site. Their conclusion regarding local geology was,

> Surface soils at the site generally consists of stiff to very stiff gravelly to sandy clay with interbedded layers of medium dense to dense clayey sand and gravels sized rock fragments. These are interpreted as Holocene age alluvial fan deposits and generally extend to depths less than 20 feet deep. The younger alluvium is underlain by older Pleistocene alluvium, generally consisting of similar layers of interbedded clays, sands

and gravels. However, the older granular deposits are dense to very dense and the clayey soils are very stiff to hard.

Engeo identified the soils below 20 feet bgs as Pleistocene-aged which are unlikely to liquefy during seismic events.

Figuers (1998) mapped the bedrock as 50 feet below the ground surface in the vicinity of the Site. CGS (2003b) indicates that the highest historical groundwater elevation in the Site vicinity is between 5 and 10 feet below the ground surface (bgs).

URS's description (2001) of the site 1200 feet to the west of the Site is consistent with Figuers (1998) and CGS (2003b).

## 4.2 Hydrology and Hydrogeology

CGS (2003b) indicates the highest groundwater level in the Site vicinity has been within 10 feet of the ground surface. Groundwater was encountered at 20 feet bgs in Terraphase boring B-3 on May 10, 2017. However, the groundwater table probably had not stabilized. A groundwater elevation of ten feet bgs was used in the liquefaction susceptibility analysis.

# 5. GEOLOGICAL HAZARDS

## 5.1 Faulting and Seismicity

The known regionally active faults within 50 kilometers of the Site that are capable of producing significant ground shaking at the Site are listed in Table 1 and shown on Figure 6. Activity was determined by slip rates, as per the CGS (Petersen et al. 1996 and Cao et al. 2003). The long-term average rate of slip is determined geologically. It is based on the total displacement of a geologic unit divided by the age of the unit. So, the fault is not actually moving other than in earthquakes.

Table 1 includes an estimate of the peak ground acceleration (at the mean plus one standard deviation level) and the Modified Mercalli Intensity likely to be felt at the Site due to earthquakes on the individual faults. The Modified Mercalli Intensity (MMI) scale is described in Table 2. The calculated MMI should be considered to be a rough order of magnitude estimate; it is presented here because it is more understandable for lay readers than peak ground accelerations.

MMI was evaluated using EQFAULT software (Blake 2000a). EQFAULT uses the inverse of the Murphy and O'Brian (1978) acceleration – intensity equation to calculate the MMI:

$$I_{mm} = [\log_{10}(980.7 * a_{Hg}) - 0.29] / 0.24$$
$$a_{Hg} = horizontal\ acceleration\ (g)$$

The CGS probabilistic seismic hazard assessment website indicates that the estimated peak ground acceleration for the Site is 1.04 g for alluvium (CGS 2015) for a 2% in 50 years (2,475 year return period[1]) earthquake. This means that a 150 pound person will be subjected to a peak horizontal force of 156 pounds during an earthquake with this peak ground acceleration.

The 2007 Working Group on California Earthquake Open Seismic Hazard Assessment tool predicts that there is a 50% chance that the Site will experience a peak ground acceleration greater than 0.25g in the next 30 years and a 10% chance that the Site will experience a peak ground acceleration of 0.79g in the next 30 years.

Table 3 presents the significant historical earthquakes that have occurred in the site vicinity.

[1] That means that there is only a small chance that an earthquake with a peak ground acceleration greater than 1.04g will occur in a 2,475 year period. The 2007 Working Group on California Earthquake Probabilities indicated that there is a 31% chance that the Hayward Fault will rupture between 2008 and 2038. ABAG believes that the acceleration at the Site from the next event on the Hayward Fault will produce a Modified Mercalli Intensity of X at the Site (please see Table 2).

**Table 1**
**Known Active Earthquake Faults within 50 Kilometers of the Site**
**Berkeley City College**
**Berkeley, California**

| Abbreviated Fault Name | Approx. Distance, miles (km) | Maximum Earthquake Mag. (Mw) | Horizontal Peak Ground Accel. (g) | Est. Site Intensity, Modified Mercalli |
|---|---|---|---|---|
| HAYWARD (North) | 1.0 (1.6) | 6.9 | 0.518 | X |
| HAYWARD (Total Length) | 1.0 (1.6) | 7.1 | 0.531 | X |
| HAYWARD (South) | 12.2 (19.6) | 6.9 | 0.182 | VIII |
| CALAVERAS (No.of Calaveras Res) | 13.0 (20.9) | 6.8 | 0.168 | VIII |
| CONCORD - GREEN VALLEY | 14.8 (23.8) | 6.9 | 0.156 | VIII |
| RODGERS CREEK | 15.5 (25.0) | 7 | 0.155 | VIII |
| SAN ANDREAS (Peninsula) | 17.4 (28.0) | 7.1 | 0.146 | VIII |
| SAN ANDREAS (1906) | 17.4 (28.0) | 7.9 | 0.192 | VIII |
| SAN ANDREAS (North Coast) | 18.0 (29.0) | 7.6 | 0.169 | VIII |
| GREENVILLE | 19.3 (31.0) | 6.9 | 0.126 | VIII |
| SAN GREGORIO | 20.1 (32.3) | 7.3 | 0.14 | VIII |
| WEST NAPA | 20.4 (32.8) | 6.5 | 0.103 | VII |
| GREAT VALLEY 6 | 23.7 (38.2) | 6.7 | 0.12 | VII |
| GREAT VALLEY 5 | 26.7 (42.9) | 6.5 | 0.1 | VII |
| MONTE VISTA - SHANNON | 29.9 (48.1) | 6.8 | 0.102 | VII |
| POINT REYES | 31.1 (50.0) | 6.8 | 0.099 | VII |

**Notes:** The expected peak ground acceleration (PGA) is the mean value
PGA = peak ground acceleration

**Table 2**
**Applicable Portions of Modified Mercalli Intensity Scale**
**Berkeley City College**
**Berkeley, California**

| Intensity | Shaking | Summary | Description |
|---|---|---|---|
| VII | Strong | Nonstructural Damage | Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices (also unbraced parapets and architectural ornaments). Some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged. |
| VIII | Very Strong | Moderate Damage | Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes. |
| IX | Violent | Heavy Damage | General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Frame structures, if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters. |
| X | Very Violent | Extreme Damage | Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly. |

**Masonry A:** Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.
**Masonry B:** Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces.
**Masonry C:** Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces.
**Masonry D:** Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

**Table 3**
**Historical Earthquakes in Site Vicinity Magnitude > 6**
**Berkeley City College**
**Berkeley, California**

| Latitude | Longitude | Date | Magnitude | PGA (g) | MM | Distance in miles (km) |
|---|---|---|---|---|---|---|
| 37.8 | 122.2 | 06/10/1836 | 6.8 | 0.475 | X | 6.2 ( 10.0) |
| 37.7 | 122.5 | 4/18/1906 | 8.25 | 0.269 | IX | 17.2 (27.6) |
| 37.8 | 122.5 | 06/21/1808 | 6.3 | 0.193 | VIII | 13.4 (21.6) |
| 37.7 | 122.1 | 10/21/1868 | 6.8 | 0.191 | VIII | 15.0 (24.1) |
| 37.6 | 122.4 | 06/01/1838 | 7 | 0.156 | VIII | 19.9 (32.1) |
| 38.2 | 122.4 | 03/31/1898 | 6.2 | 0.097 | VII | 23.8 (38.3) |
| 38 | 121.9 | 05/19/1889 | 6 | 0.096 | VII | 22.1 (35.5) |
| 37.5 | 121.9 | 11/26/1858 | 6.1 | 0.068 | VI | 32.6 (52.5) |
| 38.4 | 122 | 04/19/1892 | 6.4 | 0.066 | VI | 39.4 (63.4) |
| 37.036 | 121.883 | 10/18/1989 | 7 | 0.06 | VI | 61.4 (98.8) |
| 37.25 | 121.75 | 7/1/1911 | 6.6 | 0.057 | VI | 51.4 (82.8) |
| 37.3 | 121.9 | 10/08/1865 | 6.3 | 0.056 | VI | 44.3 (71.3) |
| 38.5 | 121.9 | 04/21/1892 | 6.2 | 0.049 | VI | 47.9 (77.1) |
| 37.32 | 121.698 | 4/24/1984 | 6.2 | 0.048 | VI | 49.2 (79.2) |
| 36.83 | 121.57 | 10/18/1800 | 7 | 0.046 | VI | 81.5 (131.1) |
| 37 | 121.5 | 06/20/1897 | 6.2 | 0.031 | V | 73.5 (118.2) |
| 36.9 | 121.6 | 04/24/1890 | 6 | 0.026 | V | 76.4 (123.0) |
| 36.61 | 122.35 | 10/22/1926 | 6.1 | 0.024 | V | 87.1 (140.2) |
| 36.57 | 122.17 | 10/22/1926 | 6.1 | 0.024 | IV | 89.9 (144.7) |

**Notes:** Source: Blake 2000c
Latitude and Longitude are the locations of the assumed epicenters
MM – Mercalli Magnitude (please see Table 2)
Acceleration is the mean expected acceleration at the Site due to the historical earthquake calculated using the Abrahamson & Silva (1997) attenuation relationship.
The Loma Prieta earthquake occurred on October 18, 1989 and produced an acceleration at the Site approximately equal to 6% of the acceleration from an earthquake on the Hayward Fault (see Appendix D, Table 2).

## 5.2 Ground Rupture Potential

The Site is not located within an Alquist-Priolo Special Studies Earthquake Fault Zone (CGS 1982). There are no known active faults, and therefore no Alquist-Priolo Zones, within 1 mile of the Site (Table 1). The nearest Alquist-Priolo Zone is located at UC Berkeley's Memorial Stadium (Hayward Fault) approximately 1 mile east of the Site.

Since the Site is remote from these faults, there does not appear to be a significant risk of surface rupture during the expected service life of the buildings

## 5.3 Liquefaction Potential

Liquefaction can be induced by cyclic loading (shaking) from an earthquake, which can cause granular materials to lose their inherent shear strength due to increased pore water pressures. Some of the factors that typically contribute to liquefaction risk include a shallow water table, low relative density of granular materials below the groundwater table, low soil cohesion or plasticity, low percentage of fine-grained material in soil, relatively long seismic shaking duration, and high ground acceleration during earthquakes.

CGS (2003a, Figure 7) does not map the Site as being in a liquefaction hazard zone.

### 5.3.1 Liquefaction Resistance

Terraphase encountered one potentially liquefiable strata in Boring 3 between 25 and 33 feet bgs. The soil was a gravelly sand with SPT blow counts of 38 (25 feet bgs) and 25 (30 feet bgs). SPT blow counts were adjusted as shown in Table 4.

**Table 4**
**SPT Correction Factors**
**Berkeley City College**
**Berkeley, California**

| Factor | Value (25' / 30') bgs | Explanation |
|---|---:|---|
| CS | 1.3 / 1.25 | Sampler did not contain rings or sleeves |
| CB | 1.150 | Borehole size (8 inch) |
| CE | 1.000 | Hammer efficiency |
| Cr | 0.97 / 1 | Rod Length |
| CN | 0.87 /.83 | Overburden |
| Total | 1.26 / 1.19 | |

Overburden based on 125 pcf total unit weight with the water table at 20 ft bgs – the water level at the time of the boring

Hence, the corrected SPT blow counts are 48 and 30. These are consistent with blow counts in this geologic strata found in the adjacent sites.

Seed et al. (2003) recommends an SPT correction factor for fines equal to:

$C_{fines}$ = (1+0.004*FC)+0.05*(FC/N1,60) = 1.09 for a fines content of 16.1% and an SPT blow count of 30 and 1.1 for an SPT blow count of 48. So the final corrected blow counts are 53 and 32.

### 5.3.2 Liquefaction Potential

The strata from 25 to 30 feet bgs will not liquefy, but the strata from 30 to 33 feet bgs may. Specifically:

The cyclic stress ratio at 31.5 feet is

$$CSR_{peak} = \frac{a_{max}}{g}\left(\frac{\sigma_v}{\sigma'_v}\right)r_d$$

$a_{max}$ is the maximum credible earthquake peak ground acceleration (0.90 g, see Appendix D)

$\sigma_v$ is the total vertical stress at 31.5 feet = 125 pcf * 10 feet + 130pcf * 21.5 feet = 4,045 pounds per square foot (psf) – based on the groundwater table at 10 feet bgs (worst case) and a saturated unit weight of the soil of 130 pcf.

$\sigma'_v$ is the effective vertical stress at 31.5 feet = 125 pcf * 10 feet + (130-62.4) pcf * 21.5 feet = 2,700 pounds per square foot (psf)

$r_d$ is the shear mass participation factor (1.0 from Seed et al. 2003 equation 2)

$CSR_{peak}$ = 0.9*(4045/2700)*1 = 1.3

$CSR_{eq}$ = 0.65* $CSR_{peak}$ = .85 –> strata between 30 and 32.5 feet potentially liquefies

Figure 53 in Seed et al. (2003) indicates the volumetric strain for this strata will be approximately 1.0% resulting in a settlement of 0.3 inches. Given the depth of the liquefiable strata we do not expect there to be any significant differential settlement at the surface.

ASCE 41 regards the entire strata as non-liquefiable if:

*The soils are cohesionless with a minimum normalized standard penetration test (SPT) resistance, $(N_1)_{60}$, value of 30 blows/0.3 m (30 blows/ft), as defined in ASTM D1586, for depths below the groundwater table;*

As there is only one boring in the strata that is potentially liquefiable, the existing building should be conservatively assessed for a differential settlement of 0.3 inches. Based on ASCE 41 criteria, SPT blow count greater than 30, the stratum would not liquefy.

## 5.4 Landslide Potential

The Site area is essentially flat (Figure 3). Given the lack of relief, no significant landslide risk exists.

## 5.5 Flood Inundation Potential

### 5.5.1 Flood Zonation

The local Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FEMA 2009) indicate that the Site is not located within a 100-year flood zone. The nearest 100-year flood zone ("Zone A") is located approximately 1,500 feet east of the Site (Figure 8).

### 5.5.2 Dam Inundation

The Site is not within any dam inundation zones as mapped by the City of Berkeley (2015).

## 5.6 Land Subsidence

Land subsidence, generally caused by excessive groundwater withdrawal, is unlikely to occur in downtown Berkeley. Because of environmental concerns the groundwater in Berkeley is not a resource likely to be tapped. Should land subsidence occur, the building currently constructed on the Site is likely to be less susceptible than the adjacent buildings, which are taller and older, and hence the subsidence would likely begin to damage those buildings before it damaged the Site building and hence subsidence would be stopped before it affected the Site.

## 5.7 Naturally Occurring Asbestos

CGS (2000) does not map significant outcrops of serpentine-bearing (e.g., ultramafic) rocks in the watershed above the project Site. The chances of finding significant quantities of naturally-occurring asbestos (NOA) in alluvium derived from upslope bedrock at the Site are negligible.

## 5.8 Other Hazards

Certain other potential geologic hazards, including tsunamis, seiches, naturally occurring radon, and oil and gas fields, do not appear to pose significant risks at the Site, for the reasons discussed briefly below.

**Tsunamis and Seiches.** Tsunamis do not pose an appreciable risk at this inland location (California Emergency Management Agency 2009). Seiches do not pose an appreciable risk given the absence of adjacent surface water bodies.

**Naturally Occurring Radon.** The California Department of Health Services (DHS 2010) maintains a database of radon measurements in California, based on zip code. No elevated radon results (greater than or equal to 4.0 pCi/L) have been reported in 34 measurements from the 94704 (Berkeley) zip code, which includes the Site.

**Oil and Gas Fields.** The Site is not located within an oil or gas field, as recognized by the California Department of Oil, Gas, and Geothermal Resources (DOGGR 2015) maintains a Geographical Information System (GIS) map of all active and abandoned oil and natural gas wells in California. No wells have been drilled in the Berkeley area. The nearest abandoned well is approximately 3 miles east of the Site.

# 6. SEISMIC HAZARD PARAMETERS

Seismic design information is presented in Appendix D.

# 7. FOUNDATION DESIGN

## 7.1 General

The building is approximately 50 years old and shows no visible signs of foundation problems (cracking in masonry walls, separation of flatwork, non-planar floors) so it's existing foundation appears to be performing well. ASCE 41 (2013) requires that the following parameters be reported for the building:

1. Foundation type;
2. Foundation configuration, including dimensions and locations; and
3. Material composition and details of construction.

ASCE 41 (2013) requires the following soil information:

1. unit weight, γ;
2. the effective stress friction angle, φ' or the undrained shear strength of clays, su;
3. soil compressibility characteristics;
4. small-strain soil shear modulus, Gmax ; and
5. Poisson's ratio, $\nu$ .

## 7.2 Existing Foundation

The current structure was constructed in the mid-1960s – the building construction plans are dated August 18, 1966 and a 1968 aerial photograph shows the existing building. It is a three-story, approximately 11,000 square foot footprint facility. Interior columns are supported on 9-feet by 9-feet spread footings (Appendix A). The western and southern walls of the facility are supported on spread footings varying in size from 9-feet by 3-feet to 7 feet by 7 feet. The building construction plans show the eastern wall being supported on a strip footing 3.33 feet by 92-feet. The north wall is supported on 14, 18-inch diameter drilled piers of unknown depth. The building plans (Appendix A) indicated the drilled piers were to be installed 4 feet into the dense cohesionless strata which would indicate they could be installed to approximately 30 feet below existing grade.

Interior column loads are 70 kips (Shea 2017) which corresponds to a bearing pressure of 860 pounds per square foot (psf) which is about half of the presumptive building code allowable bearing pressure.

## 7.3 Soil Properties

The clay soils on which the spread footings derive support can be modeled with the following properties

1. moist unit weight, γ – 125 pounds per cubic foot (pcf)
2. saturated unit weight – 130 pcf
3. the undrained shear strength of clays, su; - 2,500 psf (the actual shear strength of the clays supporting the existing footings is likely to be higher due to the 50 years of consolidation that has taken place since the building was constructed).
4. soil compressibility characteristics; $k_{sv}$, use 150 pounds per cubic inch (pci) divided by the width of the footing (least dimension) for static analyses and 240 pci divided by the width of the footing for dynamic analyses (Johnson and Ireland, 1963, found that clays loaded dynamically were 1.6 times stiffer than the same clays loaded statically).
5. small-strain soil shear modulus, Gmax – 1,700 tons per square foot (tsf) (Ohsaki & Iwasaki 1973 – Gmax = $(78*(N_{60})^{0.39})^2$ times (3.28 feet/meter) times soil density = $(286\ m/s *3.28\ ft/m)^2 * 125\ pcf / 32.2\ ft/s^2$ = 1,700 tsf; and
6. Poisson's ratio,ν – use 0.35 for soil above 10 feet bgs and 0.5 for soils below 10 feet bgs.

Unit weights are based on the material types and our experience in the site vicinity. Undrained shear strength is based on pocket penetrometer values in shallow soils from Boring 1. Soil compressibility characteristics are based on the low end of the range of soil compressibilities from published data for clay soils (USACE 1984, Page 2-4). Poisson's ratio is from ASCE 41 (ASCE 2013).

## 7.4 Fill Recommendations

Imported fill materials should be approved by the Engineer before being brought to the Site. Imported fill shall be certified as clean from the source (not from former industrial sites or similar locations; not chemically affected). Imported fill should be nonexpansive, granular in nature and meet the following requirements: minimum R-Value of 35 (Caltrans Test Method 301), maximum expansion index of 25 (UBC 18-2), and maximum plasticity index of 12 (ASTM D4318). The soil should be compacted in lifts no greater than 8 inches loose to a minimum of 90% of the soil's maximum dry density. Native soil below the fill should be scarified to a depth of 12 inches, moisture conditioned to a minimum of 12% above optimum and be compacted to 90% of it's maximum dry density. A representative of the geotechnical engineer should observe placing and compacting of fill and backfill.

Controlled density fill shall be composed of cementitious materials, aggregate, water, and an air-entraining admixture, as follows:

1. Cementitious materials shall be portland cement in combination with fly ash.
2. Admixture shall be an air-entraining agent.

3. Aggregate Content: CDF mixture shall contain no aggregate larger than 3/8 inch. Amount passing a No. 200 sieve shall not exceed 12 percent. No plastic fines shall be present.

4. Air Content: Total calculated air content of the sample, prepared in accordance with ASTM C231, shall not exceed 30 percent

5. Strength: Controlled density fill shall have an unconfined compressive strength at 28 days of from 50 psi to a maximum of 150 psi.

## 7.5 Trench Excavation and Backfilling

Trenches should be excavated as required by the plans and specifications, using appropriate equipment. Where necessary, trenches should be sloped or shored by the contractor, in accordance with the governing safety standards to provide a safe work site. The contractor shall be responsible for any temporary slopes and trenches excavated at the Site and for design of shoring, should it be required.

Trenches should be backfilled with compacted fill, in accordance with the stricter of the recommendations contained in this section or in accordance with local requirements. Fill material should be placed in lifts no greater than 8 inches in loose thickness and compacted by mechanical means. Trench backfill should be compacted to at least 90% relative compaction.

## 7.6 Excavations Adjacent to Buildings

Trenches and other excavations located adjacent to existing foundations should be located such that an imaginary line drawn at a 45 degree angle from the bottom of the outer edge of the spread footing does not intersect the trench.

Trenches and other excavations that will pass within an imaginary 45-degree angle to a spread footing or slab-on-grade foundation that will be constructed in the future should be backfilled with clean fill compacted to at least 95% relative compaction or with controlled density fill prior to constructing the foundation or slab.

Trenches to be excavated parallel to an existing slab-on-grade foundation should be located such that an imaginary line drawn at a 45 degree angle from the bottom of the outer edge of the slab does not intersect the trench. If this is not possible, the trench can be installed in 5-foot long sections with each section backfilled with clean fill compacted to at least 95% relative compaction or with controlled density fill prior to excavating the next segment of the trench.

For other trench/foundation layouts, please consult with the engineer.

## 7.7 Foundations

### 7.7.1 Spread or Continuous Footings

The existing footings vary between 3 and 9 feet wide and are based 3 feet below the top of slab (Appendix A). Per Section 8.4.2.1, the soil properties between 5 and 8 feet below the top of slab can be used to assess bearing capacity. Based on pocket penetrometer and blow counts in this vicinity, the undrained shear strength of the clay bearing strata is approximately 2,500 psf. The following are recommended allowable bearing pressures for foundation elements:

**Table 5**
**Spread Footing Allowable Bearing Pressures**
**Berkeley City College**
**Berkeley, California**

| Loading Condition | Allowable Bearing Pressure |
|---|---|
| Dead Loads | 3,300 psf |
| Dead plus Live Loads | 5,000 psf |
| All Loads, including Wind or Seismic | 6,500 psf |

Notes: psf = pounds per square foot; Factor of safety = 4

If additional footings are required, footing concrete should be poured neat against native soil. Footings excavations should not be allowed to dry out prior to pouring concrete. Cracks in footing excavations more than ¼ inch wide should be dug out. Any disturbed or softened material encountered at the bottom of the footing excavations should be removed to expose firm bearing material. Overexcavated areas should be backfilled with lean or structural concrete. Footing excavations should be kept moist before concrete placement.

Continuous footings should be reinforced with a minimum of at least two (2) #4 bars top and bottom in the longitudinal direction unless otherwise determined by the structural engineer. Isolated spread footings should be reinforced with a minimum of two (2) #4 bars in each direction. Reinforcement should be spaced 12 inches on center in each direction unless otherwise determined by the structural engineer.

Before issuing the construction bids, the geotechnical engineer should review the foundation plans and prepare a review letter. In addition, the geotechnical engineer should observe foundation operations.

### 7.7.2 Concrete Slabs-on-Grade

Slab-on-grade floors should be supported on a minimum of 4 inches of clean gravel or crushed rock. We recommend that moisture sensitive foundations in direct contact with the subsurface (mechanical rooms, elevator shafts, lobbies and commercial and residential units on the ground floor) be underlain by a moisture barrier. A typical moisture barrier should include a capillary moisture break consisting of at least four inches of clean, free-draining gravel or crushed rock (1/2 to 3/4 inch gradation) overlain by a moisture-proof membrane of at least 10 mils thick (15-mil Stego, Grace FlorPrufe or equivalent – for shallow groundwater, require Grace PrePrufe). The vapor retarder should be covered with two inches of sand to aid in curing the concrete and to protect the vapor retarder during slab construction. Water should not be allowed to accumulate in the capillary break or sand prior to casting the slab.

The vapor retarder should meet the requirements for Class C vapor retarders as given in ASTM Standard E1745-97. The vapor retarder should be installed in general accordance with the methodology documented in ASTM Standard E1643-98. These requirements include overlapping seams by at least six inches, taping seams, and sealing penetration through the vapor retarder. The particle size of the gravel/crushed rock and sand should meet the gradation requirements presented in the following table.

Material for support of slabs should conform to the gradation specification shown in Table 6.

**Table 6**
**Subslab Foundation Materials**
**Berkeley City College**
**Berkeley, California**

| | Sieve Size | Percentage Passing Sieve |
|---|---|---|
| Gravel or Crushed Rock | 1 inch | 90 – 100 |
| | ¾ inch | 30 – 100 |
| | ½ inch | 5 – 25 |
| | 3/8 inch | 0 – 6 |
| Sand | No. 4 | 100 |
| | No. 200 | 0 – 5 |

The sand overlying the membrane should be moist at the time concrete is placed. There should be no free liquid in the sand.

It is recommended that slabs-on-grade be reinforced with reinforcing bars instead of mesh. Slabs should be constructed with frequently spaced construction joints to reduce the potential for uncontrolled shrinkage cracking. Spacing and type of joints should be designed by the structural engineer. The slab subgrade should be prepared as described in Section 7.4.

### 7.7.3 Drilled Piers

The drilled piers were designed as end-bearing in the dense gravelly-sand stratum located approximately 30 feet bgs. Based on corrected SPT blow counts of 48 (see Section 5.3 of this report), the friction angle of the gravelly-sand is approximately $40^{o}$.

Based on a friction angle of $40^{o}$ and a depth below the ground surface of 25 feet, an 18-inch diameter drilled pier would have an allowable bearing capacity (factor of safety of 3) of 100 kips. Even neglecting side friction, the drilled piers appear to have sufficient capacity.

Additional drilled piers would not be an economical foundation type if additional deep foundation elements are required. In the event that additional deep foundation elements are required, we recommend that micropiles embedded into the dense gravelly-sand below 25 feet bgs be used. A six-inch diameter, concrete-filled micropile would have a capacity of 40 kips (including side friction) using a factor of safety of 2 based on a shear strength of 1.5 kips per square foot (ksf). A lower factor of safety is appropriate given that the jacking pressure used to install the micropile is known. For uplift control, the micropiles would have a capacity of 29 kips.

## 7.8 Soil Corrosivity

Examination of the concrete cores removed from the building slab did not indicate any deterioration of the concrete after 50 years in contact with Site soils. New metal utilities should be corrosion protected.

## 7.9 Soil Expansion

The plasticity index of a soil sample collected between 1 and 3 feet bgs was 18 (low expansion potential) while the plasticity index of a soil sample collected between 5 and 6 feet bgs was 38 (very high expansion potential). Given that the water table below the Site is very shallow and the entire site is paved, we would not expect that the foundation soil moisture content would change significantly and hence expansion/shrinkage of the clay soils is unlikely. No indications of building distress indicative of differential settlements (e.g., diagonal cracks in masonry walls) were noted.

## 7.10 Exterior Flatwork

It is recommended that exterior concrete flatwork be a minimum of 4 inches thick and reinforced with reinforcing bars. Exterior flatwork should be underlain by at least 4 inches of aggregate base rock conforming to Caltrans Class 2 standards that is compacted to a minimum of 92% relative compaction. The exterior flatwork should be poured separately from building foundations so that they act independently of the walls and foundations. Exterior finish grades should be sloped a minimum of 2% percent away from interior slab areas to preclude ponding of water adjacent to the structures. Soils below exterior flatwork should scarified to a depth of 6 inches and be compacted to a minimum of 92% of the Modified Proctor Maximum Density at a moisture content at least 2% greater than the optimum moisture content. This may require moisture conditioning the soil.

# 8. CONCLUSIONS

Our findings are summarized below.

- Existing foundation elements are loaded well below their static capacities
- Liquefaction settlements are likely to be less than 0.3 inches
- The Site is not located within or near an Alquist Priolo Special Studies Earthquake Fault Zone. Surface rupture should not reasonably be expected during the life of the building.
- The Site is not located within the 100-year flood zone.
- School buildings constructed on the Site will likely be subjected to strong shaking during earthquakes during their useful economic lives.

Based on the above findings, it is Terraphase's opinion that the Site is suitable for the proposed school development.

# 9. DESIGN REVIEW AND CONSTRUCTION MONITORING

Terraphase recommends that the geotechnical aspects of the project be reviewed by Terraphase during the design process. The scope of services may include:

- assisting the design team in providing specific recommendations for special cases
- reviewing the foundation design and evaluating the overall applicability of our recommendations
- reviewing the geotechnical portions of the project for possible cost savings through alternative approaches
- reviewing the proposed construction techniques to evaluate whether they satisfy the intent of our recommendations
- reviewing and stamping drawings

Terraphase recommends that foundation construction and earthwork performed during construction, if any, be monitored by a qualified representative from our office, including:

- site preparation (stripping and grading)
- placement of compacted fill and backfill
- all foundation excavations
- construction of slab, roadway, and/or parking-area subgrade

Terraphase's representative should be present to observe the soil conditions encountered during construction to evaluate the applicability of the recommendations presented in this report to the soil conditions encountered and to recommend appropriate changes in design or construction procedures, if conditions differ from those described herein.

# 10. LIMITATIONS

The opinions and recommendations presented in this report are based upon the scope of services, information obtained through the performance of the services, and the schedule as agreed upon by Terraphase and the party for whom this report was originally prepared. This report is an instrument of professional service and was prepared in accordance with the generally accepted standards and level of skill and care under similar conditions and circumstances established by the geotechnical consulting industry. No representation, warranty, or guarantee, express or implied, is intended or given. To the extent that Terraphase relied upon any information prepared by other parties not under contract to Terraphase, Terraphase makes no representation as to the accuracy or completeness of such information. This report is expressly for the sole and exclusive use of the party for whom this report was originally prepared for a particular purpose and only in it's entirely. Only the party for whom this report was originally prepared and/or other specifically named parties have the right to make use of and rely upon this report. Reuse of this report or any portion thereof for other than its intended purpose, or if modified, or if used by third parties, shall be at the user's sole risk.

Furthermore, nothing contained in this report shall relieve any other party of its responsibility to abide by contract documents and applicable laws, codes, regulations, or standards.

Subsurface Explorations and Testing

Results of any observations, subsurface exploration or testing, and any findings presented in this report apply solely to conditions existing at the time when Terraphase's exploratory work was performed. It must be recognized that any such observations and exploratory or testing activities are inherently limited and do not represent a conclusive or complete characterization. Conditions in other parts of the project site may vary from those at the locations where data were collected and conditions can change with time. Terraphase's ability to interpret exploratory and test results is related to the availability of the data and the extent of the exploratory and testing activities.

The findings and recommendations submitted in this report are based, in part, on data obtained from subsurface borings, test pits, and specific, discrete sampling locations. The nature and extent of variation between these test locations, which may be widely spaced, may not become evident until construction. If variations are subsequently encountered, it will be necessary to re-evaluate the conclusions and recommendations of this report.

Correlations and descriptions of subsurface conditions presented in boring logs, test pit logs, subsurface profiles, and other materials are approximate only. Subsurface conditions may vary significantly from those encountered in borings and sampling locations and transitions between subsurface materials may be gradual or highly variable.

Conditions at the time water level measurements and other subsurface observations were made are presented in the boring logs or other sampling forms. This field data have been reviewed and interpretations provided in this report. However, groundwater levels may be variable and may fluctuate due to variations in precipitation, temperature, and other factors. Therefore, groundwater levels at the site at any time may be different than stated in this report.

Review

In the event that any change in the nature, design, or location of the proposed structure(s) is planned, the conclusions and recommendations in this report shall not be considered valid nor relied upon unless the changes are reviewed and the conclusions and recommendations of this report are modified or verified in writing.

Terraphase should be provided the opportunity for a general review of final design plans and specifications to assess that our recommendations have been properly interpreted and included in the design and construction documents.

Construction

To verify conditions presented in this report and modify recommendations based on field conditions encountered in the field, Terraphase should be retained to provide geotechnical engineering services during the construction phase of the project. This is to observe compliance with design concepts, specifications, and recommendations contained in this report, and to verify and refine our recommendations as necessary in the event that subsurface conditions differ from those anticipated prior to the start of construction.

# 11. REFERENCES AND BIBLIOGRAPHY

Abrahamson, N. A., and W. J. Silva .1997. Empirical Response Spectral Attenuation Relations for Shallow Crustal Earthquakes, Seismological Research Letters, 68(1), 94-127.

American Society of Civil Engineers. 2010. ASCE 7: Minimum Design Loads for Buildings and Other Structures.

______________________________. 2013. ASCE 41: Seismic Evaluation and Retrofit of Existing Buildings.

Berkeley, City of. 2015. Dam Inundation Map for the Berryman Reservoir. Site accessed on January 30, 2015: http://www.ci.berkeley.ca.us/uploadedImages/Planning_(new_site_map_walk-through)/Level_3_-_General/figure16.jpg

Blake, Thomas F. 2000a. EQFAULT: A Computer Program for the Estimation of Peak Horizontal Acceleration from 3-D Fault Sources. Thomas F. Blake Computer Services & Software. April.

______. 2000b. EQSEARCH: A Computer Program for the Estimation of Peak Acceleration from California Historical Earthquake Catalogs. Thomas F. Blake Computer Services & Software. April.

Bryant, W. A. (compiler). 2005. Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, Version 2.0. California Geological Survey. http://www.consrv.ca.gov/CGS/information/publications/QuaternaryFaults_ver2.

California Department of Health Services (DHS). 2010. California Indoor Radon Measurements Sorted by Zip Code. May 4. http://www.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf

California Department of Oil, Gas, and Geothermal Resources (DOGGR). 2015. Digital Online Map Service. http://www.conservation.ca.gov/dog/Pages/WellFinder.aspx . Accessed January 30, 2015.

California Emergency Management Agency. 2009. Tsunami Inundation Map for Emergency Planning: Oakland West Quadrangle. July 31.

California Geological Survey (CGS). 1982. Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm. State of California Special Studies Zones, Oakland West. January 1. Accessed January 30, 2015.

______. 2000. A General Location Guide for Ultramafic Rocks in California - Areas More Likely To Contain Naturally Occurring Asbestos. California Division of Mines and Geology, Open-File Report 2000-19. August. ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ofr_2000-019.pdf

______. 2003a. Geologic Controls on the Distribution of Radon in California. Report prepared for the California Department of Health Services. December.

http://www.consrv.ca.gov/cgs/minerals/hazardous_minerals/radon/Geo_Controls_Dist_Radon.pdf

______. 2003b. Seismic Hazard Zone Report for the Oakland West 7.5-Minute Quadrangle, Alameda County, California.

______. 2003c. Seismic Hazard Zones, Oakland West Quadrangle, Official Map released February 14, 2003.

______. 2017. Probabilistic Hazard Assessment Tool - http://www.quake.ca.gov/gmaps/PSHA/psha_interpolator.html

Cao, T., W. A. Bryant, B. Rowshandel, D. Branum, and C.J. Wills. 2003. The Revised 2002 California Probabilistic Seismic Hazard Maps, June 2003. California Geological Survey. http://www.consrv.ca.gov/cgs/rghm/psha/fault_parameters/pdf/2002_CA_Hazard_Maps.pdf

Engeo. 2013. Geotechnical Feasibility Report: High Rise at The Shattuck, Berkeley, California. January 25.

Federal Emergency Management Agency (FEMA). 2009. National Flood Insurance Program. Flood Insurance Rate Map, Alameda County, California and Incorporated Areas. Community-Panel Number 06001 C0057 G. August 9.

Figuers, S. 1998. Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, Ca. June 15.

Graymer, R.W. 2000. Geologic Map and Database of the Oakland Metropolitan Area, Alameda, Contra Costa and San Francisco Counties, California.

Johnson, Ted D. and Herbert O. Ireland. 1963. Tests on Clay Subsoils Beneath Statically and Dynamically Loaded Spread Footings. University of Illinios, Urbana, Illinois. August.

Kaldveer, Peter and Associates. 1981. Foundation Investigation, Seven Story Office Building, Berkeley, California. January 26.

Murphy, J.R. and L.J. O'Brian. 1978. Analysis of Worldwide Strong Motion Data Sample to Develop an Improved Correlation Between Peak Acceleration, Seismic Intensity, and other Physical Parameters, US Nuclear Regulatory Commission, NUREG-0402.

Ohsaki, Y, and R Iwasaki (1973). On dynamic shear moduli and Poisson's ratio of soil deposits, Soil and Foundations, Volume 13, Number 4, pages 61–73.

Petersen, M.D., W.A. Bryant, C.H. Cramer, T. Cao, and M. Reichle. 1996. Probabilistic Seismic Hazard Assessment for the State of California. California Division of Mines and Geology, Open-File Report 96-08; U.S. Geological Survey, Open-File Report 96-706.

Seed, R.B., K. O. Cetin, R. E. S. Moss, A. M. Kammerer, J. Wu, J. M. Pestana, M. F. Riemer, R.B. Sancio, J.D. Bray, R. E. Kayen, and A. Faris. 2003. Recent Advances in Soil Liquefaction Engineering: A Unified And Consistent Framework. 26th Annual ASCE Los Angeles Geotechnical Spring Seminar, Keynote Presentation, H.M.S. Queen Mary, Long Beach, California, April 30.

Shea, Marissa. 2017. Email from Marissa Shea of KPW Structural Engineers to Jeff Raines of Terraphase. Dated May 21, 2017 at 4:32 pm.

Sowers, J.M., Noller, J.S., and J.R. Unruh. 1992. Quaternary deformation and blind-thrust faulting on the east flank of the Diablo Range near Tracy, California. In: Proceedings of the Second Conference on Earthquake Hazards in the Eastern San Francisco Bay Area. Borchardt, G., Hirschfeld, S. E., Lienkaemper, J. J., McClellan, P., Williams, P. L. and I.G. Wong (eds.). California Department of Conservation, Division of Mines and Geology. p. 377-383.

Terraphase Inc. 2015. Phase I Environmental Site Assessment, 2118 Milvia Street, Berkeley, Alameda County, California. January 30.

United States Army Corps of Engineers (USACE). 1984. Rigid Pavements for Roads, Streets, Walks and Open Storage Areas, Mobilization Construction. Engineering Manual 1110-3-132. April.

United States Geological Survey (USGS). 1993. Topographic Map, 7.5-Minute Series, Oakland West, California Quadrangle. Scale 1:24,000.

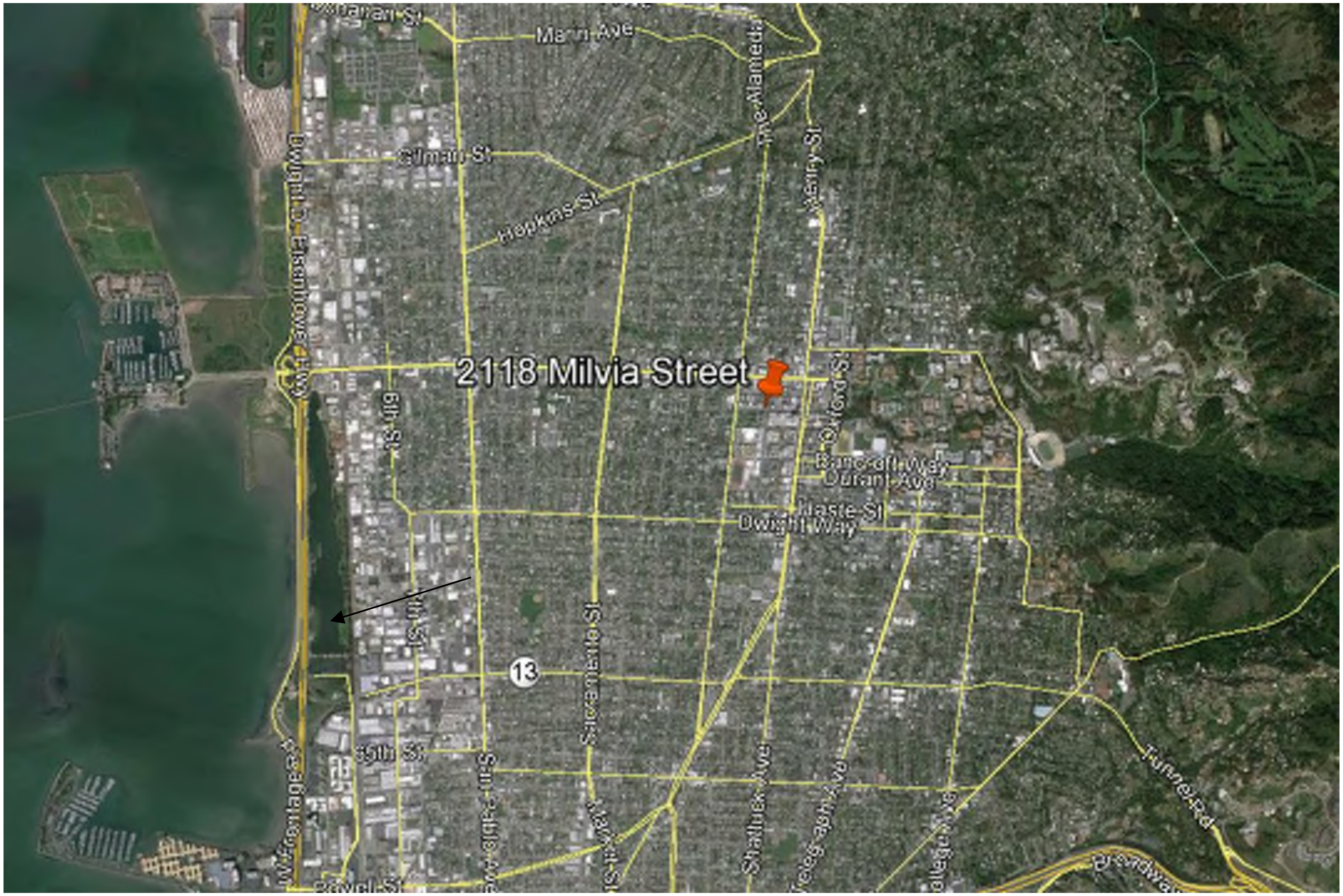
______. 2006. Quaternary Fault and Fold Database of the United States. http://earthquake.usgs.gov/regional/qfaults/

Unruh, J.R. and E.M. Moores. 1992. Quaternary blind thrusting in the southwestern Sacramento Valley, California. Tectonics. 11: 192-2033.

URS. 2001. Geotechnical Engineering Study, University of California, Berkeley Art Museum Relocation Study. May 8.

Wong, I. G., Ely, R. W., and Kollmann, A.C. 1988. Contemporary seismicity and tectonics of the Northern and Central Coast Ranges-Sierran Block Boundary zone, California. Journal of Geophysical Research. 93:7,813-7,833.

2007 Working Group on California Earthquake Probabilities. 2008. The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2) USGS Open File Report 2007-1437 CGS Special Report 203 SCEC Contribution #1138 Version 1.0.





Source: GoogleEarth Professional

N

0' 3,500' 7,000'

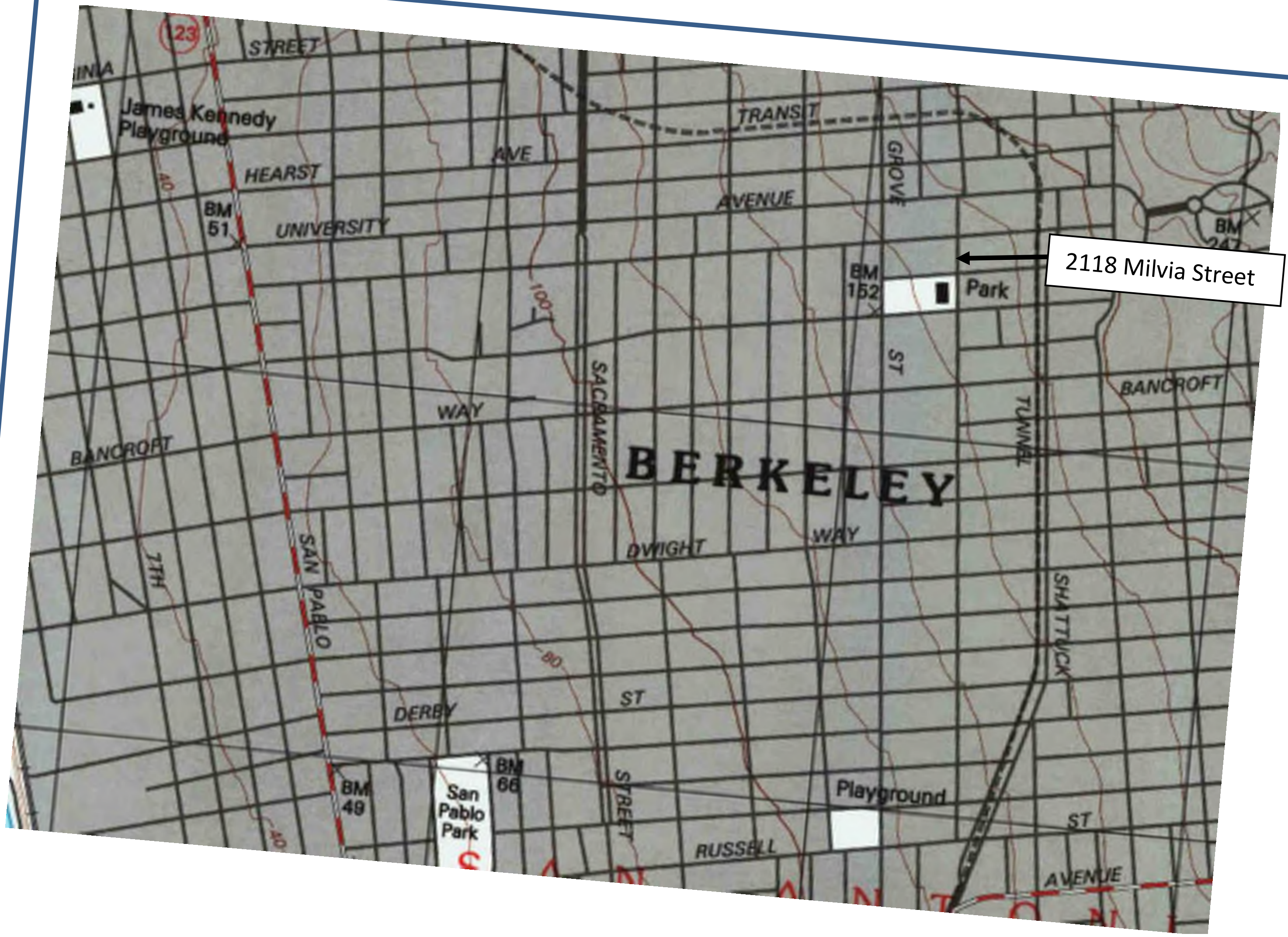
| SAFETY FIRST | CLIENT: Peralta Community College Dist | SITE LOCATION |
|---|---|---|
| terraphase engineering | PROJECT: 2118 Milvia Street | |
| | PROJECT NUMBER: 0034.001.001 | FIGURE 1 |

File Name: figure 1 - site location.docx drawn by: jrr checked by: ag

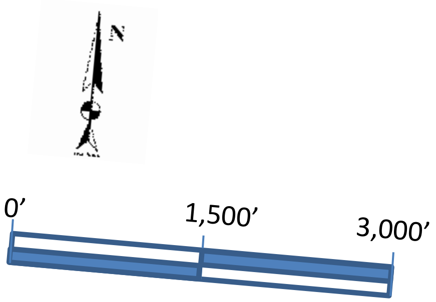

Reference: GoogleEarth Professional

| SAFETY FIRST | CLIENT: Peralta Community College District | SITE LAYOUT |
|---|---|---|
| terraphase engineering | PROJECT: 2118 Milvia Street, Berkeley | |
| | PROJECT NO.: 0034.002.001 | FIGURE 2 |

File Name: figure 3 site map.docx drawn by: jrr checked by: em

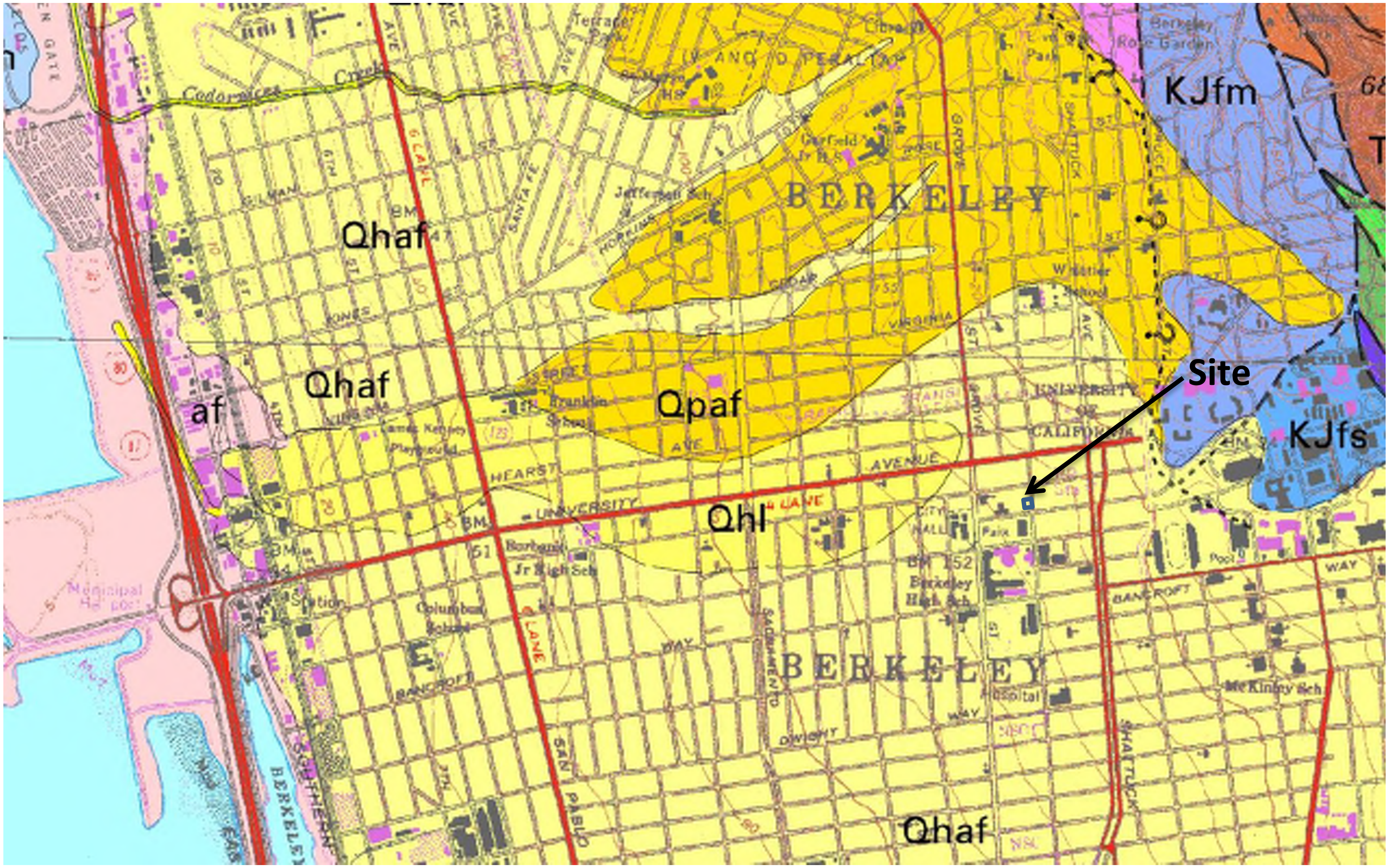



Source: USGS 7.5-minute quadrangle, Oakland West, 1993




| SAFETY FIRST | CLIENT: Peralta Community College Dist | LOCAL TOPOGRAPHY |
|---|---|---|
| terraphase engineering | PROJECT: 2118 Milvia Street | |
| | PROJECT NUMBER: 0034.001.001 | FIGURE 3 |

File Name: figure 2 -topography.docx drawn by: jrr checked by: ag




| | |
|---|---|
| Qhaf | Alluvial fan and fluvial deposits (Holocene) |
| Qhl | Natural levee deposits (Holocene) |
| KJfm | Franciscan complex, mélange (Cretaceous Late Jurassic), includes mapped locally: Graywacke and meta-graywacke blocks |
| Qpaf | Pleistocene) Alluvial fan and fluvial deposits |

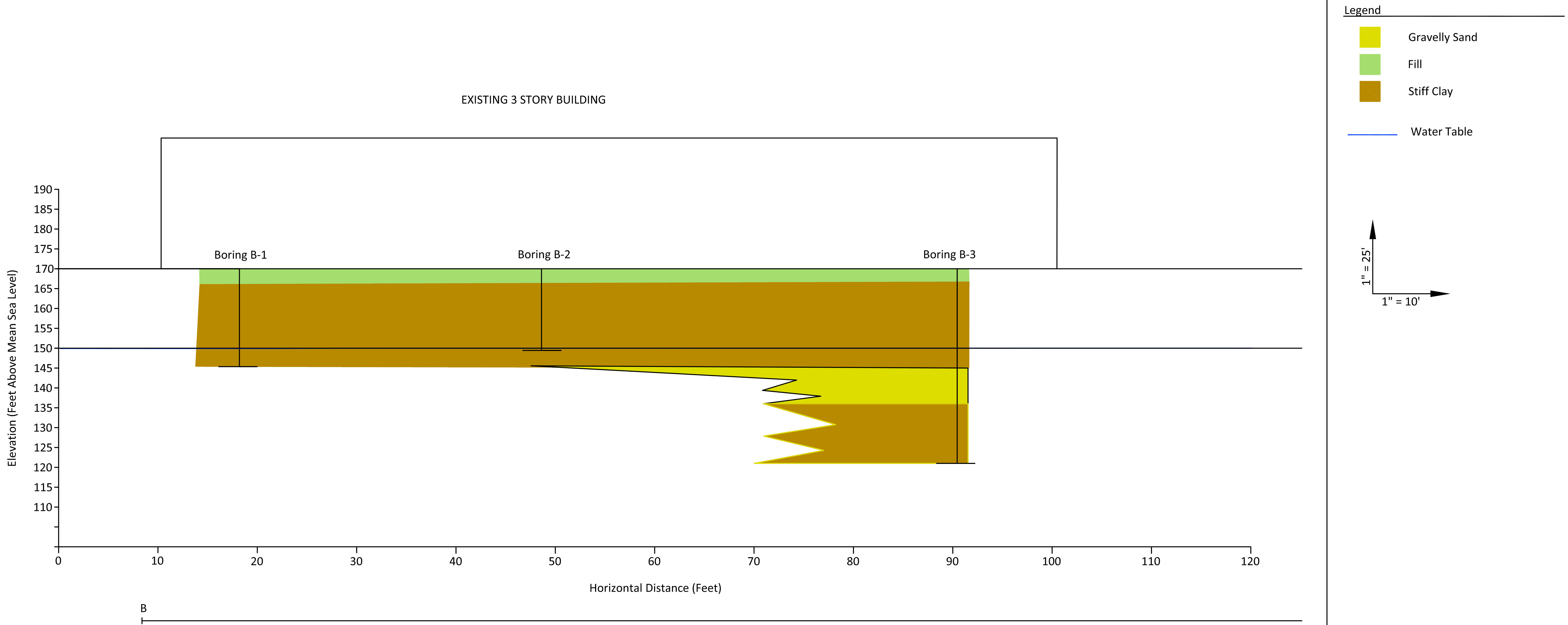
Reference: Graymer 2000

0 0.25 0.5

Scale in Miles

| | | |
|---|---|---|
| SAFETY FIRST | CLIENT: Peralta Community College District | G9h[hDL/![ a!t |
| terraphase engineering | PROJECT: 2118 Milvia Street, Berkeley | |
| | PROJECT NO.: 0034.002.001 | FIGURE 4 |

File Name: figure 3 geological map.docx drawn by: jrr checked by: em




J:\CADD FILES\0034 Peralta\Cross Section berkeley city college.dwg Drawn by: JRR ; Checked by:____

| | | |
|---|---|---|
| SAFETY FIRST | CLIENT: Peralta Community College District | Cross-Section A-A' |
| terraphase engineering | PROJECT: 2118 Milvia Street | |
| | PROJECT NUMBER: 0062.004.001 | FIGURE 5 |

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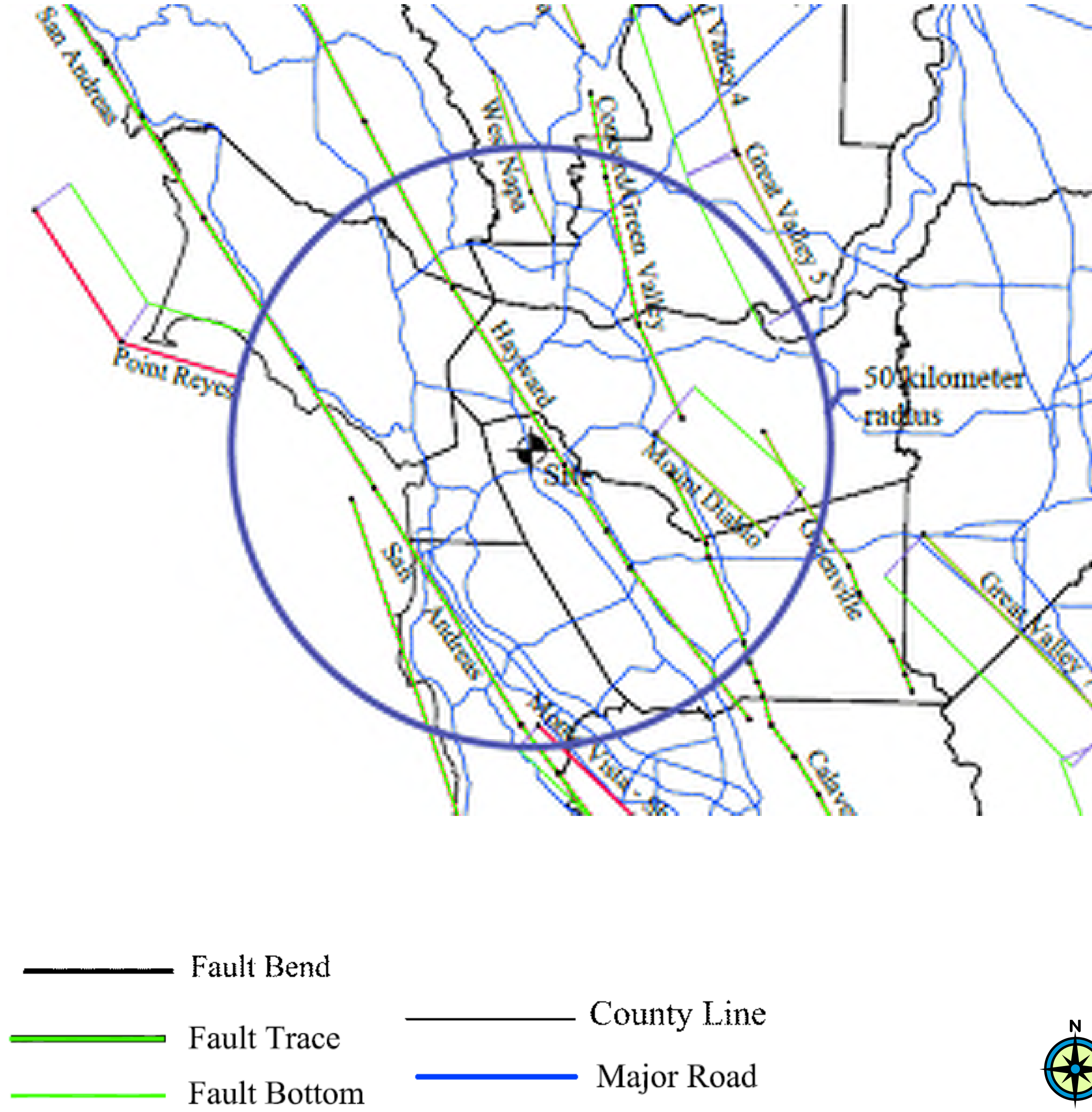
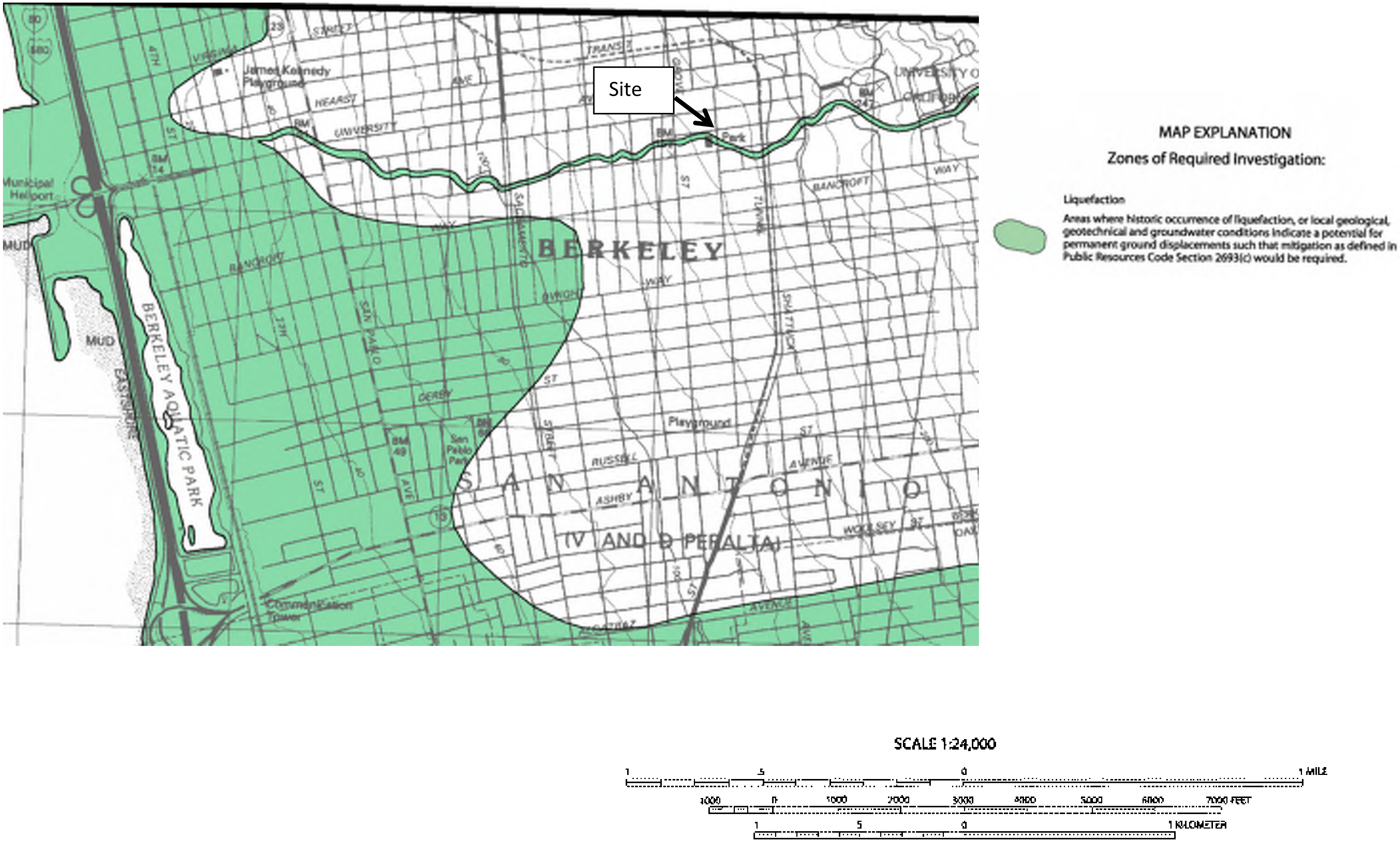



File Name: figure 4 - fault map.docx drawn by: jrr checked by: em

| SAFETY FIRST | CLIENT: Peralta Community College | FAULT MAP |
|---|---|---|
| terraphase engineering | PROJECT: Berkeley City College 2118 Milvia Street | |
| | PROJECT NUMBER: 0034-002-001 | FIGURE 6 |




Source: State of California Seismic Hazard Zones, Oakland West Quadrangle, February 14, 2003

| SAFETY FIRST | CLIENT: Peralta Community College | LIQUEFACTION HAZARD |
|---|---|---|
| terraphase engineering | PROJECT: Berkeley City College 2118 Milvia Street | |
| | PROJECT NUMBER: 0034-001-001 | FIGURE 7 |

File Name: figure 2 liquefaction and landslide hazards.docx drawn by: jrr checked by: ag


N

350 ft

Source: FEMA 2009

| SAFETY FIRST | CLIENT: Peralta Community College | FLOOD MAP |
|---|---|---|
| terraphase engineering | PROJECT: Berkeley City College 2118 Milvia Street | |
| | PROJECT NUMBER: 0034.001.00 | FIGURE 8 |

File Name: figure 7 - flood map.docx drawn by: jrr checked by: em

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# APPENDIX A
EXISTING BUILDING PLAN

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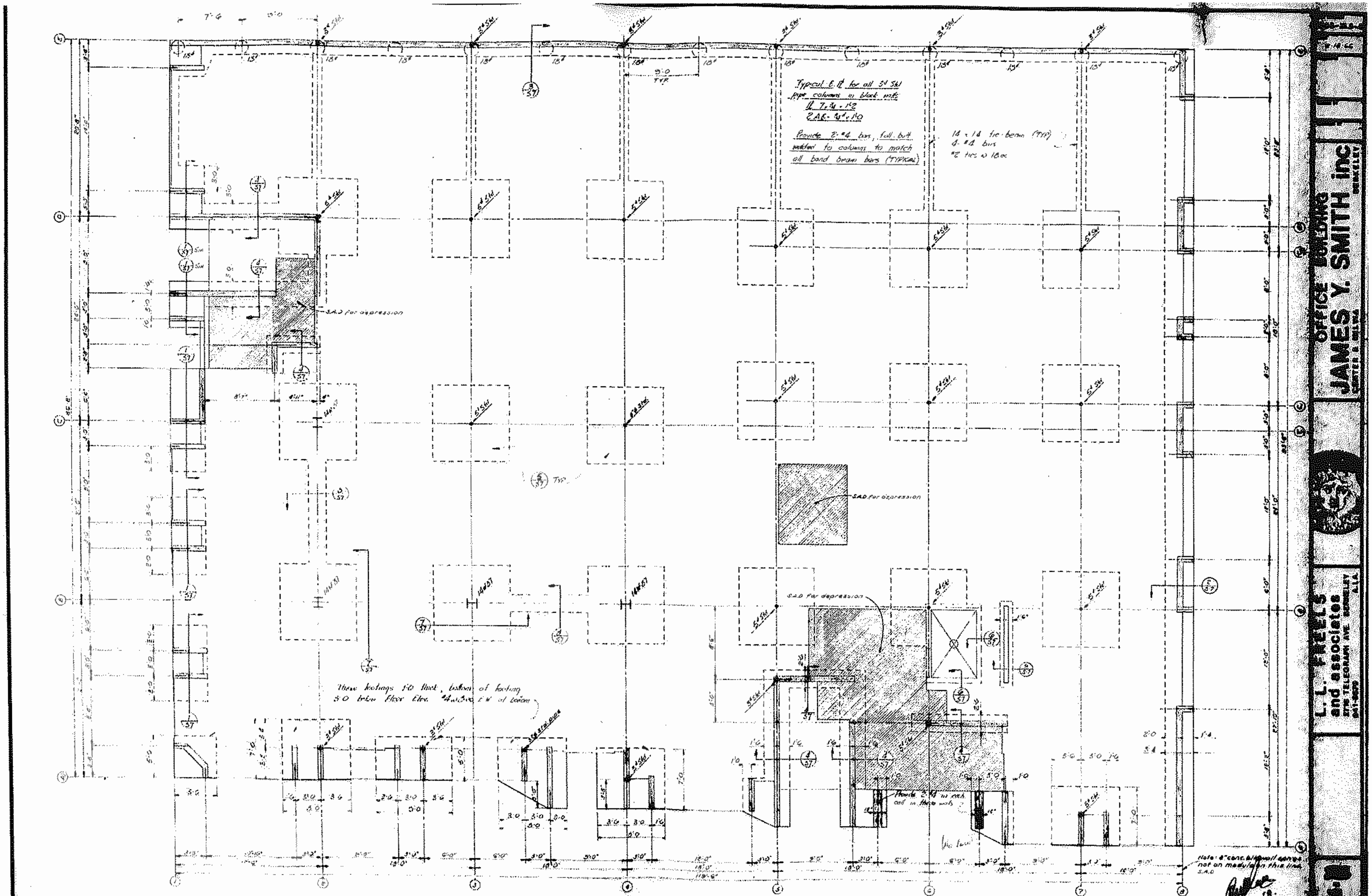
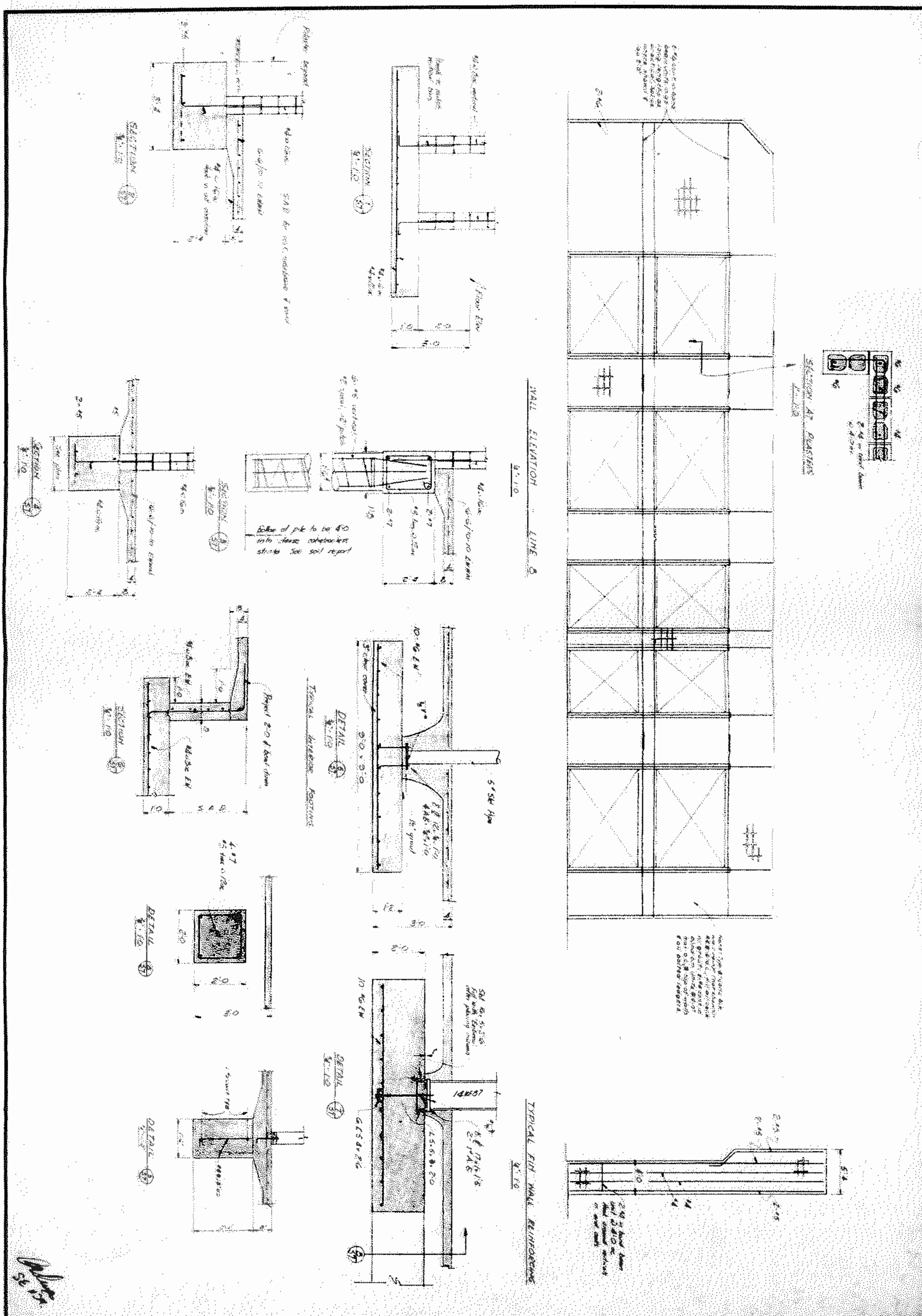



FLOOR AND FOUNDATION PLAN




and associates
TELEGRAPH AVE. BERKELEY
A.I.A.

OFFICE BUILDING
JAMES Y. SMITH inc
CENTER & MILVIA
BERKELEY

# APPENDIX B
BORING LOGS

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Project: **2118 Milvia Street, Berkeley California**

Project Location: **Berkeley, California**

Project Number: **0062.004.001**

# Log of Boring 1

**Sheet 1 of 1**

| | | |
|---|---|---|
| Date(s) Drilled **March 21, 2017** | Logged By **ng** | Checked By **jr** |
| Drilling Method **Direct Push** | Drill Bit Size/Type **2 inch** | Total Depth of Borehole **25** |
| Drill Rig Type **Limited Access** | Drilling Contractor **Gregg Drilling** | Approximate Surface Elevation **170** |
| Groundwater Level and Date Measured **20** | Sampling Method(s) **Continuous** | Hammer Data **Not Applicable** |
| Borehole Backfill **Cement Grout** | Location | |

| Elevation (feet) | Depth (feet) | Sample Type | Sample Number | Sampling Resistance, blows/ft | Material Type | Graphic Log | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|---|---|---|---|---|---|---|---|---|
| 170 | 0 | | | | CL | | Brown, clayey-silt (CL), trace gravel, stiff, pp=3.5 tsf | |
| 165 | 5 | | | | CH | | Dark brown fat clay (CH), LL=58, PL=20, PI=38; pp= 4.0 tsf | |
| | | | | | CL | | Lighter brown color, ~10% sand, some gravel (<3%) | |
| 160 | 10 | | | | | | | |
| | | | | | CL | | Same as above, wet, pp=1.0 tsf | |
| 155 | 15 | | | | | | | |
| 150 | 20 | | | | | | | |
| | | | | | CL | | Same as above, pp=1.75 tsf | |
| 145 | 25 | | | | | | | |
| 140 | 30 | | | | | | | |

C:\Users\Jeff\AppData\Local\Temp\borings_temp\tmpfile.bgs[terraphase.tpl]

terraphase engineering

Figure 1

| Project: **2118 Milvia Street, Berkeley California** | Log of Boring 2 |
|---|---|
| Project Location: **Berkeley, California** | **Sheet 1 of 1** |
| Project Number: **0062.004.001** | |

| | | |
|---|---|---|
| Date(s) Drilled **March 21, 2017** | Logged By **ng** | Checked By **jr** |
| Drilling Method **Direct Push/hand auger 0 to 10 feet** | Drill Bit Size/Type **2 inch** | Total Depth of Borehole **21** |
| Drill Rig Type **Limited Access** | Drilling Contractor **Gregg Drilling** | Approximate Surface Elevation **170** |
| Groundwater Level and Date Measured **none** | Sampling Method(s) **Continuous/hand auger where refusal** | Hammer Data **Not Applicable** |
| Borehole Backfill **Cement Grout** | Location | |

| Elevation (feet) | Depth (feet) | Sample Type | Sample Number | Sampling Resistance, blows/ft | Material Type | Graphic Log | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|---|---|---|---|---|---|---|---|---|
| 170 | 0 | | | | CL | | Brown, clayey-silt (CL), trace gravel, stiff | |
| 165 | 5 | | | | | | | |
| | | | | | CL | | Hand Auger - Light Brown Silty Clay (CL) pp = 1 tsf | |
| 160 | 10 | | | | | | | |
| | | | | | ML | | Sandy silt, trace gravel, low recovery | |
| 155 | 15 | | | | CL | | Stiff silty clay, brown and dark brown, gravel 1 inch; turns lighter brown below 17 feet | |
| 150 | 20 | | | | CL | | Bottom of Boring | |
| 145 | 25 | | | | | | | |
| 140 | 30 | | | | | | | |

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**Figure 2**

| | |
|---|---|
| Project: **2118 Milvia Street, Berkeley California** | # Log of Boring 3 |
| Project Location: **Berkeley, California** | **Sheet 1 of 2** |
| Project Number: **0062.004.001** | |

| | | |
|---|---|---|
| Date(s) Drilled **March 21, 2017** | Logged By **ng** | Checked By **jr** |
| Drilling Method **Hollow Stem Auger** | Drill Bit Size/Type **8 inch** | Total Depth of Borehole **25** |
| Drill Rig Type | Drilling Contractor **Gregg Drilling** | Approximate Surface Elevation **170** |
| Groundwater Level and Date Measured **20** | Sampling Method(s) **SPT and Cal-Mod (all unlined)** | Hammer Data **Safety, 140# falling 30 inches** |
| Borehole Backfill **Cement Grout** | Location | |

| Elevation (feet) | Depth (feet) | Sample Type | Sample Number | Sampling Resistance, blows/ft | Material Type | Graphic Log | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|---|---|---|---|---|---|---|---|---|
| 170 | 0 | | | | GW | | Road base | |
| | | | | | CL | | Dark brown clay (CL), thin sand band at 57" | |
| 165 | 5 | | 1 | | | | | |
| 160 | 10 | | 2 | 5 ,7, 8 | CL | | stiff, light brown clay, 8 inch gravel/sand band at 10'-4" | |
| 155 | 15 | | 3 | 3, 3, 4 | CL | | Same as above, softer between 15.5 and 16.5 ft | |
| 150 | 20 | | 4 | 9, 10, 19 | CL | | with gravel, water table at 20 feet bgs | |
| 145 | 25 | | 5 | 11, 20, 18 | SC | | Clayey sand with gravel (19.8% gravel, 59% sand, 21.2% fines) | |
| | | | | | CL | | Light brown stiff clay (CL) wet | |
| 140 | 30 | | | | | | | |

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**Figure 3**

| Project: **2118 Milvia Street, Berkeley California** | Log of Boring 3 |
|---|---|
| Project Location: **Berkeley, California** | **Sheet 2 of 2** |
| Project Number: **0062.004.001** | |

| Elevation (feet) | Depth (feet) | Sample Type | Sample Number | Sampling Resistance, blows/ft | Material Type | Graphic Log | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|---|---|---|---|---|---|---|---|---|
| 140 | 30 | | 6 | 10, 18, 7 | CL | | Light brown stiff clay (CL) wet | |
| | | | | | SC | | same as above (19% gravel, 64.9% sand, 16.1% fines) | |
| | | | | | CL | | very stiff clay (CL), light brown | |
| 135 | 35 | | 7 | 16, 12, 15 | | | | |
| 130 | 40 | | 8 | 4, 10, 11 | CL | | same as above | |
| 125 | 45 | | 9 | 8, 10, 19 | CL | | Same as above | |
| | | | 10 | 7, 15, 16 | | | | |
| 120 | 50 | | | | CL | | Same as above, thin band of sand at 49 feet, soft clay at 50 feet | |
| 115 | 55 | | | | | | | |
| 110 | 60 | | | | | | | |
| 105 | 65 | | | | | | | |

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| Project: **2118 Milvia Street, Berkeley California**<br>Project Location: **Berkeley, California**<br>Project Number: **0062.004.001** | Key to Log of Boring<br>**Sheet 1 of 1** |
|---|---|

| Elevation (feet) | Depth (feet) | Sample Type | Sample Number | Sampling Resistance, blows/ft | Material Type | Graphic Log | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**COLUMN DESCRIPTIONS**

1 Elevation (feet): Elevation (MSL, feet).
2 Depth (feet): Depth in feet below the ground surface.
3 Sample Type: Type of soil sample collected at the depth interval shown.
4 Sample Number: Sample identification number.
5 Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6 Material Type: Type of material encountered.
7 Graphic Log: Graphic depiction of the subsurface material encountered.
8 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
9 REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

**FIELD AND LABORATORY TEST ABBREVIATIONS**

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

**MATERIAL GRAPHIC SYMBOLS**

Lean CLAY, CLAY w/SAND, SANDY CLAY (CL)

Well graded GRAVEL (GW)

Clayey SAND (SC)

**TYPICAL SAMPLER GRAPHIC SYMBOLS**

Auger sampler

Bulk Sample

3-inch-OD California w/ brass rings

CME Sampler

Grab Sample

2.5-inch-OD Modified California w/ brass liners

Pitcher Sample

2-inch-OD unlined split spoon (SPT)

Shelby Tube (Thin-walled, fixed head)

**OTHER GRAPHIC SYMBOLS**

Water level (at time of drilling, ATD)

Water level (after waiting)

Minor change in material properties within a stratum

Inferred/gradational contact between strata

? Queried contact between strata

**GENERAL NOTES**

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

J:\Projects\0034 Peralta\Berkeley City College Milvia Site\Technical\Boring Logs\Milvia Boring 3.bg4[(master 0 lab).tpl]

**Figure B-1**

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# APPENDIX C
LABORATORY TEST RESULTS

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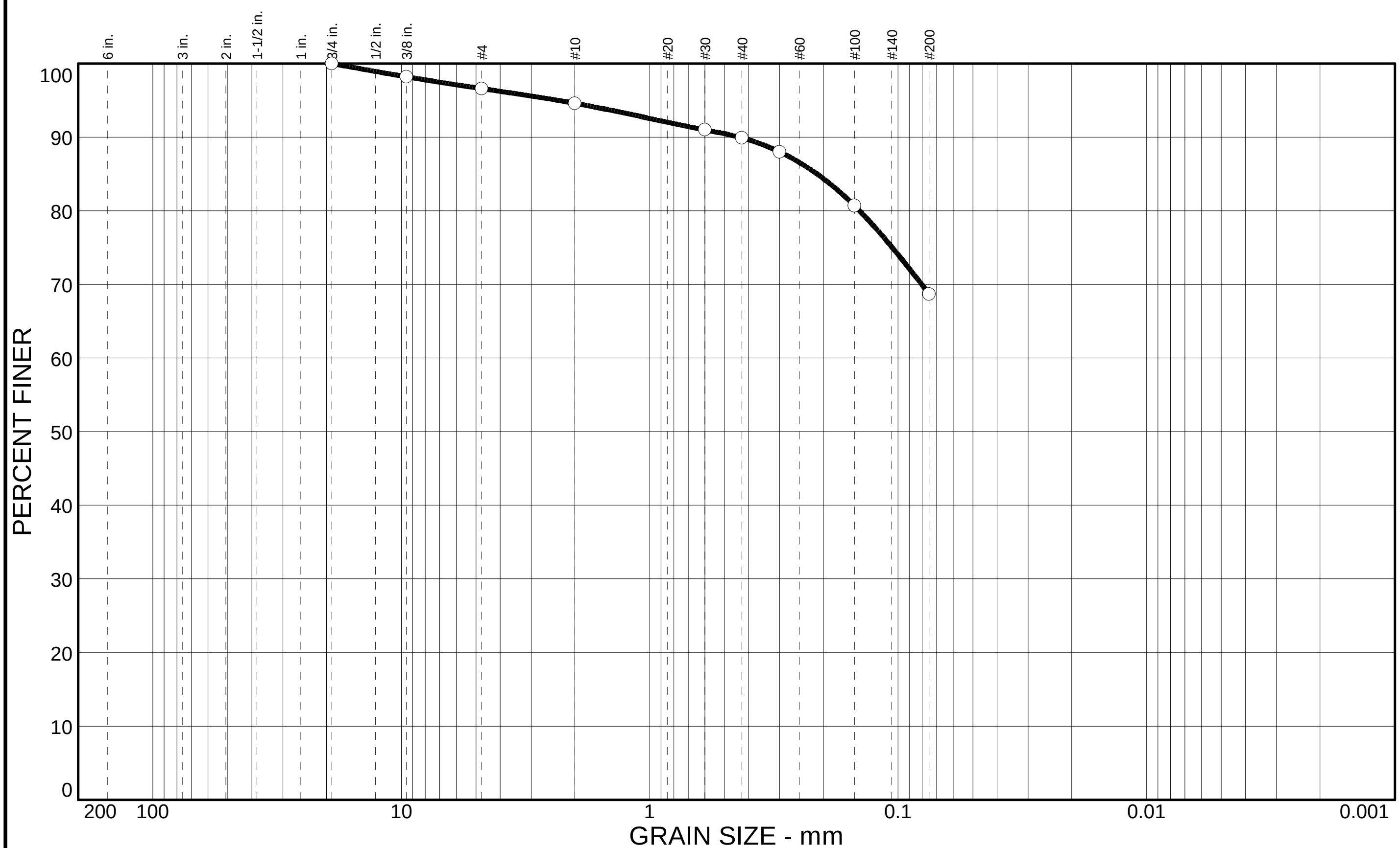
# Particle Size Distribution Report




| | % COBBLES | % GRAVEL | % SAND | % SILT | % CLAY | USCS | AASHTO | PL | LL |
|---|---|---|---|---|---|---|---|---|---|
| ○ | | 3.4 | 27.9 | 68.7 | | CL | | 21 | 39 |
| | | | | | | | | | |
| | | | | | | | | | |

| SIEVE inches size | PERCENT FINER ○ | | |
|---|---|---|---|
| 3/4" | 100.0 | | |
| 3/8" | 98.2 | | |
| | GRAIN SIZE | | |
| $D_{60}$ | | | |
| $D_{30}$ | | | |
| $D_{10}$ | | | |
| | COEFFICIENTS | | |
| $C_c$ | | | |
| $C_u$ | | | |

| SIEVE number size | PERCENT FINER ○ | | |
|---|---|---|---|
| #4 | 96.6 | | |
| #10 | 94.6 | | |
| #30 | 91.0 | | |
| #40 | 89.9 | | |
| #50 | 88.0 | | |
| #100 | 80.7 | | |
| #200 | 68.7 | | |

SOIL DESCRIPTION

○ Dark Reddish Brown Sandy Lean CLAY

REMARKS:

○

○ Source: 2

Elev./Depth: 1-3'

**COOPER TESTING LABORATORY**

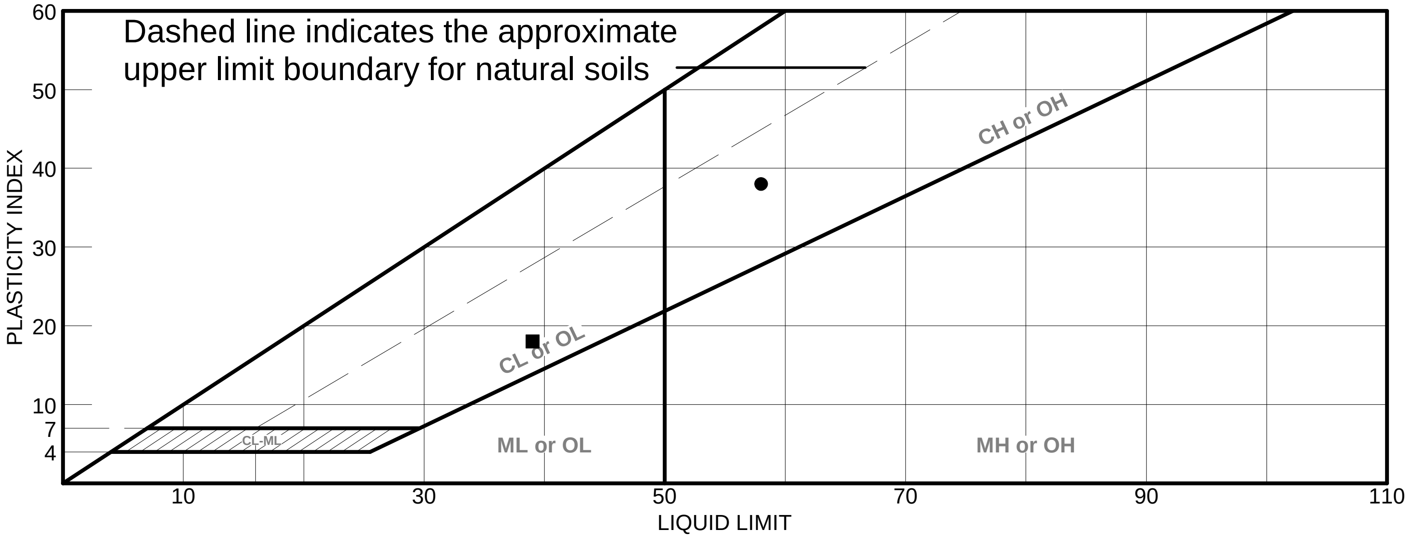
Client: Terraphase

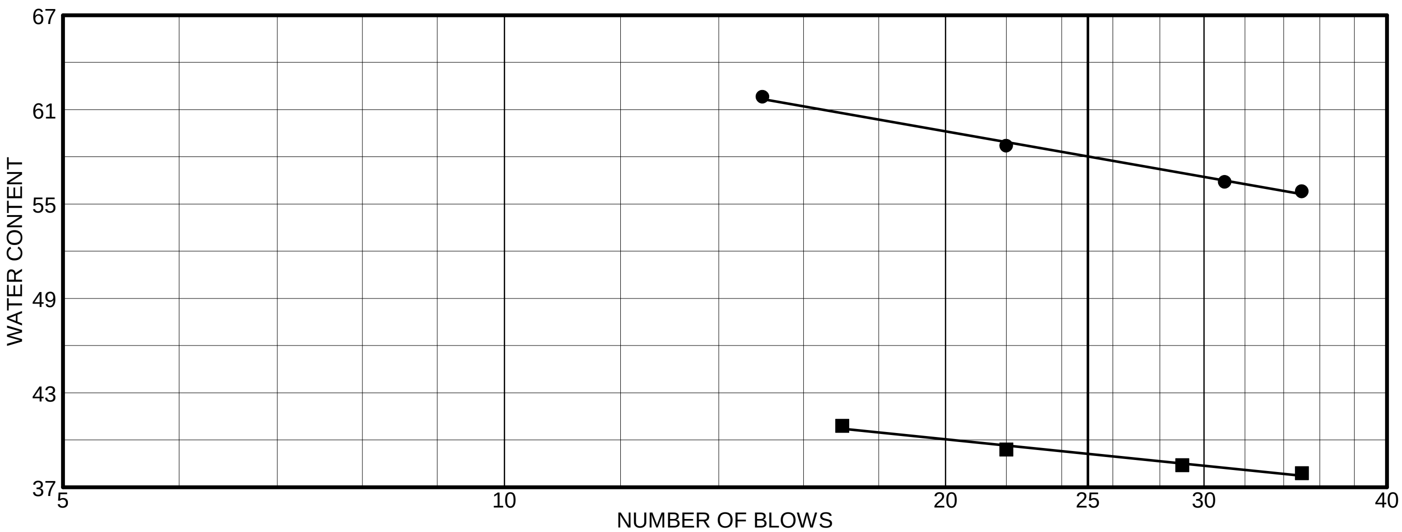
Project: 2118 Milvia - 0062.004.001

Project No.: 734-052

Figure

# LIQUID AND PLASTIC LIMITS TEST REPORT




| | MATERIAL DESCRIPTION | LL | PL | PI | %<#40 | %<#200 | USCS |
|---|---|---|---|---|---|---|---|
| ● | Dark Olive Brown Fat CLAY w/ Sand | 58 | 20 | 38 | | | |
| ■ | Dark Reddish Brown Sandy Lean CLAY | 39 | 21 | 18 | 89.9 | 68.7 | CL |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Project No.** 734-052 **Client:** Terraphase

**Project:** 2118 Milvia - 0062.004.001

● **Source:** 1 **Elev./Depth:** 5-6'

■ **Source:** 2 **Elev./Depth:** 1-3'

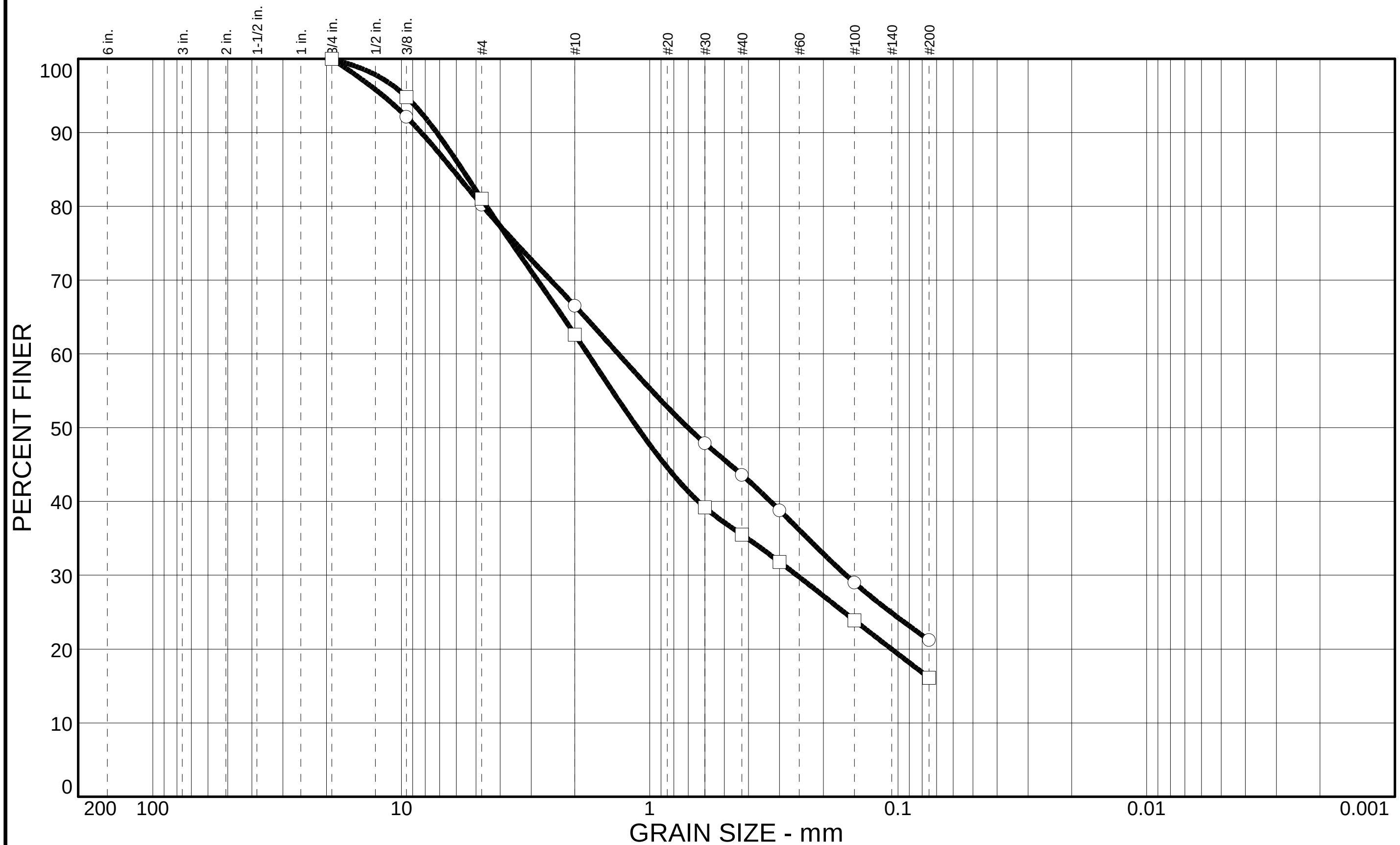
**Remarks:**
●
■

LIQUID AND PLASTIC LIMITS TEST REPORT

**COOPER TESTING LABORATORY**

**Figure**

# Particle Size Distribution Report




| | % COBBLES | % GRAVEL | % SAND | % SILT | % CLAY | USCS | AASHTO | PL | LL |
|---|---|---|---|---|---|---|---|---|---|
| ○ | | 19.8 | 59.0 | 21.2 | | | | | |
| □ | | 19.0 | 64.9 | 16.1 | | | | | |
| | | | | | | | | | |

| SIEVE inches size | PERCENT FINER ○ | □ | |
|---|---|---|---|
| 3/4" | 100.0 | 100.0 | |
| 3/8" | 92.1 | 94.8 | |
| | GRAIN SIZE | | |
| $D_{60}$ | 1.34 | 1.78 | |
| $D_{30}$ | 0.162 | 0.255 | |
| $D_{10}$ | | | |
| | COEFFICIENTS | | |
| $C_c$ | | | |
| $C_u$ | | | |

| SIEVE number size | PERCENT FINER ○ | □ | |
|---|---|---|---|
| #4 | 80.2 | 81.0 | |
| #10 | 66.5 | 62.6 | |
| #30 | 47.9 | 39.2 | |
| #40 | 43.6 | 35.5 | |
| #50 | 38.8 | 31.8 | |
| #100 | 29.0 | 23.9 | |
| #200 | 21.2 | 16.1 | |

SOIL DESCRIPTION

○ Olive Brown Clayey SAND w/ Gravel

□ Olive Clayey SAND w/ Gravel

REMARKS:

○

□

○ Source: B3 Elev./Depth: 26.3'

□ Source: B3 Elev./Depth: 31.3'

**COOPER TESTING LABORATORY**

Client: Terraphase

Project: Berkeley City College - 0062-004-001

Project No.: 734-053

Figure

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# APPENDIX D
## SITE SPECIFIC SEISMIC HAZARD ASSESSMENT

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terraphase engineering

DRAFT

May 17, 2017

Merideth Marschak AIA, CSI, LEED AP
Noll & Tam Architects
729 Heinz Ave. #7
Berkeley, CA 94710

sent via email to: merideth.marschak@nollandtam.com

**Subject: Site-Specific Seismic Risk Assessment, 2118 Milvia Street, Berkeley, California**

Dear Ms. Marschak:

This letter report contains a site-specific seismic risk assessment for the proposed seismic retrofit of the existing structure located at 2118 Milvia Street, Berkeley, California (the “Site”, Figure 1). This letter report supplements the Geotechnical Investigation report for the Building currently in development.

## 1.0 CBC SEISMIC DESIGN CRITERIA

We developed site-specific seismic design parameters in accordance with Chapters 16A and 18A of the 2016 California Building Code (CBC), Chapters 11 and 21 of ASCE 7-10 and Chapter 2 of ASCE 41-13.

### 1.1 SITE CLASSIFICATION

Subsurface investigation of the Site indicates that it falls into Soil Class D (Stiff Soil). The USGS shear wave velocity maps (https://earthquake.usgs.gov/data/vs30/us/ ) indicate the shear wave velocity in the top 30 meters at the Site have an average shear wave velocity of 330 meters per second (m/s).

### 1.2 CODE-BASED SEISMIC DESIGN PARAMETERS

Code-based spectral acceleration parameters were determined based on mapped acceleration response parameters adjusted for the specific site conditions. Mapped Risk-Adjusted Maximum Considered Earthquake ($MCE_R$) spectral acceleration parameters at short periods and at 1 second period ($S_S$ and $S_1$) were calculated using the USGS Seismic Design Maps on-line hazard calculator (USGS 2013).

The mapped acceleration parameters were adjusted for local site conditions based on the average soils conditions for the upper 30 meters of the soil profile. MCE spectral response acceleration parameters adjusted for site effects ($S_{MS}$ and $S_{M1}$) and design spectral response acceleration parameters ($S_{DS}$ and $S_{D1}$) are presented in Table 1. These are equal to the ASCE-41 BSE-2N and BSE-1N spectra. The USGS Seismic Design Maps on-line hazard calculator also provides the ASCE-41 spectra (BSE-2E and BSE-1E) which are also presented in Table 1.

In accordance with CBC Section 1613A.3.5, Risk Category I, II, or Ill structures with mapped spectral response acceleration parameter at the 1-second period ($S_1$) greater than 0.75, are assigned Seismic Design Category E. In accordance with CBC 1616A.1.3, Seismic Design Category E structures require a site-specific ground motion hazard analysis performed in accordance with ASCE 7 chapter 21 and section

1803A.6 of the California Building Code. Therefore, the values in Table 1 should not be used for design. Values are provided only for determination of Seismic Design Category and comparison with minimum code requirements in our site-specific ground motion hazard analysis.

## 2.0 SITE-SPECIFIC SEISMIC HAZARD ANALYSIS

We performed a site-specific hazard analysis in accordance with ASCE 7-10 Chapter 21.2 and 2013 CBC Section 1803A.6. Our analyses were performed using the computer program EZFrisk, version 7.65, Build 4 (Risk Engineering, 2012) and the 2008 USGS fault model (Petersen, et al. 2008).

Our analysis utilized the mean ground motions predicted by three of the Next Generation Attenuation (NGA) relationships: Boore and Atkinson (2008), Campbell-Bozorgnia (2008), Chiou-Youngs (2007), and Abrahamson-Silva (2007). Our analysis used the FEMA P-750 (2009) method for calculating the maximum rotated component of ground motions, which is based on Huang et al. (2008).

### 2.1 Deterministic $MCE_R$

We performed deterministic seismic hazard analyses in accordance with ASCE 7-10 Section 21.2.2. The deterministic $MCE_R$ acceleration response spectrum is defined as the largest 84th percentile ground motion in the direction of maximum horizontal response for each period of characteristic earthquakes on all known active faults within the region. Our analysis considered all known active faults within 170 kilometers of the site.

The 84th percentile ground motion in the direction of maximum horizontal response for this event is presented on Figure 2. Spectral ordinates are tabulated in Table 2, Column 4. ASCE 7-10 specifies that the deterministic $MCE_R$ shall not be less than the Deterministic Lower Limit MCE response spectrum (ASCE 7-10 Figure 21.2-1). The Deterministic Lower Limit spectrum is presented on Figure 2. Spectral ordinates are tabulated in Table 2, Column 5.

The deterministic $MCE_R$ spectrum was calculated by taking the greater of Table 2, Columns 4 and 5. Spectral ordinates for the deterministic $MCE_R$ are tabulated in Table 2, Column 6. The deterministic $MCE_R$ is presented graphically on Figure 2.

### 2.2 Probabilistic $MCE_R$

We performed a probabilistic seismic hazard analysis (PSHA) in accordance with ASCE 7-10 Section 21.2.1. The probabilistic MCE acceleration response spectrum is defined as the 5 percent damped acceleration response spectrum having a 2 percent probability of exceedance in a 50-year period (2,475-year return period). Our PSHA considered all known active faults within 170 kilometers of the site as well as a gridded seismic source modeled by the USGS (2008) which governed risk for spectral periods less than 0.75 seconds. The rotated probabilistic $MCE_R$ spectrum was multiplied by Risk Coefficients (CR) to determine the uniform risk probabilistic $MCE_R$. We used Risk Coefficients (CRs and CR1) of 1.008 and 0.984, respectively, based on ASCE 7-10 Section 21.2.1.1 - Method 1 and the USGS on-line calculator.

The resulting probabilistic $MCE_R$ is presented on Figure 2. Spectral ordinates for the uniform risk probabilistic spectra are tabulated in Table 2, Column 11.

### 2.3 Site-Specific $MCE_R$

The site-specific $MCE_R$ is defined by ASCE 7-10 Section 21.2.3 as the lesser of the deterministic and probabilistic $MCE_R$'s at each period. The site-specific $MCE_R$ spectrum was calculated by taking the lesser of the deterministic $MCE_R$ (Table 2, Column 6, MCE, Figure 2) and the probabilistic $MCE_R$ (Table 5, Column 11, Figure 2). Spectral ordinates for the site-specific $MCE_R$ are tabulated in Table 2, Column 12 and shown graphically on Figure 3. The deterministic spectrum governed for every spectral period (the site is only 1.7 kilometers from the Hayward Fault).

The site-specific Design Response Spectrum (DRS) is defined in ASCE 7-10 Section 21.3 as $2/3^{rds}$ of the site-specific $MCE_R$, spectrum but not less than 80% of the general design response spectrum. Spectral accelerations corresponding to the $2/3^{rds}$ of the $MCE_R$ are tabulated in Table 2, Column 14. Ordinates corresponding to 80% of the general response spectrum are tabulated in Table 2 Column 15. Ordinates of the site-specific DRS are tabulated in Table 2, Column 16. Development of the site-specific DRS is presented graphically on Figure 3.

### 2.4 DESIGN ACCELERATION PARAMETERS

Site-specific design acceleration parameters ($S_{DS}$ and $S_{D1}$) were determined in accordance with Section 21.4 of ASCE 7-10. $S_{DS}$ is defined as the design spectral acceleration at a period of 0.2 seconds, but not less than 90% of the spectral acceleration at any period greater than 0.2 seconds. $S_{D1}$ is defined as the greater of the design spectral acceleration at a period of 1 second or two times the spectral acceleration at a period of 2 seconds.

Site-specific MCE spectral response acceleration parameters ($S_{MS}$ and $S_{M1}$) are calculated as 1.5 times the $S_{DS}$ and $S_{D1}$ values, respectively, but not less than 80% of the code-based values presented in Table 1, Column 15. Site-specific design acceleration parameters are summarized below.

$S_{DS}$ = 1.401

$S_{D1}$ = 1.27

$S_{MS}$ = 2.10

$S_{M1}$ = 1.91

When using the Equivalent Lateral Force Procedure, ASCE 7-10 Section 21.4 allows using the spectral acceleration at the building fundamental period (T) in lieu of $S_{D1}/T$ in Eq. 12.8-3. The site-specific spectral acceleration at any period may be calculated by interpolation of the spectral ordinates in Table 2, Column 16.

## 3.0 SEISMIC PARAMETERS FOR ASCE/SEI 41

### 3.1 General

The spectra for ASCE/SEI 41-13 are:

- BSE-2N (equal to $MCE_R$ of ASCE/SEI 7-10)

- BSE-1N (equal to 2/3rds times $MCE_R$ (Design level) of ASCE/SEI 7-10)
- BSE-2E (equal to 5% probability of exceedance in 50 years ground motion level – 974-year return period)
- BSE-1E (equal to 20% probability of exceedance in 50 years ground motion level – 224-year return period)

### 3.2 USGS Tool

In accordance with the 2016 CEBC and ASCE/SEI 41, the following seismic design parameters may be used for the project. The values of Ss, S1, Fa, and Fv used in development of the site-adjusted Basic Safety Earthquake (BSE) spectral parameters (described below) are obtained from the USGS online tool, U.S. Seismic Design Maps (http://earthquake.usgs.gov/hazards/designmaps/usdesign.php). The values of Fa and Fv are for Site Class D. For ASCE/SEI 41, the site-adjusted short and long period spectral parameters are referred to as Sxs and Sx1 , respectively.

$S_{XS,BSE\text{-}2N} = FaS_{S,BSE\text{-}2N} = 1.000 \times 2.318\ g = 2.318\ g$

$S_{X1,BSE\text{-}2N} = Fv_{S1,BSE\text{-}2N} = 1.500 \times 0.963\ g = 1.445\ g$

$S_{XS,BSE\text{-}2E} = 2.317\ g$

$S_{X1,BSE\text{-}2E} = 1.313\ g$

### 3.3 BSE-2N and BSE-1N

See Section 2.0

### 3.4 BSE-2E

The 5% probability of exceedance in 50 years ground motion level – 974-year return period – spectra is presented in Table 2. The spectra values were multiplied by 1.1 at periods less than 0.2 seconds and 1.3 at periods greater than 1.0, with linearly interpolated values between 0.2 and 1.0 seconds, to obtain the maximum rotated component. The spectral values were capped at the $MCE_R$ values.

$S_{XS}$ = spectral acceleration at 0.2 seconds (not less than 90% of higher spectral values) = 2.10g
$S_{X1}$ = larger of spectral acceleration at 1 second or twice that at 2 seconds = 1.42g
$T_0 = 0.2{*}S_{X1} / S_{XS}$ = 0.135 seconds
$T_S = S_{X1} / S_{XS}$ = 0.676 seconds

### 3.5 BSE-1E

The 20% probability of exceedance in 50 years ground motion level – 224-year return period – spectra is presented in Table 3. The spectra values were multiplied by 1.1 at periods less than 0.2 seconds and 1.3 at periods greater than 1.0, with linearly interpolated values between 0.2 and 1.0 seconds, to obtain the maximum rotated component. The spectral values were capped at the $MCE_R$ values.

$S_{XS}$ = spectral acceleration at 0.2 seconds (not less than 90% of higher spectral values) = 1.22g
$S_{X1}$ = larger of spectral acceleration at 1 second or twice that at 2 seconds = 0.8g

$T_0 = 0.2*S_{X1} / S_{XS} = 0.131$ seconds
$T_S = S_{X1} / S_{XS} = 0.656$ seconds

### 3.6 Vertical Spectra

If a vertical spectra is required, Chapter 23 of FEMA (2009) recommends:

Period < 0.025 seconds (sec): $S_{aV} = 0.3C_V*S_{DS}$

0.025 sec < Period < 0.05 sec: $S_{aV} = 20*C_V*S_{DS}(Tv-0.025)+ 0.3C_V*S_{DS}$

0.05 sec < Period < .15 sec: $S_{aV} = 0.8C_V*S_{DS}$

0.15 sec < Period < 2 sec: $S_{aV} = 0.8C_V*S_{DS}*(0.15/Tv)^{0.75}$

$S_{DS} = 1.401$

$C_V = 1.5$

The resulting vertical spectrum is presented in Table 4.

The vertical spectrum calculated above is less than 2/3rds of the design spectrum (MCER) at periods greater than 0.5 seconds. We have included the 2/3rds of the design spectrum in Table 4 and recommend using that value for periods greater than 0.5 seconds.

## 4.0 $MCE_G$ PEAK GROUND ACCELERATION

We calculated the MCE Geometric Mean Peak Ground Acceleration ($MCE_G$) in accordance with ASCE 7-10 Section 21.5. The $MCE_G$ is calculated as the lesser of probabilistic and deterministic geometric mean PGA. The 2% in 50-year probabilistic geometric mean PGA is 1.13g. The deterministic $MCE_G$ is considered the greater of the largest 84th percentile deterministic geometric mean PGA (0 .90g) or one-half of the tabulated $F_{PGA}$ value from ASCE 7- 10 Table 11.8.1. For the site, $F_{PGA}$ is 1.0g and one half of the $F_{PGA}$ is 0.50g; therefore, the deterministic $MCE_G$ is 0.90 g. Additionally, the $MCE_G$ may not be less than 80% of the mapped $PGA_M$ determined from ASCE -10 Equation 11.8-1. The $PGA_M$ for the site is 0.89g; 80% of PGAM is 0.71g. Therefore, the $MCE_G$ for the site may be considered 0.90g.

## 5.0 REFERENCES

Abramson, N.A., and Silva, W.J., 2008, Summary of the Abrahamson & Silva NGA GroundMotion Relations, Earthquake Spectra, Vol. 24 (1 ): 67-97.

American Society of Civil Engineers (ASCE). 2010. Minimum Design Loads for Buildings and Other Structures, ASCE 7-10.

ASCE. 2013. Seismic Evaluation and Retrofit of Existing Buildings. ASCE/SEI 41-13.

Boore, D.M., and Atkinson, G.M., 2008, Ground-Motion Prediction Equations for the Average Horizontal Component of PGA, PGV, and 5%-Damped PSA at Spectral Periods between 0.01 s and 10.0 s, Earthquake Spectra, Vol. 24 (1): 99-138.

California Building Code, 2016, Structural Engineering Design Provisions, Vol. 2.

Campbell, K.W., and Bozorgnia, Y., 2008, NGA Ground Motion Model for the Geometric Mean Horizontal Component of PGA, PGV, PGD, and 5% Damped Linear Elastic Response Spectra for Periods Ranging from 0.01to10.0 S, Earthquake Spectra Vol. 24 (1): 139-171 .

Chiou, B.S.J., and Youngs, R.R., 2008, Chiou-Youngs NGA Ground Motion Relations for the Geometric Mean Horizontal Component of Peak and Spectral Ground Motion Parameters, Earthquake Spectra, Vol. 24 (1): 173-215.

Federal Emergency Management Administration, 2009, NEHRP Recommended Seismic Provisions for New Buildings and Other Structures, FEMA P-750.

Risk Engineering Inc., 2012, EZ-FRISK Version 7.65: Software for Earthquake Ground Motion Estimation.

USGS, 2013, U.S. Seismic Design Maps, revision date April 2, 2013 - A Computer Program for determining mapped ground motion parameters for use with IBC 2006 available at https://earthquake.usgs.gov/designmaps/us/application.php .

## 6.0 CLOSING

Terraphase is grateful for the opportunity to offer our services on this important project. If you have any question or comments regarding this submittal, please contact Jeff Raines at (510) 507-3086.

Sincerely,
For Terraphase Engineering Inc.

Jeff Raines, P.E. (C51120), G.E. (2762)
Principal Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
JEFFERY R RAINES
2762
EXP 9-30-17
GEOTECHNICAL
STATE OF CALIFORNIA

Christopher Alger, P.G. (5020), E.G. (1564)
Principal Geologist

CERTIFIED ENGINEERING GEOLOGIST
CHRISTOPHER S. ALGER
NO. 1564
exp 2/19
STATE OF CALIFORNIA

Attachments:

Table 1 – Mapped Acceleration Parameters
Table 2 – Site-specific Acceleration Parameters
Table 3 - BSE-2E Spectra
Table 4 - BSE-1E Spectra
Table 5 – Recommended Vertical Spectra

Figure 1 – Site Location
Figure 2 – Probabilistic & Deterministic Spectra
Figure 3 - MCER and Design Spectra

Attachment A – EZ-Frisk Output

**Table 1**
**Mapped Acceleration Parameters**
**2118 Milvia Street, Berkeley, California,**

| Item | Value |
|---|---|
| Geographic Region | 48 Conterminous States |
| Data Edition= | 2010 ASCE 7 Standard |
| Longitude | 122.27076° W |
| Latitude | 37.8701° N |
| $S_S$ | 2.317g |
| $S_1$ | 0.963g |
| Fa | 1.0 |
| Fv | 1.5 |
| $S_{MS}$ Fa × SS 0.9 × 1.901 | 2.317g |
| $S_{M1}$ Fv × S1 2.4 × 0.766 | 1.444g |
| $S_{DS}$ =(2/3) × $S_{MS}$<br>(2/3) × 2.317<br>Section 1613.5.4 | 1.544g |
| $S_{D1}$ = (2/3) × $S_{M1}$<br>(2/3) × 1.444<br>Section 1613.5.1 | 0.963g |
| TL | 8 seconds |
| PGA | 0.89g |
| $PGA_M = F_{PGA}PGA$ –<br>1.0*0.89g = 0.89 g (used for liquefaction analysis) | 0.89 g |
| Seismic Design Category | E |
| CRS | 1.008 |
| CR1 | 0.984 |
| $S_{XS,BSE2E}$ | 2.317 |
| $S_{X1,BSE2E}$ | 1.313 |
| $T_0$ | 0.113 |
| $T_S$ | 0.567 |
| $B_1$ | 1.0 |
| $S_{XS,BSE1E}$ | 1.245 |
| $S_{X1,BSE1E}$ | 0.699 |
| $T_0$ | 0.112 |
| $T_S$ | 0.561 |
| $B_1$ | 1.0 |

**Table 2**
**Site-specific Spectral Acceleration Parameters**
**2118 Milvia Street, Berkeley, California,**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period | Deterministic 84% (g) | multiplier | Max Rotated deterministic (g) | Lower Limit (g) | Deterministic (g) | Probabilistic (2% in 50 years) (g) | multiplier | Max Rotated Probabilistic (g) | Uniform Risk Factor Cr | Uniform Risk Probabilistic (g) | Site-specific $MCE_R$ (g) | General Response Spectrum (g) | Design Spectrum (g) | 80% General Response Spectrum (g) | Design Spectrum (final) (g) |
| 0 | 0.896 | 1.100 | 0.986 | 0.600 | 0.986 | 1.13E+00 | 1.100 | 1.247 | 1.008 | 1.257 | 0.986 | 0.618 | 0.657 | 0.494 | 0.657 |
| 0.05 | 1.117 | 1.100 | 1.229 | 0.975 | 1.229 | 1.44E+00 | 1.100 | 1.579 | 1.008 | 1.591 | 1.229 | 0.988 | 0.819 | 0.791 | 0.819 |
| 0.1 | 1.501 | 1.100 | 1.651 | 1.350 | 1.651 | 2.05E+00 | 1.100 | 2.251 | 1.008 | 2.269 | 1.651 | 1.359 | 1.101 | 1.087 | 1.101 |
| 0.120 | 1.583 | 1.100 | 1.741 | 1.500 | 1.741 | 2.14E+00 | 1.100 | 2.356 | 1.008 | 2.375 | 1.741 | 1.507 | 1.161 | 1.206 | 1.206 |
| 0.125 | 1.603 | 1.100 | 1.764 | 1.500 | 1.764 | 2.17E+00 | 1.100 | 2.383 | 1.008 | 2.402 | 1.764 | 1.544 | 1.176 | 1.235 | 1.235 |
| 0.2 | 1.910 | 1.100 | 2.101 | 1.500 | 2.101 | 2.53E+00 | 1.100 | 2.780 | 1.008 | 2.802 | 2.101 | 1.544 | 1.401 | 1.235 | 1.401 |
| 0.215 | 1.925 | 1.104 | 2.124 | 1.500 | 2.124 | 2.535 | 1.104 | 2.798 | 1.008 | 2.819 | 2.124 | 1.544 | 1.416 | 1.235 | 1.416 |
| 0.3 | 2.008 | 1.125 | 2.259 | 1.500 | 2.259 | 2.59E+00 | 1.125 | 2.909 | 1.005 | 2.924 | 2.259 | 1.544 | 1.506 | 1.235 | 1.506 |
| 0.4 | 1.972 | 1.150 | 2.268 | 1.500 | 2.268 | 2.54E+00 | 1.150 | 2.916 | 1.002 | 2.922 | 2.268 | 1.544 | 1.512 | 1.235 | 1.512 |
| 0.5 | 1.871 | 1.175 | 2.198 | 1.500 | 2.198 | 2.40E+00 | 1.175 | 2.818 | 0.999 | 2.815 | 2.198 | 1.544 | 1.466 | 1.235 | 1.466 |
| 0.6 | 1.760 | 1.200 | 2.112 | 1.500 | 2.112 | 2.24E+00 | 1.200 | 2.690 | 0.996 | 2.679 | 2.112 | 1.544 | 1.408 | 1.235 | 1.408 |
| 0.624 | 1.733 | 1.206 | 2.090 | 1.442 | 2.090 | 2.20E+00 | 1.206 | 2.658 | 0.995 | 2.646 | 2.090 | 1.544 | 1.393 | 1.235 | 1.393 |
| 0.75 | 1.593 | 1.238 | 1.971 | 1.200 | 1.971 | 2.01E+00 | 1.238 | 2.484 | 0.992 | 2.463 | 1.971 | 1.284 | 1.314 | 1.027 | 1.314 |
| 1 | 1.309 | 1.300 | 1.702 | 0.900 | 1.702 | 1.57E+00 | 1.300 | 2.045 | 0.984 | 2.012 | 1.702 | 0.963 | 1.134 | 0.770 | 1.134 |
| 1.5 | 1.021 | 1.300 | 1.327 | 0.600 | 1.327 | 1.207 | 1.300 | 1.569 | 0.984 | 1.544 | 1.327 | 0.642 | 0.885 | 0.514 | 0.885 |
| 2 | 0.733 | 1.300 | 0.952 | 0.450 | 0.952 | 8.41E-01 | 1.300 | 1.093 | 0.984 | 1.075 | 0.952 | 0.482 | 0.635 | 0.385 | 0.635 |
| 3 | 0.476 | 1.300 | 0.618 | 0.300 | 0.618 | 5.21E-01 | 1.300 | 0.677 | 0.984 | 0.667 | 0.618 | 0.321 | 0.412 | 0.257 | 0.412 |
| 4 | 0.340 | 1.300 | 0.442 | 0.225 | 0.442 | 3.66E-01 | 1.300 | 0.476 | 0.984 | 0.468 | 0.442 | 0.241 | 0.295 | 0.193 | 0.295 |

**Table 3**
**BSE-2E Spectra**
**2118 Milvia Street, Berkeley, California,**

| Period | Probabilistic (5% in 50 years) (g) | Multiplier | Maximum Rotated (g) | $MCE_R$ (g) | BSE-2E (g) |
|---|---|---|---|---|---|
| PGA | 8.92E-01 | 1.100 | 0.981 | 0.986 | 0.981 |
| 0.05 | 1.12E+00 | 1.100 | 1.227 | 1.229 | 1.227 |
| 0.1 | 1.51E+00 | 1.100 | 1.665 | 1.651 | 1.651 |
| 0.2 | 1.95E+00 | 1.100 | 2.141 | 2.101 | 2.101 |
| 0.3 | 1.98E+00 | 1.125 | 2.228 | 2.259 | 2.228 |
| 0.4 | 1.92E+00 | 1.150 | 2.206 | 2.268 | 2.206 |
| 0.5 | 1.78E+00 | 1.175 | 2.095 | 2.198 | 2.095 |
| 0.75 | 1.43E+00 | 1.238 | 1.765 | 1.971 | 1.765 |
| 1 | 1.16E+00 | 1.300 | 1.505 | 1.702 | 1.505 |
| 2 | 6.06E-01 | 1.300 | 0.788 | 0.952 | 0.788 |
| 3 | 3.74E-01 | 1.300 | 0.486 | 0.618 | 0.486 |
| 4 | 2.60E-01 | 1.300 | 0.338 | 0.442 | 0.338 |

BSE-2E spectra is capped at the $MCE_R$ acceleration

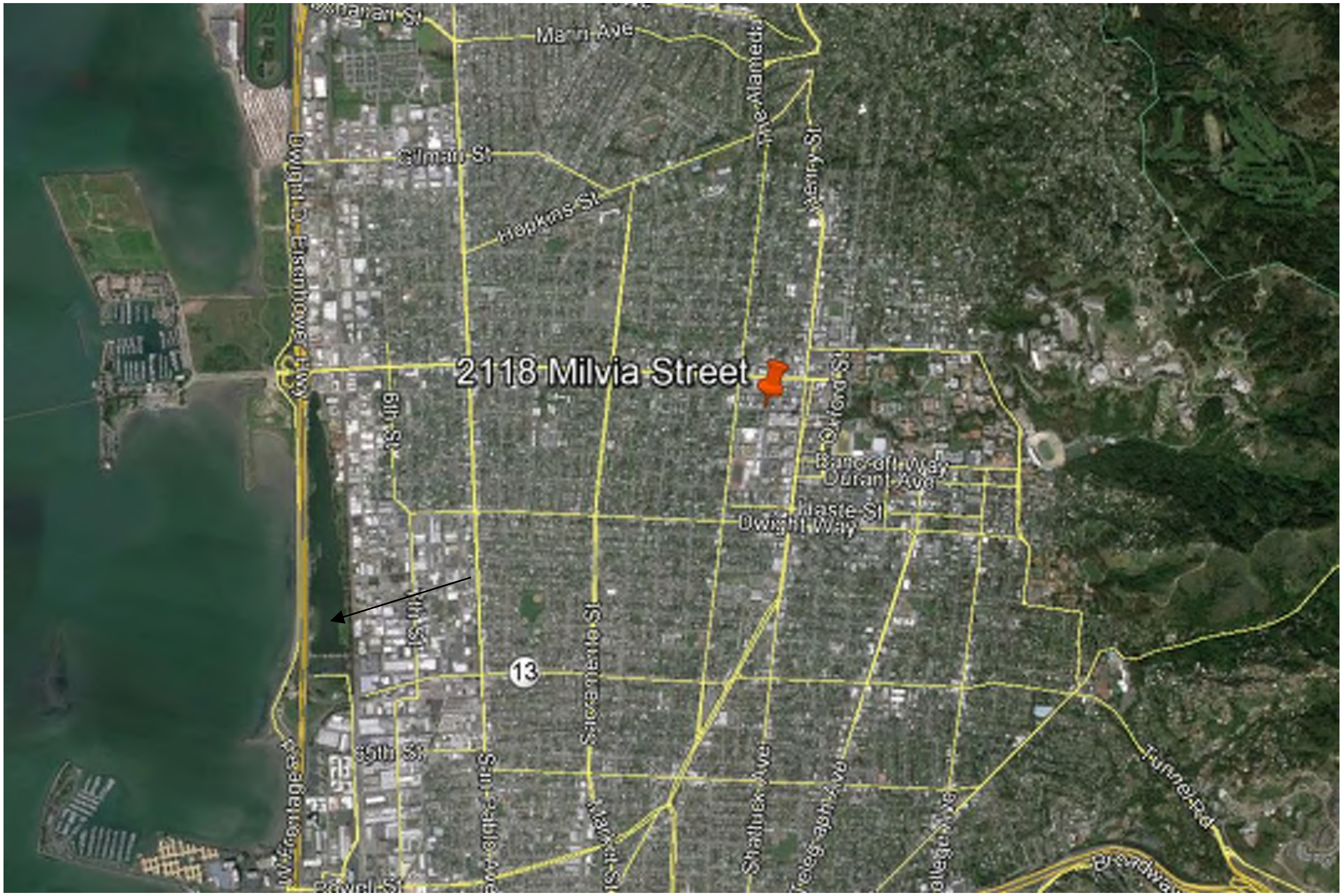
**Table 4**
**BSE-1E Spectra**
**2118 Milvia Street, Berkeley, California**

| Period | Probabilistic (20% in 50 years) (g) | Multiplier | Maximum Rotated BSE-1E (g) | BSE-1N (g) | BSE-1E (g) |
|---|---|---|---|---|---|
| PGA | 0.523 | 1.100 | 0.575 | 0.657 | 0.575 |
| 0.05 | 0.651 | 1.100 | 0.716 | 0.819 | 0.716 |
| 0.1 | 0.902 | 1.100 | 0.992 | 1.101 | 0.992 |
| 0.2 | 1.111 | 1.100 | 1.222 | 1.401 | 1.222 |
| 0.3 | 1.101 | 1.125 | 1.239 | 1.506 | 1.239 |
| 0.4 | 1.055 | 1.150 | 1.213 | 1.512 | 1.213 |
| 0.5 | 0.987 | 1.175 | 1.160 | 1.465 | 1.160 |
| 0.75 | 0.772 | 1.238 | 0.955 | 1.314 | 0.955 |
| 1 | 0.612 | 1.300 | 0.796 | 1.135 | 0.796 |
| 2 | 0.307 | 1.300 | 0.400 | 0.635 | 0.400 |
| 3 | 0.186 | 1.300 | 0.241 | 0.412 | 0.241 |
| 4 | 0.127 | 1.300 | 0.164 | 0.295 | 0.164 |

**Table 5**
**Recommended Vertical Spectra**
**2118 Milvia Street, Berkeley, California,**

| Period | FEMA 750 (g) | 2/3rds Design Spectra (g) |
|---|---|---|
| 0 | 0.630 | 0.438 |
| 0.025 | 0.630 | 0.492 |
| 0.05 | 1.681 | 0.546 |
| 0.1 | 1.681 | 0.734 |
| 0.15 | 1.681 | 0.834 |
| 0.2 | 1.355 | 0.934 |
| 0.3 | 1.000 | 1.004 |
| 0.4 | 0.806 | 1.008 |
| 0.5 | 0.681 | 0.977 |
| 0.75 | 0.503 | 0.876 |
| 1.0 | 0.405 | 0.756 |
| 2.0 | 0.241 | .423 |

Use the larger of the FEMA 750 and 2/3rds Design Spectra value



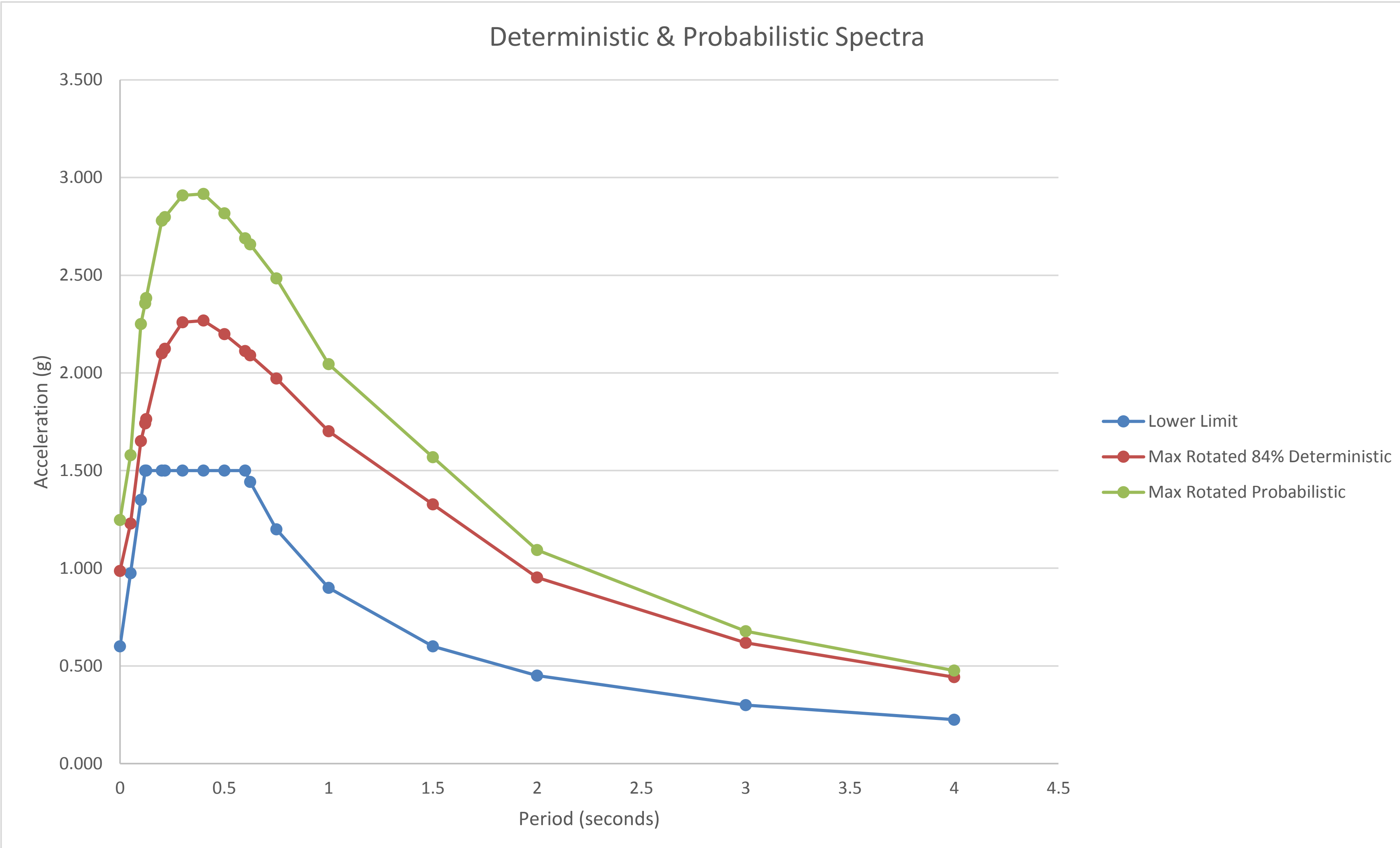


Source: GoogleEarth Professional


0’ 3,500’ 7,000’

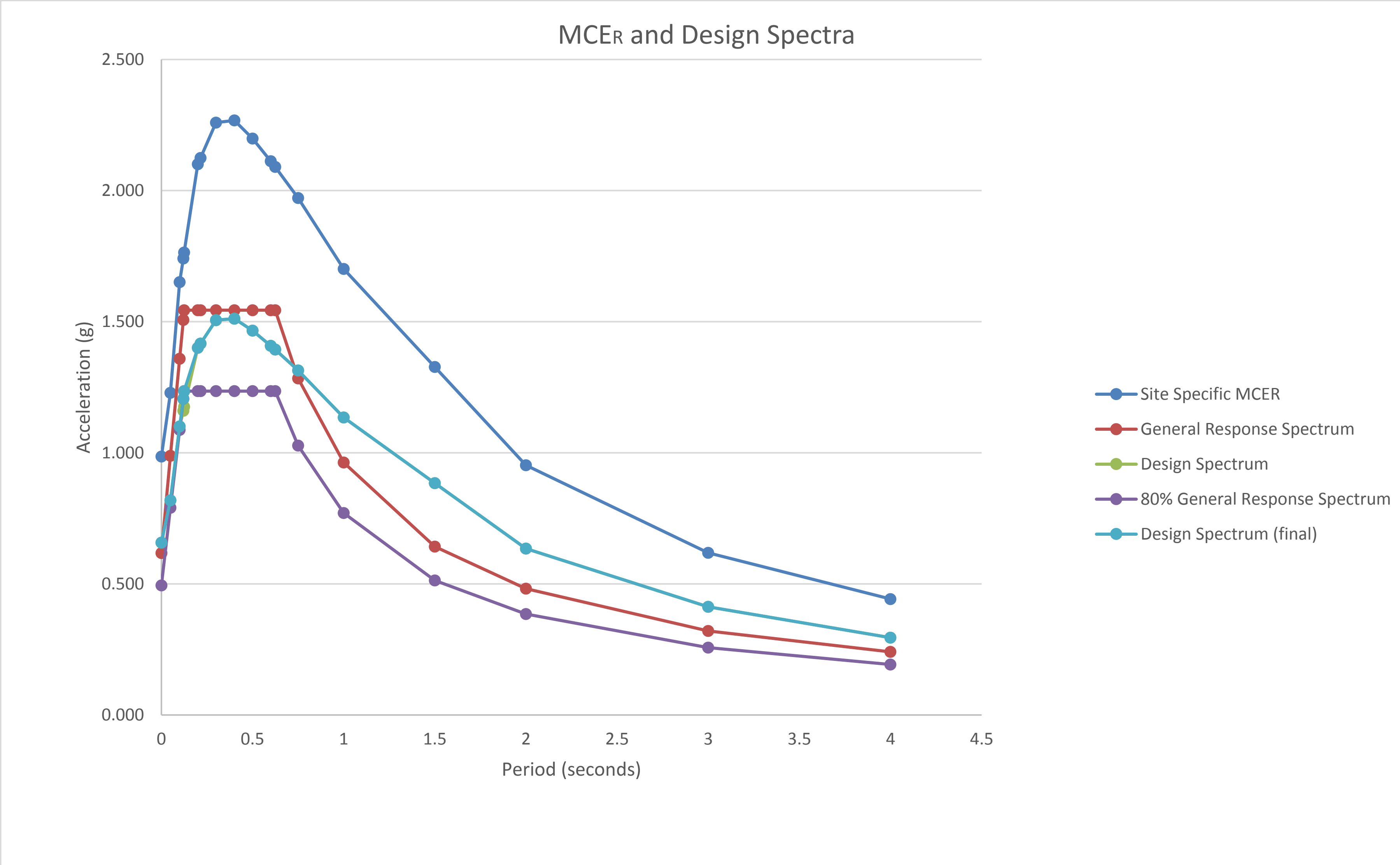
| SAFETY FIRST | CLIENT: Peralta Community College Dist | SITE LOCATION |
|---|---|---|
| terraphase engineering | PROJECT: 2118 Milvia Street | |
| | PROJECT NUMBER: 0034.001.001 | FIGURE 1 |

File Name: figure 1 - site location.docx drawn by: jrr checked by: ag




| | | |
|---|---|---|
| **SAFETY FIRST** | CLIENT: Peralta Community College District | Probabilistic & Deterministic Spectra |
| terraphase engineering | PROJECT: 2118 Milvia Street | |
| | PROJECT NUMBER: 0062.004.001 | FIGURE 2 |

File Name: figure 2 det and prob spectra.doxc drawn by: jrr checked by: ca




| | | |
|---|---|---|
| **SAFETY FIRST** | CLIENT: Peralta Community College District | MCER and Design Spectra |
| terraphase engineering | PROJECT: 2118 Milvia Street | |
| | PROJECT NUMBER: 0062.004.001 | FIGURE 3 |

File Name: figure MCE.doxc drawn by: jrr checked by: ca

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# Attachment A

## EZ-Frisk Output

```
**********************************************
*****               EZ-FRISK             *****
***** SEISMIC HAZARD ANALYSIS DEFINITION *****
*****       FUGRO CONSULTANTS, INC.      *****
*****        WALNUT CREEK, CA  USA       *****
**********************************************

PROGRAM VERSION
  EZ-FRISK 7.65 Build 004

ANALYSIS TITLE:
  Seismic Hazard Analysis 1

ANALYSIS TYPE:
  Single Site Analysis

SITE COORDINATES
  Latitude 37.8701
  Longitude -122.271

INTENSITY TYPE:  Spectral Response @ 5% Damping

HAZARD DEAGGREGATION
  Status: OFF

SOIL AMPLIFICATION
  Method: Do not use soil amplification

ATTENUATION EQUATION SITE PARAMETERS
  Depth[Vs=1000m/s] (m): 40
  Estimate Z1 from Vs30 for CY NGA: 1
  Vs30 (m/s): 330
  Vs30 Is Measured: 0
  Z25 (km): 2

AMPLITUDES - Acceleration (g)
  0.0001
  0.001
  0.01
  0.02
  0.05
  0.07
  0.1
  0.2
  0.3
  0.4
  0.5
  0.7
  1
  2
  3

PERIODS (s)
  PGA
  0.05
  0.1
  0.2
  0.3
  0.4
  0.5
  0.75
  1
  2
  3
  4

DETERMINISTIC FRACTILES
  0.5
  0.84

PLOTTING PARAMETERS
```

```
  Period at which to plot PGA: 0.005

CALCULATIONAL PARAMETERS
  Fault Seismic Sources -
    Maximum inclusion distance          :   200 km
    Down dip integration increment      :   1 km
    Horizontal integration increment    :   1 km
    Number rupture length per earthquake :  1
  Subduction Interface Seismic Sources -
    Maximum inclusion distance          :   1000 km
    Down dip integration increment      :   5 km
    Horizontal integration increment    :   20 km
    Number rupture length per earthquake :  1
  Subduction Slab Seismic Sources -
    Maximum inclusion distance          :   1000 km
    Down dip integration increment      :   5 km
    Horizontal integration increment    :   20 km
    Number rupture length per earthquake :  1
  Area Seismic Sources -
    Maximum inclusion distance          :   200 km
    Vertical integration increment      :   3 km
    Number of rupture azimuths          :   3
    Minimum epicentral distance step    :   0.5 km
    Maximum epicentral distance step    :   10 km
  Gridded Seismic Sources -
    Maximum inclusion distance           :   200 km
    Default number of rupture azimuths   :   20
    Maximum distance for default azimuths :  40 km
    Minimum distance for one azimuth     :   150
    Use binned calcuations if possible   :   true
    Bins per decade in distance (km)     :   20
  All Seismic Sources -
    Magnitude integration step          :   0.1 M
    Apply magnitude scaling             :   NO
    Include near-source directivity     :   NO

ATTENUATION EQUATIONS

  Name: Boore-Atkinson (2008) NGA USGS 2008
  Database: C:\Program Files (x86)\EZ-FRISK 7.65\Files\standard.bin-attendb
  Base: Boore-Atkinson 2007 NGA
  Truncation Type: Trunc Sigma*Value
  Truncation Value: 3
  Magnitude Scale: Moment Magnitude
  Distance Type: Horizontal Distance To Rupture

  Name: Campbell-Bozorgnia (2008) NGA USGS 2008
  Database: C:\Program Files (x86)\EZ-FRISK 7.65\Files\standard.bin-attendb
  Base: Campbell-Bozorgnia 2008 NGA
  Truncation Type: Trunc Sigma*Value
  Truncation Value: 3
  Magnitude Scale: Moment Magnitude
  Distance Type: Distance To Rupture

  Name: Chiou-Youngs (2008) NGA
  Database: C:\Program Files (x86)\EZ-FRISK 7.65\Files\standard.bin-attendb
  Base: Chiou-Youngs 2008 NGA
  Truncation Type: No Truncation
  Truncation Value: 0
  Magnitude Scale: Moment Magnitude
  Distance Type: Distance To Rupture

  Name: Youngs (1997) Subduction Soil
  Database: C:\Program Files (x86)\EZ-FRISK 7.65\Files\standard.bin-attendb
  Base: Youngs 1997 Soil
  Truncation Type: No Truncation
  Truncation Value: 0
  Magnitude Scale: Moment Magnitude
  Distance Type: Distance To Rupture
```

**SEISMIC SOURCE SUMMARY TABLE**

| Source | Region | Closest Distance | Deterministic Magnitude | Fault Mechanism | Dip Angle | Dips To | Site Lies |
|---|---|---|---|---|---|---|---|
| Calaveras | USGS 2008 California | 23.71 | 7.0250 | Strike Slip | 90.0000 | -- | W |
| California Gridded | USGS 2008 California | 0.00 | 7.0000 | SS\|R | 90.0000 | -- | Above |
| California Gridded Deep | USGS 2008 California | 26.06 | 7.2000 | Intraslab | 90.0000 | -- | S |
| Great Valley 3, Mysterious Ridge | USGS 2008 California | 87.09 | 7.1000 | Reverse | 20.0000 | SW | S |
| Great Valley 4a, Trout Creek | USGS 2008 California | 69.89 | 6.6000 | Reverse | 20.0000 | SW | S |
| Great Valley 4b, Gordon Valley | USGS 2008 California | 45.82 | 6.8000 | Reverse | 20.0000 | W | S |
| Great Valley 5, Pittsburg Kirby Hills | USGS 2008 California | 41.91 | 6.7000 | Strike Slip | 90.0000 | -- | SW |
| Great Valley 7 | USGS 2008 California | 63.58 | 6.9000 | Reverse | 15.0000 | SW | W |
| Green Valley Connected | USGS 2008 California | 23.87 | 6.8000 | Strike Slip | 90.0000 | -- | SW |
| Greenville Connected | USGS 2008 California | 38.45 | 7.0000 | Strike Slip | 90.0000 | -- | W |
| Greenville Connected U | USGS 2008 California | 38.45 | 7.0000 | Strike Slip | 90.0000 | -- | W |
| Hayward-Rodgers Creek | USGS 2008 California | 1.72 | 7.3340 | Strike Slip | 90.0000 | -- | SW |
| Hunting Creek-Berryessa | USGS 2008 California | 65.10 | 7.1000 | Strike Slip | 90.0000 | -- | S |
| Maacama-Garberville | USGS 2008 California | 86.67 | 7.4000 | Strike Slip | 90.0000 | -- | SE |
| Monte Vista-Shannon | USGS 2008 California | 48.11 | 6.5010 | Reverse | 45.0000 | SW | N |
| Mount Diablo Thrust | USGS 2008 California | 21.87 | 6.7000 | Reverse | 38.0000 | NE | W |
| Northern San Andreas | USGS 2008 California | 27.39 | 8.0500 | Strike Slip | 90.0000 | -- | NE |
| Point Reyes | USGS 2008 California | 49.94 | 6.9000 | Reverse | 50.0000 | NE | E |
| San Andreas Creeping Section Gridded | USGS 2008 California | 99.28 | 6.0000 | Strike Slip | 90.0000 | -- | NW |
| San Gregorio Connected | USGS 2008 California | 32.42 | 7.5000 | Strike Slip | 90.0000 | -- | E |
| West Napa | USGS 2008 California | 32.79 | 6.7000 | Strike Slip | 90.0000 | -- | S |
| Zayante-Vergeles | USGS 2008 California | 90.71 | 7.0000 | Strike Slip | 90.0000 | -- | N |
| Extensional Gridded | USGS 2008 Western US | 0.00 | 7.0000 | N\|SS | 90.0000 | -- | Above |
| Nonextensional Gridded | USGS 2008 Western US | 76.18 | 10.0000 | SS\|R | 90.0000 | -- | S |

**Deterministic Spectra Results using EZ-FRISK 7.65 Build 004**

**Largest Amplitudes of Ground Motions Considering All Sources Calculated using Weighted Mean of Attenuation Equations**
**Amplitude Units: Acceleration (g)**

**Fractile: 0.5**

| Period | Amplitude | Magnitude | Closest Distance(km) | Region | Controlling Source |
|---|---|---|---|---|---|
| PGA | 5.412e-001 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.05 | 6.586e-001 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.1 | 8.763e-001 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.2 | 1.117e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.3 | 1.156e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.4 | 1.125e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.5 | 1.051e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.75 | 8.670e-001 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |
| 1 | 7.026e-001 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |
| 2 | 3.766e-001 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |
| 3 | 2.420e-001 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |
| 4 | 1.715e-001 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |

**Fractile: 0.84**

| Period | Amplitude | Magnitude | Closest Distance(km) | Region | Controlling Source |
|---|---|---|---|---|---|
| PGA | 8.962e-001 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.05 | 1.117e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.1 | 1.501e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.2 | 1.908e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.3 | 2.008e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.4 | 1.972e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.5 | 1.871e+000 | 7.00 Mw | 5.00 | USGS 2008 California | California Gridded |
| 0.75 | 1.593e+000 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |
| 1 | 1.309e+000 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |
| 2 | 7.326e-001 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |
| 3 | 4.757e-001 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |
| 4 | 3.403e-001 | 7.33 Mw | 1.72 | USGS 2008 California | Hayward-Rodgers Creek |

**Probabilistic Spectra results for EZ-FRISK 7.65 Build 004**

**ANNUAL FREQUENCY OF EXCEEDANCE: 2.107e-003**
**RETURN PERIOD: 474.6**
**PROBABILITY OF EXCEEDENCE: 10.0% IN 50.0 YEARS**
Column 1: Spectral Period
Column 2: Acceleration (g) for: Mean
Column 3: Acceleration (g) for: Boore-Atkinson (2008) NGA USGS 2008
Column 4: Acceleration (g) for: Campbell-Bozorgnia (2008) NGA USGS 2008
Column 5: Acceleration (g) for: Chiou-Youngs (2008) NGA
Column 6: Acceleration (g) for: Youngs (1997) Subduction Soil

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| PGA | 7.094e-001 | 7.431e-001 | 5.890e-001 | 7.734e-001 | 3.845e-003 |
| 0.05 | 8.845e-001 | 9.473e-001 | 7.414e-001 | 9.742e-001 | 5.366e-003 |
| 0.1 | 1.192e+000 | 1.318e+000 | 1.016e+000 | 1.248e+000 | 7.702e-003 |
| 0.2 | 1.479e+000 | 1.623e+000 | 1.230e+000 | 1.592e+000 | 1.159e-002 |
| 0.3 | 1.486e+000 | 1.602e+000 | 1.247e+000 | 1.615e+000 | 1.129e-002 |
| 0.4 | 1.432e+000 | 1.553e+000 | 1.243e+000 | 1.506e+000 | 1.018e-002 |
| 0.5 | 1.337e+000 | 1.422e+000 | 1.222e+000 | 1.373e+000 | 5.746e-003 |
| 0.75 | 1.095e+000 | 1.140e+000 | 1.023e+000 | 1.123e+000 | 3.130e-003 |
| 1 | 8.834e-001 | 8.978e-001 | 8.194e-001 | 9.359e-001 | 2.043e-003 |
| 2 | 4.497e-001 | 4.672e-001 | 4.317e-001 | 4.511e-001 | 3.051e-004 |
| 3 | 2.742e-001 | 2.821e-001 | 2.722e-001 | 2.680e-001 | 1.282e-004 |
| 4 | 1.914e-001 | 1.931e-001 | 2.012e-001 | 1.784e-001 | * 8.350e-005 |

**ANNUAL FREQUENCY OF EXCEEDANCE: 1.026e-003**
**RETURN PERIOD: 974.8**
**PROBABILITY OF EXCEEDENCE: 5.0% IN 50.0 YEARS**
Column 1: Spectral Period
Column 2: Acceleration (g) for: Mean
Column 3: Acceleration (g) for: Boore-Atkinson (2008) NGA USGS 2008
Column 4: Acceleration (g) for: Campbell-Bozorgnia (2008) NGA USGS 2008
Column 5: Acceleration (g) for: Chiou-Youngs (2008) NGA
Column 6: Acceleration (g) for: Youngs (1997) Subduction Soil

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| PGA | 8.916e-001 | 9.561e-001 | 7.320e-001 | 9.793e-001 | 1.649e-002 |
| 0.05 | 1.115e+000 | 1.201e+000 | 9.181e-001 | 1.189e+000 | 2.065e-002 |
| 0.1 | 1.514e+000 | 1.757e+000 | 1.207e+000 | 1.562e+000 | 2.376e-002 |
| 0.2 | 1.946e+000 | 2.165e+000 | 1.510e+000 | 2.066e+000 | 3.080e-002 |
| 0.3 | 1.980e+000 | 2.156e+000 | 1.560e+000 | 2.110e+000 | 2.987e-002 |
| 0.4 | 1.918e+000 | 2.114e+000 | 1.584e+000 | 2.013e+000 | 2.644e-002 |
| 0.5 | 1.783e+000 | 1.957e+000 | 1.573e+000 | 1.825e+000 | 2.156e-002 |
| 0.75 | 1.426e+000 | 1.521e+000 | 1.300e+000 | 1.457e+000 | 1.461e-002 |
| 1 | 1.158e+000 | 1.183e+000 | 1.075e+000 | 1.214e+000 | 9.500e-003 |
| 2 | 6.059e-001 | 6.336e-001 | 5.749e-001 | 6.102e-001 | 1.485e-003 |
| 3 | 3.735e-001 | 3.835e-001 | 3.668e-001 | 3.702e-001 | 5.144e-004 |
| 4 | 2.600e-001 | 2.615e-001 | 2.684e-001 | 2.491e-001 | 2.598e-004 |

**ANNUAL FREQUENCY OF EXCEEDANCE: 4.041e-004**
**RETURN PERIOD: 2474.9**
**PROBABILITY OF EXCEEDENCE: 2.0% IN 50.0 YEARS**
**Column 1: Spectral Period**
**Column 2: Acceleration (g) for: Mean**
**Column 3: Acceleration (g) for: Boore-Atkinson (2008) NGA USGS 2008**
**Column 4: Acceleration (g) for: Campbell-Bozorgnia (2008) NGA USGS 2008**
**Column 5: Acceleration (g) for: Chiou-Youngs (2008) NGA**
**Column 6: Acceleration (g) for: Youngs (1997) Subduction Soil**

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| PGA | 1.134e+000 | 1.216e+000 | 9.154e-001 | 1.205e+000 | 3.484e-002 |
| 0.05 | 1.435e+000 | 1.599e+000 | 1.125e+000 | 1.520e+000 | 4.468e-002 |
| 0.1 | 2.046e+000 | 2.376e+000 | 1.508e+000 | 2.060e+000 | 5.386e-002 |
| 0.2 | 2.527e+000 | 2.919e+000 | 1.969e+000 | 2.611e+000 | 7.158e-002 |
| 0.3 | 2.586e+000 | 2.930e+000 | 2.056e+000 | 2.712e+000 | 6.961e-002 |
| 0.4 | 2.536e+000 | 2.875e+000 | 2.109e+000 | 2.592e+000 | 6.088e-002 |
| 0.5 | 2.398e+000 | 2.652e+000 | 2.122e+000 | 2.412e+000 | 4.933e-002 |
| 0.75 | 2.007e+000 | 2.150e+000 | 1.773e+000 | 2.030e+000 | 3.335e-002 |
| 1 | 1.573e+000 | 1.631e+000 | 1.422e+000 | 1.657e+000 | 2.272e-002 |
| 2 | 8.407e-001 | 8.863e-001 | 7.884e-001 | 8.475e-001 | 4.279e-003 |
| 3 | 5.211e-001 | 5.339e-001 | 5.068e-001 | 5.229e-001 | 1.810e-003 |
| 4 | 3.662e-001 | 3.680e-001 | 3.719e-001 | 3.578e-001 | 1.069e-003 |

**ANNUAL FREQUENCY OF EXCEEDANCE: 4.463e-003**
**RETURN PERIOD: 224.1**
**PROBABILITY OF EXCEEDENCE: 20.0% IN 50.0 YEARS**
**Column 1: Spectral Period**
**Column 2: Acceleration (g) for: Mean**
**Column 3: Acceleration (g) for: Boore-Atkinson (2008) NGA USGS 2008**
**Column 4: Acceleration (g) for: Campbell-Bozorgnia (2008) NGA USGS 2008**
**Column 5: Acceleration (g) for: Chiou-Youngs (2008) NGA**
**Column 6: Acceleration (g) for: Youngs (1997) Subduction Soil**

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| PGA | 5.230e-001 | 5.430e-001 | 4.517e-001 | 5.731e-001 | * 7.043e-032 |
| 0.05 | 6.513e-001 | 6.809e-001 | 5.616e-001 | 7.192e-001 | * 2.674e-046 |
| 0.1 | 9.021e-001 | 9.689e-001 | 7.806e-001 | 9.797e-001 | * 2.178e-068 |
| 0.2 | 1.111e+000 | 1.164e+000 | 9.895e-001 | 1.191e+000 | * 1.241e-152 |
| 0.3 | 1.101e+000 | 1.142e+000 | 9.802e-001 | 1.187e+000 | * 5.048e-140 |
| 0.4 | 1.055e+000 | 1.100e+000 | 9.505e-001 | 1.109e+000 | * 1.576e-097 |
| 0.5 | 9.873e-001 | 1.019e+000 | 9.119e-001 | 1.021e+000 | * 1.316e-048 |
| 0.75 | 7.718e-001 | 7.965e-001 | 7.261e-001 | 7.965e-001 | * 7.913e-021 |
| 1 | 6.123e-001 | 6.190e-001 | 5.772e-001 | 6.442e-001 | * 1.181e-010 |
| 2 | 3.074e-001 | 3.182e-001 | 2.997e-001 | 3.045e-001 | * 2.782e-005 |
| 3 | 1.857e-001 | 1.929e-001 | 1.869e-001 | 1.767e-001 | * 3.012e-005 |
| 4 | 1.265e-001 | 1.287e-001 | 1.335e-001 | 1.167e-001 | * 2.558e-005 |

# Appendix HAZ

Phase I Environmental Site Assessment and Soil Gas Survey

# Phase I Environmental Site Assessment

# DRAFT PHASE I ENVIRONMENTAL SITE ASSESSMENT

# 2118 MILVIA STREET

# BERKELEY, CALIFORNIA 94704-1113

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*Prepared for*
Atheria Smith
Peralta Community College District
333 East Eighth Street

Oakland, California 94606

*Prepared by*
Terraphase Engineering, Inc.
1404 Franklin Street, Suite 600
Oakland, California 94612

30 January 2015

Project Number 0034.002.001

terraphase engineering

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# CONTENTS

**FIGURES**



**APPENDICES**

# EXECUTIVE SUMMARY

| | |
|---|---|
| **Site Description and Location:**<br>2118 Milvia Street<br>Berkeley, California, 94704-1113<br>Parcel Numbers: 057 202200501<br><br>The Site was formerly addressed as 1999 Center Street, which was the location of the former gasoline service station on the property. The Site is also addressed as 2120 and 2122 Milvia Street | **Client Information:**<br>Atheria Smith<br>Peralta Community College District<br>Oakland 333 East Eighth Street<br>Oakland, California 94606 |
| **Current Site Owner:**<br>N.E.W. Milvia Property, LLC<br>846 Mendocino Avenue<br>Berkeley, CA 94707 | **Environmental Consultant:**<br>Terraphase Engineering Inc.<br>1404 Franklin Street, Suite 600<br>Oakland, California 94612 |
| **Reconnaissance Date:**<br>1/23/15 | **Environmental Professional:**<br>Jeff Raines |

## Findings and Conclusions Summary

Terraphase Engineering, Inc. (Terraphase) has performed this Phase I Environmental Site Assessment (ESA) in general conformance with the scope and limitations of ASTM Standard Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in Section 1.0 of this report. Terraphase identified the following recognized environmental in connection with the Site during the Phase I ESA:

- REC-1: A gasoline station was formerly located on the property. Because of the age of the gasoline station and the date of its closure, prior to the enactment of the Resource Conservation and Recovery Act (RCRA), the gasoline station would not have been closed under regulatory oversight and it is likely that petroleum products were released into the subsurface at the Site and never remediated.

- REC-2: In addition to the gasoline station on the property, there were also gasoline stations on the northeast and southeast corners of the intersection of Center Street and Milvia Street which are upgradient of the Site. Because of the age of the gasoline stations and the dates of their closure, prior to the enactment of RCRA, it is likely that petroleum products were released into the subsurface at their locations. Groundwater is fairly shallow at the Site, and hence, if petroleum products were released at the adjacent former gasoline stations, it is likely that the petroleum products would have migrated under the Site, creating a potential vapor encroachment condition.

- REC-3: A property, located at 2020 Addison Street, approximately 350 feet east northeast of the Site, reported a release of gasoline that impacted both soil and groundwater. The site closed in the State Water Resources Control Board (SWRCB) Geotracker database. Because of this property's proximity and up-gradient location with respect to groundwater flow, to the Site and the possibility that contaminated groundwater from this property may have migrated beneath the Site, a potential vapor encroachment issue cannot be ruled out.

- REC-4: The Site is located in a City of Berkeley Environmental Management Area, which requires that permit applicants with properties located in this area may encounter potential health and environmental concerns during construction involving underground excavation or dewatering. Other parcels may exist that have soil or groundwater contamination, which are not represented. For larger developments, a review of potential environmental impacts by the Toxics Management Division, at the applicants expense, is required. The City of Berkeley Toxics Management Division is located at 2118 Milvia Street (the Site).

- The former gasoline stations and the fact that the Site is within a City of Berkeley Environmental Management Area indicates that a Vapor Encroachment Condition (VEC) exists for the Site.

No other recognized environmental conditions (RECs) were identified in connection with the Site.

| **Findings and Conclusion** | | | | |
|---|---|---|---|---|
| **Report Sections** | **De minimis** | **REC** | **Historical REC** | **Description** |
| *User Info and Record Review* | | | | |
| 3.0 User Provided Information | | | | |
| 4.1 Standard Environmental Databases | | x | | A release of gasoline was reported at a nearby property that is located up gradient and within 400 feet of the Site. A potential vapor encroachment issue cannot be ruled out. |
| 4.2 Additional Environmental Databases | | | | |
| 4.4 Other Historical Records | | | x | The Site and two other adjacent properties were the former locations of gasoline service stations. |
| *Site Reconnaissance and Interviews* | | | | |
| 5.3.1 Hazardous | | | | |

| Findings and Conclusion | | | | |
|---|---|---|---|---|
| **Report Sections** | **De minimis** | **REC** | **Historical REC** | **Description** |
| Substances Use, Storage and Disposal | | | | |
| 5.3.2 Underground and Aboveground Storage tanks | | | | |
| 5.3.3 Odors | | | | |
| 5.3.4 Pools of Liquid | | | | |
| 5.3.5 Drums | | | | |
| 5.3.6 Other Petroleum Products | | | | |
| 5.3.7 Unidentified Substance Containers | | | | |
| 5.3.8 PCBs | | | | |
| 5.3.9 Heating and Cooling | | | | |
| 5.3.10 Stains or Corrosion | | | | |
| 5.3.11 Sumps and Floor Drains | | | | |
| 5.3.12 Waste Pits, Ponds and Lagoons | | | | |
| 5.3.13 Stained Soil or Pavement | | | | |
| 5.3.14 Stressed Vegetation | | | | |
| 5.3.15 Nonhazardous Solid Waste | | | | |
| 5.3.16 Wastewater | | | | |
| 5.3.17 Wells | | | | |
| 5.3.18 Septic Systems | | | | |
| 5.3.19 Stormwater Management System | | | | |
| 6.0 Interviews | | | | |
| *ASTM Non-Scope Condition* | | | | |
| 7.1 Asbestos Containing Materials | | | | |
| 7.2 Mold/Water leak screening | | | | |

## Significant Data Gaps

The following is a summary of significant data gaps in the required Phase I information identified in this report.

| Significant Data Gap | |
|---|---|
| **Report Section** | **Description** |
| 2.0 Site Description | |
| 3.0 User Provided Information | |
| 4.0 Environmental and Historical Record Reviews | Location of gasoline storage tanks (likely an underground storage tank) of the former Fairchild & White gasoline station at the Site |
| 5.0 Site Reconnaissance | |
| 6.0 Interviews | |

## Recommendations

To investigate the impacts from the RECs identified above, Terraphase recommends:

- Collecting three (3) subslab soil gas samples from below the building foundation and assessing the samples for petroleum hydrocarbons, volatile organic compounds and methane.

Soil gas samples may not detect significant degraded petroleum hydrocarbons remaining in soil. If the District is considering excavations for a basement or subsurface parking garage, collecting soil samples from below the building may be appropriate. If the soil gas concentrations of the constituents of concern are elevated above environmental screening levels, additional environmental sampling may be warranted.

# 1.0 INTRODUCTION

On behalf of Peralta Community College District, Terraphase Engineering Inc. (Terraphase) has completed this Phase I Environmental Site Assessment (ESA) for the properties located at 2118 Milvia Street, Berkeley, California (the Site; Figure 1). The Site was formerly addressed as 1999 Center Street in Berkeley – the Site is located on the northwest corner of Center and Milvia Streets. This Phase I ESA includes information gathered from federal, state, and local agencies; personal interviews with individuals familiar with the Site and surrounding properties; and a site visit conducted by Terraphase. The report is intended to meet the requirements of ASTM Practice E-1527-13 and has been prepared under the oversight of an environmental professional as defined in ASTM Practice E-1527-13. The qualifications of the environmental professional who has prepared this report are included in Appendix A.

## 1.1 Location and Legal Description

The Site is a comprised of one parcel located in Berkeley, Alameda County, California. The property is approximately 0.26 acres in size (EDR 2014g) and is identified with the Assessor's Parcel Number (APN): 057 202200501 by the Alameda County Assessor. A Site Location Map is included as Figure 1.

## 1.2 Purpose

The purpose of a Phase I ESA is to evaluate the potential for environmental contamination on the Site, and to evaluate if contamination could potentially occur in the future because of activities or conditions on or near the Site. The Phase I ESA was generally conducted in accordance with the processes prescribed in the American Society for Testing and Materials International (ASTM) "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (ASTM Designation E 1527-13).

This Phase I ESA identifies recognized environmental conditions (RECs) at the subject site. As defined by ASTM, a REC is the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or the material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include "de minimis" conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

## 1.3 Scope of Services

The following services were included in this Phase I ESA:

- a reconnaissance-level site visit to look for evidence of the release(s) of hazardous materials and petroleum products and to assess the potential for on-site releases of hazardous materials and petroleum products
- drive-by observations of adjacent properties and the Site vicinity
- interviews with people familiar with the Site
- review of regulatory agency files
- review of historical documents including aerial photographs and topographical maps
- preparation of a report presenting our findings, including a summary of conclusions.

## 1.4 Significant Assumptions

This Phase I ESA provides appropriate into the previous ownership and use of the Site consistent with good commercial and customary practice in an effort to minimize liability. Terraphase also assumes that the information provided by Peralta Community College District, the regulatory database provider, and regulatory agencies is true and reliable.

## 1.5 Limitations and Exceptions

This document was prepared for the sole use of Peralta Community College District and their successors and assignees. No other party should rely on the information contained herein without the prior written consent of Terraphase and Peralta Community College District.

The opinions and recommendations presented in this report are based upon the scope of services, information obtained through the performance of the services, and the schedule as agreed upon by Terraphase and Peralta Community College District. This report was prepared in accordance with the generally accepted standards and level of skill and care under similar conditions and circumstances established by the environmental consulting industry as practiced in Northern California. To the extent that Terraphase relied upon any information prepared by other parties not under contract to Terraphase, no representation as to the accuracy or completeness of such information is made. Only Peralta Community College District may make use of and rely upon the information in this report. This information can only be utilized for a period not to exceed 180 days in accordance with ASTM's “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” ASTM Designation E 1527-13; and/or the Code of Federal Regulations (CFR) 40CFR Part 312 “Standards and Practices for All Appropriate Inquiries: Final Rule,” dated November 1, 2005 and amended December 30, 2013. After 180 days, the report must be updated in accordance with ASTM Standards and Federal regulations.

The findings presented in this report apply solely to site conditions existing at the time of the assessment. It must be recognized, however, that a Phase I ESA is intended for the purpose of evaluating the potential for contamination through limited research and investigative activities and in no way represents a conclusive or complete site characterization. Conditions in other parts of the Site may vary from those at the locations where data were collected. Terraphase's interpretation of investigation results is related to the availability of the data and the extent of the investigation activities. As such, 100% confidence in Phase I ESA conclusions cannot reasonably be achieved. Therefore, Terraphase does not provide any guarantees, certifications, or warranties (express or implied) that a property is free from environmental contamination. Furthermore, nothing contained in this document shall relieve any other party of its responsibility to abide by contract documents and all applicable laws, codes, regulations, or standards.

## 1.6 Special Terms and Conditions

The scope of work for this Phase I ESA is compliant with current all appropriate inquiries (AAI)/ASTM standards for Phase I ESAs. The scope of work did not include testing of electrical equipment for the potential presence of polychlorinated biphenyls (PCBs), assessment of building materials for asbestos containing materials, assessment for lead-based paints, assessment of natural hazards such as naturally occurring asbestos, radon gas or methane gas, assessment of the potential presence of radionuclides, or assessment of non-chemical hazards such as the potential for damage from earthquakes or floods. General observation of building conditions and other non-ASTM standard observations were only made of accessible areas during site reconnaissance and cannot be relied upon as a comprehensive assessment of the building conditions or building systems operations.

This Phase I ESA also did not include an extensive assessment of the environmental compliance status of the Site or of the businesses operating at the Site, or a health-based risk assessment. Non scope services are discussed further in Section 8.

## 1.7 User Reliance

This document was prepared for the sole use of Peralta Community College District and their successors and assignees. No other party should rely on the information contained herein without the prior written consent of Terraphase and Peralta Community College District. Its contents should not be relied upon by other parties without the expressed written consent of Peralta Community College District and Terraphase.

# 2.0 SITE DESCRIPTION

## 2.1 Site and Vicinity General Description and Current Uses of Adjoining Properties

The property is located in an area that is characterized by commercial and residential (apartments over first floor retail) development. The Site is zoned as Commercial – Downtown Mixed Use District (C-DMU) Buffer. The Site is bounded by the following streets and properties:

- The Site is bound by Milvia Street to the east, followed by a multi-story commercial structure used as an office building.
- The Site is bound by Center Street to the south, followed by a multi-story commercial structure used as an office building, occupied by the City of Berkeley.
- The Site is bound by a parking lot to the north, followed by a multi-story commercial structure used as an office building.
- The Site is bound by 1947 Center Street to the west – a six story office building used for City of Berkeley business, followed by multi-story commercial structures.

The City Zoning ordinance (23E.68) limits building heights to between 50 and 60 feet within the C-DMU buffer zone. New buildings of more than 20,000 square feet are required to attain LEED Gold status.

## 2.1 Current Site Use

The Site is currently occupied by an office building of 2 and 3 stories with approximately 23,000 square feet of rentable space.

## 2.2 Historical Site Use

The 1899 15-minute USGS topographic map (San Francisco Quadrangle EDR 2014b) of the Site shows that Milvia Street had not yet been advanced between Center Street and Alston Way. There is a structure shown on the Site which likely would have been torn down or moved when Milvia was advanced between Center Street and Alston Way. Strawberry Creek is shown as an above-ground ephemeral stream.

The 1915 15-minute USGS topographic map (San Francisco Quadrangle EDR 2014b) shows that Milvia Street had been completed, Strawberry Creek had been undergrounded and the Site was vacant. A review of historical aerial photographs and city directories (EDR 2014d,e) indicates that a gasoline service station was located on the Site by 1939. The 1929 Sanborn map indicates the Site was vacant. Based on aerial photographs and directory listings, the gasoline service station (Fairchild & White) was located on the Site (with the former address of 1999 Center Street) until before 1966 when the current structure was built. The 1968 aerial photograph (EDR 2014e) shows the gasoline station had been removed and been replaced with the existing office building. The Site remained as an office building, with various commercial occupants, until the present. (EDR, 2014d)

The adjacent property to the east of the site, addressed 2125 Milvia Street, was the historic location of an automobile/fuel service station, known as **A A Sousa** or the Sportsmen Garage from 1928 until at least 1950. (EDR, 2014c,d,e)

The adjacent property to the southeast of the Site was known by several addresses including 2135, 2145, and 2171 Milvia Street. This property was occupied by various types of automobile/gasoline service stations and garages from 1925 until at least 1962. The 2135 Milvia Street address is associated with the Civic Center Garage in 1925 and as a radiator repair facility in 1928. The 2145 Milvia Street address is associated with Center Service Station in 1933. The 2171 Milvia Street address is associated with Ogle Automotive Service in 1945 and 1950; a Texaco Branded service station in 1955; and Jess & Dick's Automotive Service in 1962. (EDR, 2014d)

The property immediately to the west of the Site, addressed as 1977-1991 Center Street, was the location of the F W Foss Lumber Company from circa 1908 (Baker, 1914) until 1945 (EDR, 2014d). By 1950 the property was developed with an office building and remained in that configuration until the present. (EDR 2014d)

## 2.3 Physical Setting

The property is located within the City of Berkeley, in Alameda County. The Site is situated approximately 170 feet above sea level and the local topography slopes to the west southwest (EDR 2014b). Berkeley is located within the Coast Ranges geomorphic province of California (CDMG, 2002). According to available geologic maps of the area, the Site is underlain by quaternary aged sediments classified as the Temescal Formation. The Temescal Formation consists of alluvial fan deposits comprised of interfingering lenses of clayey gravel, sandy silty clay and sand-clay-silt mixtures (USGS, 1957). The soil beneath the site is classified as Tierra soil and consists of silt and clay loam. Tierra soil has a slow infiltration rate and a high water table. (EDR 2014a). The nearest fault, the Hayward Fault, is located approximately one mile east-northeast of the Site (CGS 2010).

According to the California Regional Water Quality Control Board – San Francisco Bay Basin Plan (CRWQCB, 2013), the Site is located within the Santa Clara Valley-East Bay Plain groundwater basin. Groundwater in this area has designated existing beneficial uses for municipal domestic supply, agricultural, industrial and industrial process supply.

Although no depth to groundwater is available for the subject property, depth to groundwater was measured to be 13 feet bgs to 14 feet bgs at a nearby property, addressed as 1917 Addison Street, which is located approximately 420 feet northwest of the Site (Engineering Science Incorporated 1989). Groundwater flow in this zone is estimated to be to the southwest (CERI 2012). The nearest groundwater production well to the Site is identified as well station code

0105013-001. The well is located approximately 1,700 feet north-northeast of the Site. (EDR, 2014a)

# 3.0 USER PROVIDED INFORMATION

The following section summarizes information provided by Peralta Community College District (User) with regard to the Phase I ESA.

## 3.1 Title Record

A title report was not provided as part of the Phase I ESA.

## 3.2 Environmental Liens and Activity and Use Limitations

Environmental liens and activity and use limitations were not found in connection with the deeds for the Site (EDR 2014f).

## 3.3 Specialized Knowledge

Atheria Smith of the Peralta Community College District indicated that she has no specialized knowledge or experience related to the property or nearby properties (i.e., knowledge of the chemicals or processes used by a type of business).

## 3.4 Commonly Known or Reasonably Ascertainable Information

The Site is located within an area of known groundwater contamination – there is an open leaking underground storage tank (UST) site located at 1937 Addison Street. 1937 Addison Street is located 250 feet northwest and down gradient of the Site.

## 3.5 Valuation Reduction for Environmental Liens

It is unknown if the price of the property reasonably reflects the fair market value.

## 3.6 Owner, Property Manager and Occupant Information

The current Site owner information is as follows:

N.E.W. Milvia Property, LLC
846 MENDOCINO AVE
Berkeley, CA, 94707-1923

## 3.7 Reasons for Performing Phase I

The reason for performing the Phase I ESA was to evaluate for the presence of RECs in anticipation of a real estate transaction.

# 4.0 RECORDS REVIEW

## 4.1 Standard Environmental Record Sources

The regulatory agency database report discussed in this section, provided by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut (the EDR Report), was reviewed for information regarding reported releases of hazardous substances and petroleum products on or near the property (EDR 2014a). Terraphase also reviewed the “unmappable” (also referred to as “orphan”) listings within the database report, cross-referencing available address information and facility names. Unmappable sites are listings that could not be plotted with confidence, but are potentially in the general area of the property based on the partial street address, city, or zip code. None of the unmappable sites were identified by Terraphase as being within the approximate minimum search distance from the property based on the site reconnaissance and/or cross-referencing to mapped listings. The complete EDR Report may be found in Appendix C. The following is a summary of the findings of the database review.

| Regulatory Database | Approximate Minimum Search Distance | Properties On Site Listed | Number of Listings |
|---|---|---|---|
| Federal National Priority List | 1.0 mile | 0 | 0 |
| Federal Delisted NPL | 1.0 mile | 0 | 0 |
| Federal CERCLIS | 0.5 mile | 0 | 0 |
| Federal CERCLIS NFRAP site List | 0.5 mile | 0 | 0 |
| Federal RCRA CORRACTS facilities list | 1.0 mile | 0 | 0 |
| Federal RCRA non-CORRACTS TSD facilities list | 0.5 mile | 0 | 0 |
| Federal RCRA generators list | 0.25 mile | 0 | 8 |
| Federal institutional controls /engineering controls registries | 0.5 mile | 0 | 0 |
| Federal ERNS list | Site | 0 | 0 |
| State- and tribal - equivalent NPL | ¼ to ½ mile | 0 | 1 |
| State- and tribal - equivalent CERCLIS | 1 mile | 0 | 3 |
| State and tribal landfill and/or solid waste disposal site lists | 0.5 mile | 0 | 0 |
| State and tribal leaking storage tank lists | 0.5 mile | 0 | 60 |
| State and tribal registered storage tank lists | 0.25 mile | 0 | 1 |
| State and tribal voluntary cleanup sites | 0.5 mile | 0 | 0 |
| Registered Storage Tanks | <1/8 mile | 0 | 17 |

| Regulatory Database | Approximate Minimum Search Distance | Properties On Site Listed | Number of Listings |
|---|---|---|---|
| Historical Cortese List | <1/8 mile | 0 | 41 |
| RCRA NonGen/NLR | 0.25 mile | 0 | 1 |
| Notify 65 | <1/8 mile | 0 | 4 |
| Haznet | Target Property | 1 | 1 |
| EDR Historical Cleaners | 0.25 mile | 0 | 23 |
| EDR Historical Gasoline Stations | 0.25 mile | 1 | 31 |

CERCLIS - Comprehensive Environmental Response, Compensation, and Liability Information System
CORRACTS - RCRA Corrective Action Sites
ERNS - Emergency Response Notification System
NFRAP - No Further Remedial Action Planned
NPL – National Priority List
RCRA – Resource Conservation and Recovery Act
TSD – Treatment, Storage or Disposal

### 4.1.1 Federal National Priorities List (NPL): Distance Searched - 1 mile

The NPL is the EPA’s database of uncontrolled or abandoned hazardous waste properties identified for priority remedial actions under the Superfund program. This database includes proposed NPL listings.

Neither the site nor properties located within a 1 mile radius of the site were listed in this database.

### 4.1.2 Federal Delisted National Priorities List (NPL): Distance Searched - 0.5 mile

This database contains delisted NPL properties under the Superfund program. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete properties from the NPL. In accordance with Code 40 of Federal Regulations (CFR) 300.425 (e), properties may be deleted from the NPL where no further response is appropriate.

Neither the site nor properties located within a 0.5 mile radius of the site were listed in this database.

### 4.1.3 Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List: Distance Searched - 0.5 mile

The CERCLIS database contains properties which are either proposed or on the NPL and properties which are in the screening and assessment phase for possible inclusion on the NPL.

Neither the site nor properties located within a 0.5 mile radius of the site were listed in this database.

### 4.1.4 Federal CERCLIS No Further Remedial Action Planned (NFRAP) Site List: Distance Searched – 0.5 mile

The CERCLIS NFRAP database contains archived sites that have been removed from the inventory of CERCLIS Sites. Archived status indicates that a site assessment has been completed and a determination made that no further steps will be taken to list the Site on the NPL. This decision does not mean that there is no hazard associated with the site, it only means that based on available information, the location is not judged to be a potential NPL site.

Neither the site nor properties located within a 0.5 mile radius of the site were listed in this database.

### 4.1.5 Federal Corrective Action Report (CORRACTS): Distance Searched – 1 mile

The EPA maintains this database of Resource Conservation and Recovery Act (RCRA) facilities that are undergoing corrective action. A corrective action order is issued when there has been a release of hazardous waste or constituents into the environment from a RCRA facility.

Neither the site nor properties located within a 1.0 mile radius of the site were listed in this database.

### 4.1.6 Federal Non-CORRACTS: Distance Searched – 0.5 mile

The RCRA-Non Generators database (non-CORRACTS) is compiled by the EPA for facilities that report generation, storage, transportation, treatment, or disposal of hazardous waste. Non-generators do not presently generate hazardous waste.

Neither the site nor properties located within a 0.5 mile radius of the site were listed in this database.

### 4.1.7 Resource Conservation and Recovery Act (RCRA) Generators: Distance Searched – 0.25 mile

The RCRA generators database is compiled by the EPA database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. Small quantity generators (SQGs) generate between 100 kilograms (kg) and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kg of hazardous waste, or over 1 kg of acutely hazardous waste per month.

The Site was not listed in this database. The following seven properties were identified as being located within a 0.25 mile radius of the site: **CVS Pharmacy No. 3026** (2300 Shattuck Avenue, 0.239 miles southeast); **Stadium Body Shop** (2026 Addisson Street, 0.1 miles east-northeast); **Automotive Unlimited** (2020 Addison Street, 0.1 miles east-northeast); **Walgreens** (2187 Shattuck Avenue, 0.18 miles east); **Flamingo Cleaners** (1935 Martin Luther King Boulevard, 0.19 miles northwest); **City of Berkeley Central Dup** (2180 Milvia Street, 0.05miles south); **Hamsem**

**Tune Up** (1933 Addison Street, 0.08 miles west-northwest); and **YAS Automotive** (2000 Kittredge, 0.14 miles south).

Of these seven listings, one is listed as a large quantity generator (**CVS Pharmacy No. 3026**) while the other six are listed as small quantity generators of hazardous waste. One of these listings, **Automotive Unlimited** is listed on the LUST database as the site of a release and is discussed in detail in Section 4.1.13. Inclusion on the RCRA Generators list is not typically cause for environmental concern, unless the site is associated with a documented release or spill incident. With the exception of **Automotive Unlimited**, none of the properties included on the RCRA Generators list are associated with a documented release and are therefore, not considered to be an environmental concern.

### 4.1.8 Federal Institutional Controls/Engineering Controls Registries: Distance Searched – 0.5 mile

The Federal Institutional Controls/Engineering Controls (US Eng Controls and US Inst Controls) databases are maintained by EPA and list sites with engineering controls and institutional controls, respectively.

Neither the Site nor properties located within a 0.5-mile radius of the site were listed in this database.

### 4.1.9 Federal Emergency Response Notification System (ERNS): Distance Searched – Site

The ERNS database contains information on reported releases of oil and hazardous substances.

The Site was not listed in this database.

### 4.1.10 State- and Tribal-Equivalent NPL: Distance Searched – 1 mile

The RESPONSE database is the state-equivalent NPL. The RESPONSE database identifies confirmed release sites where the California Department of Toxic Substances Control (DTSC) is involved in remediation, either in a lead or oversight capacity. The database is maintained by the NCES (National Center for Education Statistics) which is the primary federal entity for collecting and analyzing data related to education in the United States and other nations and the institute of education science.

The site was not listed in the database. The following property was identified as being located within a 1 mile radius of the Site and the case is summarized below:

**Virginia Cleaners**
**1667 Shattuck Avenue, Berkeley CA**
*Approximate Distance from the Property:* 0.48 miles, north-northeast.
*Assumed Groundwater Gradient*: West, *Regulatory Data Summary:* This property is dual listed

on both the Response List and Envirostor databases. According to information available on the Envirostor website, Virginia Cleaners operated at this location from 1937 until November 1981, when the facility was destroyed by a fire. In 1986, the site underwent construction and, during excavation, workers reported the presence of hydrocarbon odors, related to dry cleaning solvents in site soils. From 1986 to November 1987, the site was remediated by removal, disposal and onsite aeration of contaminated soils. An abandoned UST and the associated underlying contaminated soils were also disposed of. According to the No Further Action letter available on the Department of Toxic Substances Control (DTSC) Envirostor website, after remediation, contaminants were reportedly reduced to non-detectable levels. Additionally, monitoring of down gradient groundwater monitoring wells indicated that groundwater quality had not been impaired. After remediation, the site was granted regulatory closure in the form of a No Further Action letter, by the North Coast California Section of the DTSC, on December 18, 1987. (DTSC 1987)

*Discussion:* Given the regulatory status of this property as No Further Action, that the release reportedly impacted soil only, and its distance from the Site, there is a low likelihood that this property would have a negative environmental impact on the Site.

### 4.1.11 State- and Tribal-Equivalent CERCLIS: Distance Searched - 1 mile

The Envirostor database is the state-equivalent CERCLIS. The DTSC's Site Mitigation and Brownfields Reuse Program's Envirostor database identifies sites that have known contamination or sites for which there may be further reason to investigate further. The database includes the following Site types: Federal Superfund Sites (NPL); State Response, including Military Facilities and State Superfund: Voluntary Cleanup; and School Sites.

The Site was not listed in this database. The following three properties were identified as being located within a 1 mile radius of the site: **Virginia Cleaners** (1667 Shattuck Avenue, 0.48 miles north-northeast); **Former Cal Cleaners** (2529-2533 Telegraph Avenue, 0.78 miles east-southeast); **University of California Berkeley** (317 University Avenue, 0.82 miles east-northeast).

The aforementioned **Virginia Cleaners** was the site of a DTSC lead cleanup effort, and is listed on the Response database. The case summary for **Virginia Cleaners** is described in detail in section 4.1.10.

The **Former Cal Cleaners** and the **University of California Berkeley** properties are located, respectively, down gradient and cross-gradient from the Site with respect to groundwater flow, and are both located over three quarters of one mile from the subject property (DTSC, 2014). Based on their distance from the Site and their down or cross-gradient locations, with respect to groundwater flow, there is a low likelihood that these properties would have a negative environmental impact on the Site.

### 4.1.12 State Solid Waste Landfill Sites (SWF/LF): Distance Searched – 0.5 mile

The SWF/LF database consists of open and closed solid waste disposal facilities and transfer stations. The data comes from Cal Recycle's Solid Waste Information System (SWIS) and the State Water Resources Control Board's (SWRCB) Waste Management Unit Database (WMUD) database.

Neither the site nor properties located within a 0.5-mile radius of the site were listed in this database.

### 4.1.13 State Leaking Underground Storage Tank (LUST) Lists: Distance Searched – 0.5 mile

The database of LUST information is obtained from the SWRCB and the California Regional Water Quality Control Board (RWQCB).

56 properties, within a 0.5-mile radius of the site, were listed in this database search (some addresses appeared twice). Of these 56 properties, eight of the properties were duplicate listings. Of the 48 unique listings, 42 are listed with the regulatory status of "Completed-Case Closed" and there are 13 listings located within one quarter mile of the subject property. Only four of those properties that are located up gradient from the Site with respect to groundwater flow, and are located within a 600 foot radius of the Site, are discussed below. See **Appendix C** for a complete listing of properties identified on the LUST database.

**Berkeley Glass**
**2011 Addison Street, Berkeley CA**
*Approximate Distance from the Property:* 0.06 miles north-northeast.
*Assumed Groundwater Gradient*: Southwest
*Regulatory Data Summary:* This site is listed on the Historic Cortese and LUST databases as the site of a gasoline release that reportedly affected soil only. The case, case number 01-0191, was opened on July 13, 1987 when a gasoline release, from an underground storage tank (UST), was discovered during tank closure. (SWRCB, 2014) After a period of assessment, the case was granted regulatory closure on June 25, 1999. (EDR, 2014) No other information is available at this time.
*Discussion:* Given the regulatory status of this property as No Further Action and that the release reportedly impacted soil only, there is a low likelihood that this property would have a negative environmental impact on the Site.

**Addison Street Property**
**2040 Addison Street, Berkeley CA**
*Approximate Distance from the Property:* 0.08 miles northeast
*Assumed Groundwater Gradient*: Southwest, West
*Regulatory Data Summary:* This property is listed on both the Historic Cortese and LUST databases. The case was opened with the City of Berkeley, case number 01-0030, on September

29, 1986 when a heating oil release associated with a leaking UST, was discovered during removal of a 280 gallon UST. (SWRCB, 2015) Initial soil samples detected Total Petroleum Hydrocarbons at concentrations of 1,100 ppm. Reportedly, site soils were sampled 14 years later and TPH concentrations had decreased to below 100 ppm, via natural attenuation. Maximum residual pollutant concentrations are as follows: TPHg was detected at 21 ppm; TPHd was detected at 90 ppm; Benzene was detected at 0.11 ppm; Xylene was detected at 0.27 ppm; and Ethylbenzene was detected at 0.099 ppm. The closure letter stated that the release did not impact groundwater sampled from nearby, down-gradient wells. Based on this data, the City of Berkeley granted the site regulatory closure on December 1, 1998.
*Discussion:* Given the regulatory status of this property as "Completed – Case Closed" and that the release reportedly impacted soil only, there is a low likelihood that this property would have a negative environmental impact on the Site.

**Automotive Unlimited**
**2020 Addison Street, Berkeley CA**
*Approximate Distance from the Property:* 0.1 miles east-northeast
*Assumed Groundwater Gradient*: southwest
*Regulatory Data Summary:* This site is listed on the RCRA- small quantity generators, FINDS, Historic Cortese, LUST and HAZNET databases. The case, City of Berkeley case number 01-0140, was opened on June 17, 1988, when a release of gasoline was discovered during UST closure. According to information included in the closure letter for the above mentioned **Addison Street Property**, which is available on the website GeoTracker, three USTs, two containing gasoline and one containing waste oil, were removed from the property in June 1998 and a release was discovered and subsequently reported. (SRWCB, 2015) The release reportedly impacted both soil and groundwater. (SRWQCB, 2015) The case was closed as of September 29, 1994. No further information is available at this time.
*Discussion:* Although the property was granted regulatory closure in 1994; because of the proximity of the property to the Site (approximately 400 feet east-northeast of the Site), that the gasoline release reportedly impacted groundwater, and the property's up-gradient location, with respect to groundwater flow, a potential vapor encroachment issue cannot be ruled out.

**Berkeley Corp Yard**
**2000 Milvia Street, Berkeley CA**
*Approximate Distance from the Property:* 0.11 miles east-northeast
*Assumed Groundwater Gradient*: southwest
*Regulatory Data Summary:* This site is listed on the Historic Cortese and LUST databases. The case, City of Berkeley case number 01-0140, was opened on July 13, 1988, when a release of gasoline was discovered during UST closure. According to information provided on the website GeoTracker, the release reportedly impacted both soil and groundwater (SRWQCB, 2014). After a period of site assessment, which began on January 22, 1994, the case was closed as of January 24, 1996. No further information is available at this time.
*Discussion:* Given the regulatory status of this property as "Completed – Case Closed" and the

distance from the Site, there is a low likelihood that this property would have a negative environmental impact on the Site.

### 4.1.14 Spills, Leaks & Investigation Cleanup (SLIC): Distance Searched - 0.5 mile

The SLIC database is maintained by the Regional Water Quality Control Board. The database contains descriptions of contaminant distribution and the status of sites.

The Site was not listed in this database. Four properties were listed in this database within 0.5 mile of the site. The four properties listed in this data base are as follows: **Vacant Building/Fred's Market** (1929 University Avenue, 0.13 miles northwest); **Dupont Chemical** (15345 Avnedale Avenue, 0.14 miles northwest); **Private Residence** (no address given); and **2107 Dwight** (2107 Dwight Way, 0.46 miles south-southeast). Of the four properties listed, two are located down gradient from the Site, with respect to groundwater flow, and are located greater than one quarter mile away (**Private Residence and 2107 Dwight**)**,** and because of their distance from the site and down-gradient location, are not considered to be an environmental concern. The other two sites, **Vacant Building/Fred's Market** and **Dupont Chemical** are described as follows:

**Vacant Building/Fred's Market**
**1929 University Avenue, Berkeley CA**
*Approximate Distance from the Property:* 0.13 miles northwest
*Assumed Groundwater Gradient*: *Southwest*
*Regulatory Data Summary:* This property is listed on the SLIC and HAZNET databases. According to information provided in the SFBRWQCB No Further Action, 1929 University Avenue, Berkeley, Alameda County case closure letter, available on the website GeoTracker, the property housed an automobile repair facility from 1956 to 1974 (SWRCB, 2015). The case, case number 01S0739, was opened December 13, 2012, when a release was discovered. The release was suspected to be from an abandoned 400 gallon waste oil UST and from four hydraulic hoists and three associated hydraulic fluid reservoirs.

In December 2012, the UST, hydraulic hoists and hydraulic fluid reservoirs were removed by Schutze and Associates. Reportedly 53.19 tons of impacted soils were over-excavated, removed from the property, and disposed of. No further excavation was recommended due to the proximity of existing foundations. Investigative sampling reportedly indicated that groundwater beneath the site had not been impacted by the release. Although approximately seven cubic yards of soils impacted with petroleum hydrocarbons still remain in place, the fine grained nature of the soil is expected to prevent vertical and lateral migration of petroleum hydrocarbons. (RWQCB, 2015) The case was granted regulatory closure on January 15, 2015.
*Discussion:* Given the regulatory status of this property, the soil only nature of the release, and its distance from the Site, there is a low likelihood that this property would have a negative environmental impact on the Site.

**Dupont Chemical**

**1929 University Avenue, Berkeley CA**

*Approximate Distance from the Property:* 0.14 miles northwest

*Assumed Groundwater Gradient*: *Southwest*

*Regulatory Data Summary:* This property dual listed on both the LUST and SLIC databases. Based on information available on the website GeoTracker, the property reported a release on June 22, 2004, and case number 01-0001 was opened with the SFBRWQCB. The release reportedly impacted both soil and groundwater. The chemicals of concern include chlorinated solvents, PCE, pesticides and herbicides. No other information is available at this time. The case is listed as being open, but is currently inactive, as of April 17, 2009, no other information is available at this time. (RWQCB, 2015)

*Discussion:* Given the regulatory status of this property as "inactive", its cross-gradient location, with respect to groundwater flow, and its distance from the Site, there is a low likelihood that this property would have a negative environmental impact on the Site.

### 4.1.15 UST and AST Databases: Distance Searched – 0.25 mile

The UST database contains registered USTs regulated under Subtitle I of RCRA. The data comes from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

The Site was not listed in this database. One property, **Valero Store #7200** (1894 University Avenue, 0.15 miles northwest) was listed on the database as being located within 0.25 mile of the site. Based on the fact that this property is not the site of a documented release and is not listed on any other environmental databases, there is a low likelihood that this property would have a negative environmental impact on the Site.

### 4.1.16 State Voluntary Cleanup Programs (VCPs): Distance Searched – 0.5 mile

The State VCP database lists low threat level properties with either confirmed or unconfirmed releases. Project proponents have requested that the DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Neither the site nor any other properties located within a 0.5-mile radius of the site were listed in this database.

### 4.1.17 Additional Environmental Databases

The Site was listed twice in HAZNET database. According to records provided by EDR, the Site reportedly disposed of asbestos containing waste and household waste, in 1993 and in 2006, respectively. The Site was not listed under any of the other additional environmental databases.

67 properties were identified in the additional databases within one half mile of the Site. Many of the listings are duplicate listings or were described in a previous section. Of the additional

listings, none, except for those described above, were likely to have a negative environmental impact on the Site.

### 4.1.18 EDR High Risk Historical Records

This section includes listings of potential gas station/filling station/service station establishments. This category includes, but is not limited to gas stations, filling stations, fuel service stations, automobile repair, auto service stations, etc. This section also includes establishments that may have been cleaners, dry cleaners, laundries, laundromats, etc.

The Site was listed in one of the EDR proprietary databases as the location of a former gasoline service station, the listing is as follows:

**Fairchild and White (the Site)**
**1999 Center Street (former address for the Site), Berkeley CA**
*Approximate Distance from the Property:* NA – the Site
*Assumed Groundwater Gradient*: *Southwest*
*Regulatory Data Summary:* The Site was listed, under its former address, 1999 Center Street, as the former location of a gasoline service station known as Fairchild and White. The gasoline service station reportedly operated on Site in 1947. No other information was provided by EDR regarding this matter. (EDR, 2014a)
*Discussion:* Based on the nature of the listing, as a gasoline service station, and the time period that this service station operated at the Site, in 1947, and due to the likely historical presence of USTs and the possibility that petroleum products were released beneath the property potential historical REC cannot be ruled out.

53 other properties were listed in this database within 0.25 miles of the Site on both of the EDR Historical Auto Stations and EDR Historical Cleaners Databases. Of the additional listings the following five historical listings were identified within close proximity to the site:

**Tucker L R**
**2135 Milvia Street, Oakland CA**
*Approximate Distance from the Property:* 0.01 miles east
*Assumed Groundwater Gradient*: *Southwest*
*Regulatory Data Summary:* This property is listed as the historical location of an automobile repair and service station. The listing states Tucker L R operated at this location in 1928. This property is located adjacent to the east of the Site. No other information is available at this time. *Discussion:* Based on the nature of the listing, as a gasoline service station, and the time period that this service station operated at the Site, in 1928, and due to the likely historical presence of USTs and the possibility that petroleum products were released beneath the property, a potential historical REC cannot be ruled out.

**Sousa A A**

**2125 Milvia Street, Oakland CA**

_Approximate Distance from the Property:_ 0.02 miles north-northeast

_Assumed Groundwater Gradient_: *Southwest*

_Regulatory Data Summary:_ This property is listed as the historical location of an gasoline and service station. The listing states **Sousa A A** operated at this location in 1943. This property is located adjacent to the northeast of the Site. No other information is available at this time. _Discussion:_ Based on the nature of the listing, as a gasoline service station, and the time period that this service station operated at the Site, in 1943, and due to the likely historical presence of USTs and the possibility that petroleum products were released beneath the property, a potential historical REC cannot be ruled out.

**Smithburn G E**

**2000 Center Street, Oakland CA**

_Approximate Distance from the Property:_ 0.02 miles southeast

_Assumed Groundwater Gradient_: *Southwest*

_Regulatory Data Summary:_ This property is listed as the historical location of an automobile repair and service station. The listing states Smithburn G E operated at this location in 1933. This property is located adjacent to the southeast of the Site. No other information is available at this time. _Discussion:_ Based on the nature of the listing, as a gasoline service station, and the time period that this service station operated at the Site, in 1933, and due to the likely historical presence of USTs and the possibility that petroleum products were released beneath the property, a potential historical REC cannot be ruled out.

**Center Service Station**

**2145 Milvia Street, Oakland CA**

_Approximate Distance from the Property:_ 0.02 miles southeast

_Assumed Groundwater Gradient_: *Southwest*

_Regulatory Data Summary:_ This property is listed as the historical location of an automobile repair and service station. The listing states Tucker L R operated at this location in 1933. This property is located nearby, to the southeast of the Site. No other information is available at this time. _Discussion:_ Based on the nature of the listing, as a gasoline service station, and the time period that this service station operated at the Site, in 1933, and due to the likely historical presence of USTs and the possibility that petroleum products were released beneath the property, a potential historical REC cannot be ruled out.

**Bertin S Cleaners and Dyers**

**2020 Milvia Street, Oakland CA**

_Approximate Distance from the Property:_ 0.01 miles northeast

_Assumed Groundwater Gradient_: *Southwest*

_Regulatory Data Summary:_ This property is listed as the historical location of a garment, curtain and draperies cleaner. The listing states the cleaner operated at this location in 1933. This property is located to the north (cross gradient) of the Site. No other information is available at this time. *Discussion:* Based on the nature of the listing, as a cleaner and dyer, the up-gradient location and the time period that this cleaner operated at the Site, 1933, and due to the likely historical presence of cleaning and dyeing chemicals at this property, a potential historical REC cannot be ruled out.

## 4.2 Additional Environmental Record Sources

In addition to EDR review, Terraphase contacted additional local environmental record sources as described in the following subsections.

### 4.2.1 Department of Toxic Substances Control

Terraphase reviewed the DTSC's Envirostor database (www.envirostor.dtsc.ca.gov/public). Information collected from Envirostor is discussed throughout Section 4.1.

### 4.2.2 Regional Water Quality Control Board

Terraphase reviewed the GeoTracker database (http://geotracker.swrcb.ca.gov/). Information collected from GeoTracker is discussed throughout Section 4.1.

### 4.2.3 Berkeley Toxics Management Department

On January 30, 2015, Terraphase contacted the Berkeley Toxics Management Department for information related to the Site – the Toxics Management Department is located at 2118 Milvia Street and is very familiar with the building. Mr. Karl Busche of the Department indicated that he knew of no environmental hazards in the building.

### 4.2.4 City of Berkeley Fire Department

The City of Berkeley Fire Department was contacted regarding the Site. As of the writing of this report, Terraphase has not heard back from them.

### 4.2.5 City of Berkeley Public Works Agency

A review of building permits back through 2004 did not indicate that any environmental remediation had been performed at the building. No records are available from before 2004.

## 4.3 Historical Use Information on the Property and Adjoining Areas

The following information is based on the review of aerial photographs, building department records, USGS Topographic maps, and city directories.

### 4.3.1 Aerial Photograph Review

Terraphase reviewed aerial photographs provided by EDR that are included in Appendix C (EDR 2014e). Aerial photographs were reviewed for the following years:

Date: 1939
Scale: 1”=500’

Date: 1946
Scale: 1”=500’

Date: 1950
Scale: 1”=500’

Date: 1958
Scale: 1”=500’

Date: 1968
Scale: 1”=500’

Date: 1974
Scale: 1”=500’

Date: 1980
Scale: 1”=500’

Date: 1993
Scale: 1”=500’

Date: 1998
Scale: 1”=500’

Date: 2005
Scale: 1”=500’

Date: 2009
Scale: 1”=500’

Date: 2010
Scale: 1”=500’

Date: 2012
Scale: 1”=500’

The 1939 aerial photograph shows that the Site was developed as a gasoline service station. The northern portion of the Site appears to be a parking lot. The adjacent property to the north appeared with limited structural development. The adjacent properties to the south, southeast and west appear to be developed with commercial structures. The adjacent property to the east appeared with limited structural development and areas for vehicle parking. The Site is situated on the northwest corner of the intersection of Center Street and Milvia Street, Center Street borders the Site to the south and Milvia Street borders the Site to the east. The surrounding area appeared with a mix of commercial and residential development.

The 1946 aerial photograph shows the Site has been developed, apparently as a gasoline service station, with a single structure, located in the western portion of the Site, and a driveway/parking area, located in the northern and eastern portions of the Site. The adjacent property to the north appeared to be utilized as a parking area. The adjacent property to the south is not clearly visible due to the resolution of the photograph, but appeared to be developed with a large structure and a surrounding landscaped area. The adjacent property to the east appeared to be developed with two small structures and a driveway/parking area and was possibly utilized as a gasoline service station.

The 1968 aerial photograph shows the site has been developed with what appeared to be a single structure. Properties to the north and southeast appeared to be developed with asphalt parking lots. Properties to the south and east appeared as in the previous photograph.

In the 1974 aerial photograph, the Site all surrounding properties appeared to be developed with multi-story structures. A portion of the adjacent property to the east is developed with a parking lot, but does not appear to be configured as a gasoline service station. Due to poor resolution, the 1980 photograph did not allow for detailed analysis of the Site or surrounding properties.

In the 1990 aerial photograph, the Site and surrounding properties appeared as they did in the previous photograph, except adjacent property to the east is now developed with a multi-story structure. Due to poor resolution the 1998 photograph did not allow for detailed analysis of the Site or surrounding properties.

In the 2005, 2009, 2010 and 2012 aerial photographs, the Site appeared in its current configuration, and is developed with a multi-story structure. The adjacent property to the north appeared to be developed with a parking lot, followed by a multi-story structure. To the south the Site is bound by Center Street, followed by a multi-story structure. To the east, the Site is bound by Milvia Street, followed by a multi-story structure. The adjacent properties to the west and southeast are developed with multi-story structures. Areas to the north, south and east and west generally appeared with commercial development and areas further to the west appeared with both residential and commercial development.

### 4.3.2 Sanborn Fire Insurance Maps

Sanborn Fire Insurance maps were developed in the late 1800s and early 1900s for use as an assessment tool for fire insurance rates in urbanized areas. Sanborn maps from 1890, 1894, 1903, 1911, 1929, 1950, and 1980 were reviewed (EDR, 2014c) and are included with this report in Appendix C.

The Sanborn maps from 1890 and 1894 and 1903 show that the Site was undeveloped land located in the vicinity of Strawberry Creek, a seasonal watercourse. Milvia Street had not yet been developed east of the Site. In the 1903 map the adjacent property west of the Site appeared to be developed with a F. W. Foss Lumberyard and associated improvements.

The 1911 map depicts the Site as undeveloped land surrounded by residential development to the north, the F. W. Foss Lumber Company to the west and the development of Milvia Street to the east and Center Street to the south. The 1929 map shows the Site as undeveloped land. Notable surrounding land uses include a lumberyard with fuel storage (west), and a gasoline/oil/auto service station (east). There are two additional gas/oil service stations located further to the north and to the south, respectively.

1950 Sanborn map shows that the Site has been developed with a gas and oil service station. The property to the north remains undeveloped, followed by residential development. Both of the adjacent properties to the east and southeast appeared to be developed gas/oil service stations. The lumberyard to the west has been replaced by an insurance office building and the property to the south is developed with a credit office building.

The Sanborn Map from 1980 shows the property in its current configuration, developed with a parking area and offices. Uses of surrounding properties includes offices (west), the Berkeley Center Building (southeast), and the Civic Center Building (south).

### 4.3.3 Property Tax Files

Property tax information was not deemed sufficiently useful to the purpose of this Phase I ESA and, therefore, was not researched for the Site or surrounding properties.

### 4.3.4 Recorded Land Title Records

Environmental liens and activity and use limitations were not found in connection with the deeds for the Site (EDR 2014f).

### 4.3.5 Historical USGS Topographic Map

Terraphase reviewed topographic maps provided by EDR that are included in Appendix C (EDR 2014b). Topographic maps were reviewed for the following years:

Date: 1895
Scale: 1:62,500

Date: 1915
Scale: 1:62,500

Date: 1948
Scale: 1:50,000

Date: 1949
Scale: 1:24,000

Date: 1993
Scale: 1:24,000

Date: 1968
Scale: 1:24,000

Date: 1973
Scale: 1:24,000

Date: 1980
Scale: 1:24,000

The 1899 15-minute USGS topographic map (San Francisco Quadrangle EDR 2014b) of the Site shows that Milvia Street had not yet been advanced between Center Street and Alston Way. There is a structure shown on the Site which likely would have been torn down or moved when Milvia was advanced between Center Street and Alston Way. Strawberry Creek is shown as an above-ground ephemeral stream.

The 1915 15-minute USGS topographic map (San Francisco Quadrangle EDR 2014b) shows that Milvia Street had been completed, Strawberry Creek had been undergrounded and the Site was vacant.

The 1948 and 1949 topographical maps depict the Site as being located within the boundaries of the City of Berkeley and shows structural development in the surrounding area. In The 1959 topographic map, the Site appeared in the same manner as in the 1949 map, however, the adjacent property to the west of the Site appeared to be developed with a new structure.

In the 1968 topographical map, the Site appeared as it did in the 1959 map. The adjacent property to the south appeared to be developed with a new structure and a park. There is no change to the development of the Site or surrounding properties in the subsequent topographical maps from 1973, 1980 and 1993. (EDR, 2014b)

### 4.3.6 City Directories

In the 1943 directory provided in the EDR City Directory Abstract, under its former address, 1999 Center Street, the Site was identified to be occupied by a gas station known as Fairchild and White which is considered an occupant of concern. In the next directory listing at that address, from 1975, the Site was associated with a commercial occupant, the Lind-Waldock Company. (EDR, 2014d)

The Site was first listed under its current address, 2118 Milvia Street in 1970. From 1970 through 2008 the listings indicate that the site was occupied with various commercial occupants, most likely as an office building, which is consistent with its current use.

The adjacent property to the east, addressed 2125 Milvia Street, was reportedly occupied by a gasoline service station/garage known as the Sportsmen Garage, from 1938 to 1945. The site is also known as **A A Sousa** and is discussed in section 4.1.18 of this report and is shown as the location of a gasoline service station in the 1950 Sanborn map of the area. (EDR, 2014c,d)

The adjacent property to the southeast of the Site, was known by several addresses including 2135, 2145, and 2171 Milvia Street. This property was occupied by various types of automobile/gasoline service stations and garages from 1925 until at least 1962. The 2135 Milvia Street address is associated with the Civic Center Garage in 1925 and as a radiator repair facility in 1928. The 2145 address is associated with center Service Station in 1933. The 2171 Milvia treet address is associated with Ogle Automotive Service in 1945 and 1950; a Texaco Branded service station in 1955; and Jess & Dick's Automotive Service in 1962. (EDR, 2014d)

The adjacent property to the west, 1977-1991 Center Street, was identified as the site of the Foss Lumber/Wood/Coal Company from 1920 until at least 1945. By 1950 the property appeared to be addressed 1947 Center Street and was likely developed with an office building. This property was occupied by various commercial entities, including and insurance agency, until 2008. (EDR, 2014d)

### 4.3.7 Building Department Records

Terraphase reviewed information provided in the EDR Building Permit List Report (EDR 2014g) in order to establish past Site uses based on historical building permit information. Permit information for the Site, from the City of Berkeley Planning and Development Department, dating from November 1993 through January 2012, was reviewed for any changes or additions to the Site. Building permits were examined for any Site improvements which would indicate a change in Site use or any additions that would indicate a potential environmental concern, such as the installation of USTs, sumps or clarifiers. (EDR, 2014g)

A total of 32 permits were on file for the Site. The permits on file include various plumbing, electrical, building, mechanical, alteration, seismic retrofit, public works and fire alarm permits. The permits appeared to concern various site improvements and remodels that would be consistent with the Site use as an office building, including replacement of doors, non-load bearing walls, plumbing, wiring and signage. None of the permits listed indicated a change in Site use or a potential environmental concern. (EDR, 2014g)

### 4.3.8 Zoning Land Use Records

According to the Land Use Zoning Districts map available through the City of Berkeley website, the Site is zoned as Commercial – Downtown Mixed Use District (C-DMU) Buffer. Within the C-DMU buffer zone, the City Zoning ordinance (23E.68) limits building heights to between 50 and 60 feet. New buildings of more than 20,000 square feet are required to attain LEED Gold status.

### 4.3.9 Other Historical Sources

No prior reports related to environmental investigations at the Site were provided.

### 4.3.10 Prior Assessment Usage

No prior reports related to environmental investigations at the Site were provided.

# 5.0 SITE RECONNAISSANCE

## 5.1 Methodology and Limiting Conditions

The site reconnaissance consisted of observations of: the property and improvements, adjoining sites as viewed from the property, and the surrounding area based on visual observations made during the trip to and from the property. A photograph log containing select photographs taken during the Site reconnaissance is included in Appendix D.

On January 23, 2015, Jennifer Repa of Terraphase conducted the inspection of the Site. Jennifer Repa was accompanied by Aileen Dolby during the reconnaissance.

## 5.2 General Site Setting

### 5.2.1 Current Use of the Property and General Observations

The Site is currently occupied by the City of Berkeley Planning and Development Department (the "Department"). The Department leases the entire building.

## 5.3 Interior and Exterior Observations

### 5.3.1 Hazardous Substance Use, Storage, and Disposal

Cleaning products were observed in various janitor closets. The building was constructed in 1966, so it should be presumed that chemical solvent cleaners have been used at the building.

### 5.3.2 Underground Storage Tanks and Aboveground Storage Tanks

No underground storage tanks were observed.

### 5.3.3 Odors

No strong, pungent, or noxious odors were noted during the Site reconnaissance.

### 5.3.4 Pools of Liquid

No pools of liquid or heavily stained pavement were observed. Stained drop ceiling panels were observed on the second and third floors.

### 5.3.5 Drums

No drums were observed.

### 5.3.6 Other Petroleum Products

No other petroleum products were observed.

### 5.3.7 Unidentified Substance Containers

No unidentified substance containers were observed.

### 5.3.8 Polychlorinated Biphenyls (PCBs)

Terraphase understands that a hazardous building materials survey of the building was conducted by others.

### 5.3.9 Heating and Cooling

Located on the roof.

### 5.3.10 Stains or Corrosion

None observed.

### 5.3.11 Sumps and Floor Drains

None observed.

### 5.3.12 Waste Pits, Ponds and Lagoons

None observed.

### 5.3.13 Stained Soil or Pavement

None observed.

### 5.3.14 Stressed Vegetation

None observed.

### 5.3.15 Nonhazardous Solid Waste

City of Berkeley trash containers in an enclosed space.

### 5.3.16 Wastewater

City of Berkeley sanitary sewer.

### 5.3.17 Wells

None observed.

### 5.3.18 Septic Systems

None.

### 5.3.19 Stormwater Management System

City of Berkeley storm sewers.

# 6.0 INTERVIEWS

A Phase I ESA Questionnaire was provided to Aileen Dolby, a representative of the current Site owner. As of the writing of this report, Aileen Dolby has not returned the completed the Phase I ESA Questionnaire.

## 6.1 Interviews with Occupants

Interviews of previous Site occupants were not conducted as part of the Phase I ESA.

## 6.2 Interviews with Local Government Officials

Interviews with local government officials were conducted in connection with the additional environmental records review as described in Section 4.2. No other local government officials were contacted as part of the Phase I ESA.

# 7.0 VAPOR ENCROACHMENT SCREENING

ASTM Standard E2600-10 Standard Guide for Vapor Encroachment Screening (VES) on Property Involved in Real Estate Transactions was used as guidance for conducting a VES for the subject property. The purpose of the screening is to determine whether a Vapor Encroachment Condition (VEC) exists from chemicals of concern (COC*)* that may migrate as vapors onto a property as a result of contaminated soil and groundwater on or near the subject property. The screening involves a two tiered approach to assessing VEC risk as described below. The VES process includes a review of site conditions (e.g., aerial photographs, city directories, and environmental database information), which is information typically collected during a Phase I ESA, user provided information, and in some instances the use of a third-party vapor encroachment application. The following sections describe the VES performed on the subject property.

## 7.1 Site Conditions

The Site is currently occupied by an office building of 2 and 3 stories with approximately 23,000 square feet of rentable space. The property is located in an area that is characterized by commercial and residential (apartments over first floor retail) development. The Site is zoned as Commercial – Downtown Mixed Use District (C-DMU) Buffer. The Site is bound by Milvia Street to the east, followed by a multi-story commercial structure used as an office building. The Site is bound by Center Street to the south, followed by a multi-story commercial structure used as an office building, occupied by the City of Berkeley. The Site is bound by a parking lot to the north, followed by a multi-story commercial structure used as an office building. The Site is bound by 1947 Center Street to the west – a six story office building used for City of Berkeley business, followed by multi-story commercial structures.

## 7.2 Historical Site Use

The 1899 15-minute USGS topographic map (San Francisco Quadrangle EDR 2014b) of the Site shows that Milvia Street had not yet been advanced between Center Street and Alston Way. There is a structure shown on the Site which likely would have been torn down or moved when Milvia was advanced between Center Street and Alston Way. Strawberry Creek is shown as an above-ground ephemeral stream.

The 1915 15-minute USGS topographic map (San Francisco Quadrangle EDR 2014b) shows that Milvia has been completed, Strawberry Creek has been undergrounded and the Site is vacant. A review of historical aerial photographs and city directories (EDR 2014d,e) indicates that a gasoline service station was located on the Site by 1947. Based on aerial photographs and directory listings, the gasoline service station (Fairchild & White) was located on the Site (with the former address of 1999 Center Street) until before 1968. The 1968 aerial photograph (EDR 2014e) shows the gasoline station had been removed and been replaced with an office building.

The Site remained as an office building, with various commercial occupants, until the present. (EDR, 2014d)

According to available geologic maps of the area, the Site is underlain by quaternary aged sediments classified as the Temescal Formation. The Temescal Formation consists of alluvial fan deposits comprised of interfingering lenses of clayey gravel, sandy silty clay and sand-clay-silt mixtures. The soil beneath the site is classified as the Tierra soil and consists of silt and clay loam with a slow infiltration rate and a high water table (EDR 2014a). Although no depth to groundwater is available for the subject property, depth to groundwater was measured to be 13 feet bgs to 14 feet bgs at a nearby property, addressed 1917 Addison Street, which is located approximately 420 feet northwest of the Site (ES, 1989). Groundwater flow in this zone is estimated to be to the southwest (CERI, 2012).

## 7.3 Tier 1 Screening – Search Distance Test/Chemicals of Concern

A Tier 1 Screening includes the search distance test that involves a review of the regulatory database report and available historical records obtained during the Phase I ESA process to make a determination if any *known or suspect potentially contaminated* properties exist within the Area of Concern (AOC). High risk sites are typically current and former gas stations, former and current dry cleaners, manufactured gas plants, and industrial sites (Brownfields). The AOC is defined as any up gradient sites within the ASTM E1527-13 standard search distances and any cross or down gradient sites within 1/3 mile for solvents and petroleum products.

If the contamination at the known or potentially contaminated sites within the AOC consists of Chemicals of Concern (COCs), then a potential Vapor Encroachment Condition (pVEC) exists, and a Tier 2 Screening evaluation is recommended. If no known or potentially contaminated sites with COCs exist within the AOC, no further inquiry is necessary.

Based on Terraphase's Tier 1 Screening evaluation, three sites were identified within the AOC that were considered to pose a pVEC at the subject property. A summary of the sites is provided below.

1) **The Site** (2118 Milvia Street). A review of historical aerial photographs and city directories (EDR 2014d,e) indicates that a gasoline service station was located on the Site by 1947. Based on aerial photographs and directory listings, the gasoline service station (known as Fairchild & White) was located on the Site (with the former address of 1999 Center Street) until before 1968. The 1968 aerial photograph (EDR 2014e) shows the gasoline station had been removed and been replaced with an office building.

2) **A A Sousa** (2125 Milvia Street), located adjacent to the east of the Site, was the historic location of an automobile/fuel service station, known as both **A A Sousa** and the Sportsmen Garage from 1928 until at least 1950. (EDR, 2014c,d,e)

3) **2135, 2145 and 2171 Milvia Street Sites**.

The adjacent property to the southeast of the Site, was known by several addresses including 2135, 2145, and 2171 Milvia Street. This property was occupied by various types of automobile/gasoline service stations and garages from 1925 until at least 1962. The 2135 Milvia Street address is associated with the Civic Center Garage in 1925, and as a radiator repair facility in 1928. The 2145 Milvia Street address is associated with center Service Station in 1933. The 2171 Milvia Street address is associated with Ogle Automotive Service in 1945 and 1950; a Texaco Branded service station in 1955; and Jess & Dick's Automotive Service in 1962.

4) **Automotive Unlimited** (2020 Addison Street, Berkeley CA)
The site reported a release of gasoline in June 17, 1988. The release reportedly impacted both soil and groundwater. The property is located approximately 400 feet east-northeast of the Site, at an up-gradient location with respect to groundwater flow. Although the property was granted regulatory closure in 1994, because of the aforementioned factors, a potential vapor encroachment issue cannot be ruled out.

## 7.4 Findings

Based on the research performed by Terraphase and the results of the Tier 1 Screening, Terraphase concluded that, a Vapor Encroachment Condition (VEC) cannot be ruled out, because:

1) The Site and to two adjacent properties were the former locations of gasoline service stations. Because of the time period the service stations operated and the proximity of the service stations to the site, Terraphase considers it likely that petroleum products may have been released beneath these sites, potentially impacting groundwater beneath the site and creating a potential vapor encroachment issue.

2) A site with a documented releases of gasoline that impacted both soil and groundwater is located up gradient from the subject property with respect to groundwater flow;

Therefore, a Vapor Encroachment Condition (VEC) exists for the following listings: **The Site** (2118 Milvia Street, formerly known as Fairchild & White gas station, located at the Site's former address, 1999 Center Street), **A A Sousa** (2125 Milvia Street), **2135, 2145 and 2171 Milvia Street Sites** (adjacent to the southeast) and **Automotive Unlimited** (2020 Addison Street, Berkeley CA).

# 8.0 NON-SCOPE SERVICES

As defined pursuant to Section 13.1.5 of the ASTM Standard Practice, the following list includes several non-scope considerations that persons may want to assess in connection with commercial real estate. Non-scope considerations are considered beyond the scope of standard practice and no assessment of such non-scope considerations is required for appropriate as defined by ASTM Standard Practice. No implication is intended as to the relative importance of into such non-scope considerations and the list below is not intended to be all inclusive:

- Testing of building materials for presence of asbestos containing material
- Biological agents
- Cultural and historical resources
- Ecological resources
- Endangered species
- Health and safety
- Indoor air quality unrelated to releases of hazardous substances or petroleum products into the environment
- Industrial hygiene
- Testing of building materials for presence of lead-based paint
- Lead in drinking water
- Mold
- Testing for presence of radon
- Regulatory compliance; and
- Wetlands
- Compliance with AULs

# 9.0 EVALUATION

## 9.1 Findings and Opinions

This section discusses known or suspect environmental concerns, controlled environmental concerns, historical environmental concerns, and de minimis conditions identified during the ESA. This section also provides the opinion(s) of the environmental professional of the impact on the property of RECs identified.

### 9.1.1 Known or Suspect Recognized Environmental Conditions (RECs)

Terraphase identified the following RECs in connection with the Site during the Phase I ESA:

- REC-1: A gasoline station was formerly located on the property. Because of the age of the gasoline station and the date of its closure, prior to the enactment of the Resource Conservation and Recovery Act (RCRA), the gasoline station would not have been closed under regulatory oversight and it is likely that petroleum products were released into the subsurface at the Site.

- REC-2: In addition to the gasoline station on the property, there were also gasoline stations on the northeast and southeast corners of the intersection of Center Street and Milvia Street which are upgradient of the Site. Because of the age of the gasoline stations and the dates of their closure, prior to the enactment of RCRA, it is likely that petroleum products were released into the subsurface at their locations. Groundwater is fairly shallow at the Site, and hence, if petroleum products were released at the adjacent former gasoline stations, it is likely that the petroleum products would have migrated under the Site, creating a potential vapor encroachment condition.

- REC-3: A property, located at 2020 Addisson Street, approximately 400 feet northwest of the Site, reported a release of gasoline that impacted both soil and groundwater. Because of this property’s proximity and up-gradient location with respect to groundwater flow, to the Site and the possibility that contaminated groundwater from this property may have migrated beneath the Site, a potential vapor encroachment issue cannot be ruled out.

No other recognized environmental conditions (RECs) were identified in connection with the Site.

### 9.1.2 Controlled RECs

Terraphase did not identify any controlled RECs (CRECs) in connection with the Site during this Phase I ESA.

### 9.1.3 Historical RECs

Terraphase did not identify any historical RECs (HRECs) in connection with the Site during this Phase I ESA.

### 9.1.4 De Minimis Conditions

De minimis conditions were identified including:

- Stained drop ceiling panels on the second and third floor.

## 9.2 Data Gaps

There were likely underground storage tanks associated with the former Fairchild and White gasoline service station on the Site. It is unknown if the tanks were removed from the Site or abandoned in place.

## 9.3 Conclusions

Terraphase has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E527 of the Site. Any exceptions to, or deletions from this practice are described in Section 1.0 of this report. This assessment has identified the RECs summarized in Section 9.1 in connection with this property.

## 9.4 Additional Services

To investigate the impacts from the RECs identified in Section 8.1.1 above, Terraphase recommends:

- Collecting three (3) subslab soil gas samples from below the building foundation and assessing the samples for petroleum hydrocarbons, volatile organic compounds and methane.

Soil gas samples may not detect significant degraded petroleum hydrocarbons remaining in soil. If the District is considering excavations for a basement or subsurface parking garage, collecting soil samples from below the building may be appropriate. If the soil gas concentrations of the constituents of concern are elevated above environmental screening levels, additional environmental sampling may be warranted.

## 9.5 Deviations

No significant deviation from ASTM 1527-13 guidelines or the scope of work as described in Terraphase’s proposal to the client occurred.

## 9.6 Signature(s) and Environmental Professional(s) Statement

The environmental assessment described herein was conducted by the undersigned employees of Terraphase. The assessment consisted solely of the activities described in the Introduction of this report, and was performed in accordance with the ASTM Designation E 1527-13 guidelines for Phase I Environmental Site Assessments and the Terms and Conditions of the Standard Consulting Services Agreement signed prior to initiation of the assessment, as applicable. The assessment was conducted in a manner consistent with the level of care and skill ordinarily exercised by professional engineers, professional geologists and environmental scientists.

I/we declare that, to the best of our professional knowledge and belief, I/we meet the definition of environmental professional as defined in §312.10 of 40 Code of Federal Regulations (CFR) 312, and I/we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I/we have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

| | |
|---|---|
| Jeff Raines (C51120)<br>Principal Engineer | Date |

# 10.0 REFERENCES


ASTM 1527. 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

Baker, Josephine. 1914. Past and Present of Alameda County, California, Volume 2. SJ Clarke Publishing Company. Chicago.

California Department of Toxic Substances (DTSC), Website (http://www.envirostor.dtsc.ca.gov/public/), EnviroStor database. January 23.

California Division of Mines and Geology (CDMG), 2002 California Geological Survey, California Geomorphic Provinces Note 36, Electronic Copy, Revised December 2002. January 23.

CA Geological Survey, (CGS) 2010 Geologic map of California http://www.quake.ca.gov/gmaps/GMC/stategeologicmap.html. January 23.

California Regional Water Quality Control Board – San Francisco Region - Region 2, 1994, Water Quality Control Plan - Colorado River Basin: California State Water Resources Control Board Publication. Amended in 2013.

Department of Toxic Substances Control. 1987. Letter to Art Kapoor of Art Kapoor Realty from Dwight Hoenig, Chief North Coast California Section. December 18.

Engineering Science Incorporated, (ES) May 1989. Groundwater Sampling at the Promenade Development Site, 1917 Addison, Street, Berkeley California. January 26.

Environmental Data Resources Inc. (EDR). 2014a. EDR Radius Map Report with GeoCheck. #4167666.2. December 22.

________. 2014b. EDR Historical Topographic Map Report. #4167666.4 December 22.

________. 2014c. Certified Sanborn Map Report. #4167666.3. December 22.

________. 2014d. EDR - City Directory Abstract. #4167666.5. December 22.

________. 2014e. EDR Aerial Photo Decade Package. #4167666.11. December 22.

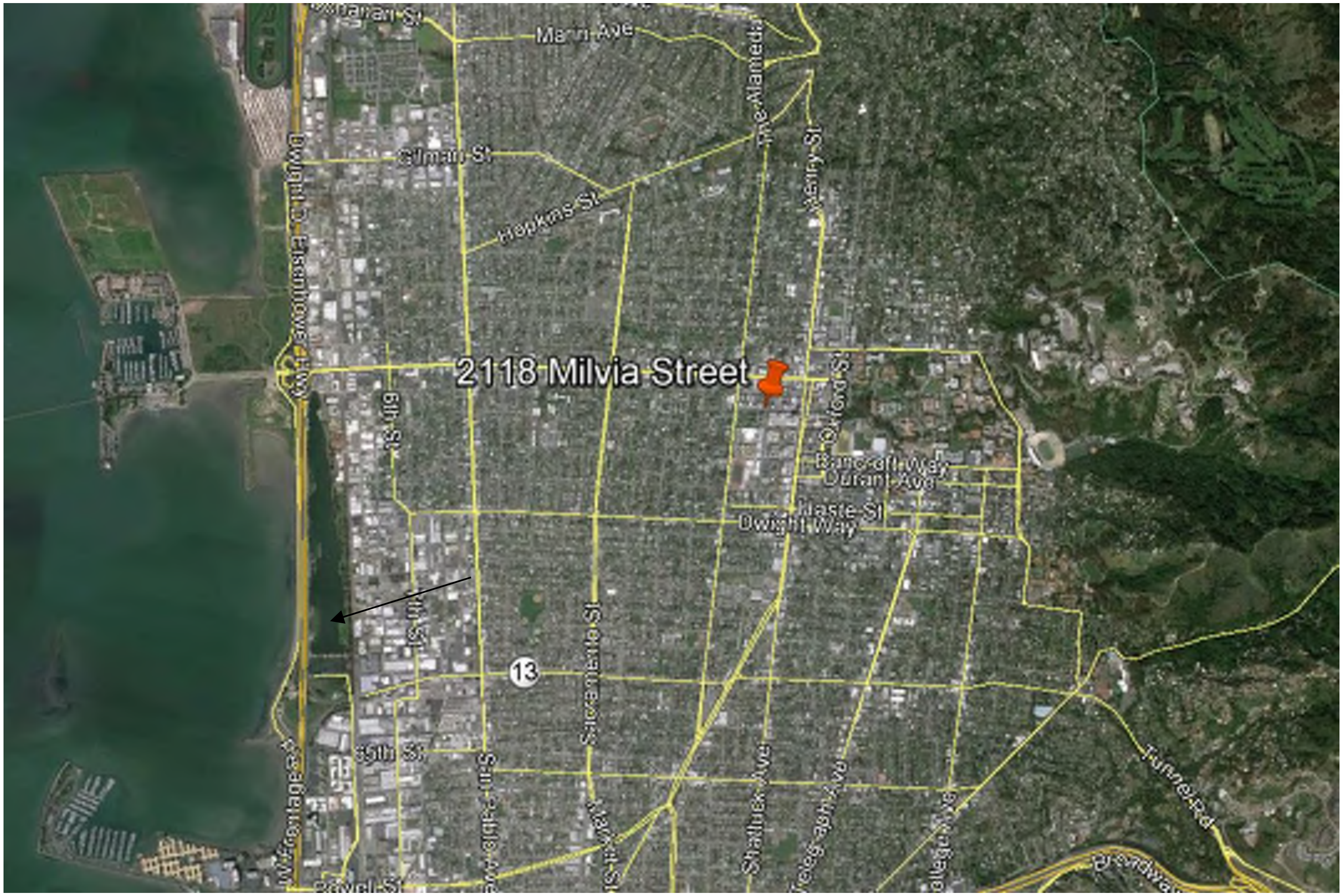
________. 2014f. Environmental Lien and AUL Search. #4167666.7. December 22.

________. 2014g. EDR Building Permit Report. #4167666.8. December 22.

________. 2014h. Tax Map Report. #4167666.6. December 22.

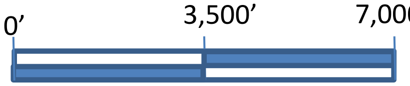
State Water Resources Control Board, Website (SWRCB) GeoTracker database, (http://www.geotracker.swrcb.ca.gov/). January 26.

USGS. 1957. Aerial and Engineering Geology of the Oakland west quadrangle, CA. By Radbruch, D.H. Miscellaneous Geologic Investigations Map I-239. USGS National Geologic Map Database Website. http://ngmdb.usgs.gov/ngm-bin/pdp/zui_pdpViewer.pl?id=19733. January 23.



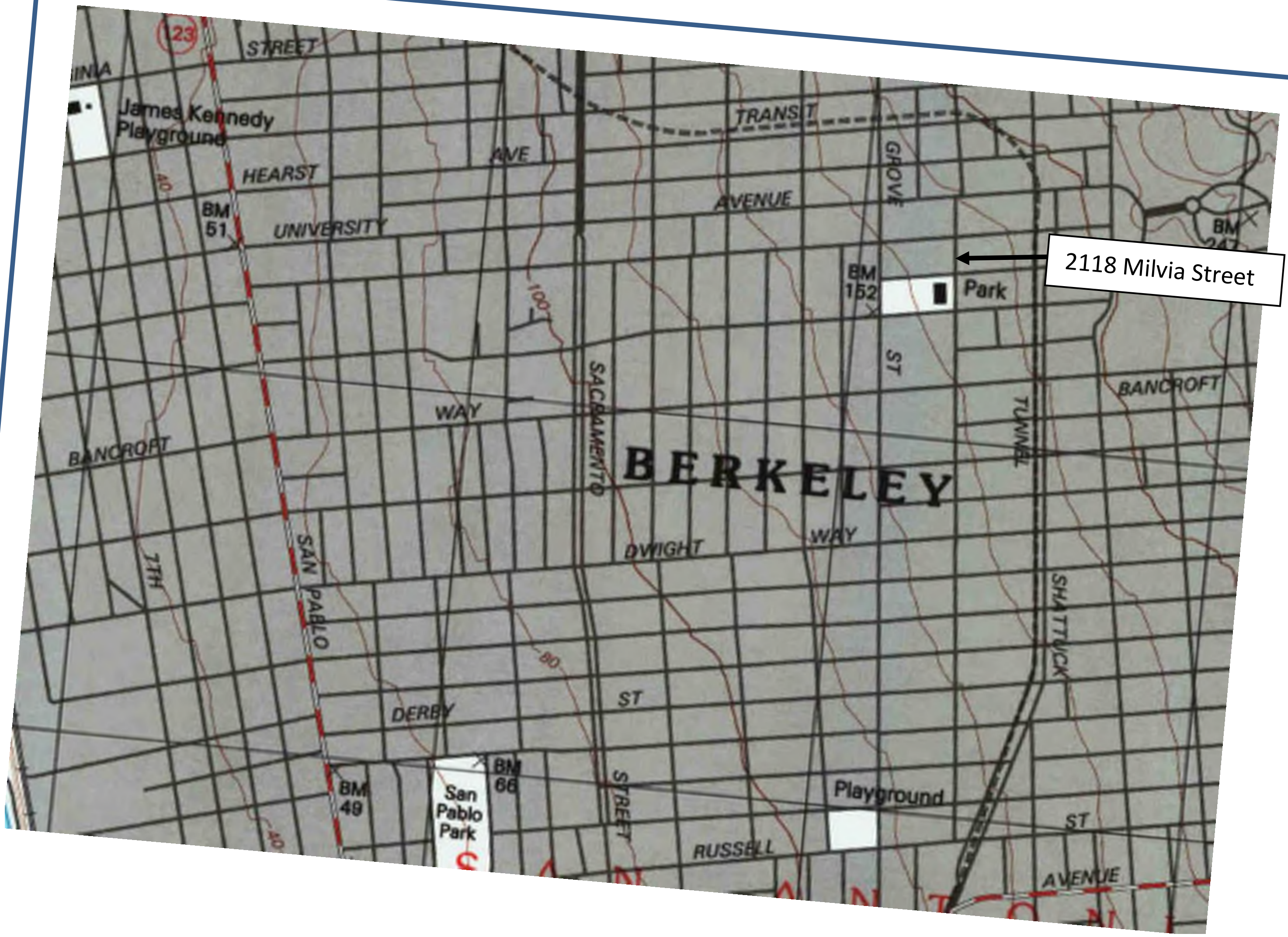


Source: GoogleEarth Professional

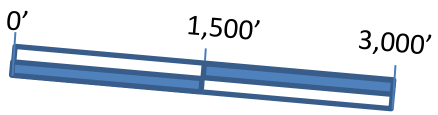




| SAFETY FIRST | CLIENT: Peralta Community College Dist | SITE LOCATION |
|---|---|---|
| terraphase engineering | PROJECT: 2118 Milvia Street | |
| | PROJECT NUMBER: 0034.001.001 | FIGURE 1 |

File Name: figure 1 - site location.docx drawn by: jrr checked by: ag




Source: USGS 7.5-minute quadrangle, Oakland West, 1993


| | | | |
|---|---|---|---|
| **SAFETY FIRST** | CLIENT: Peralta Community College Dist | | **LOCAL TOPOGRAPHY** |
| terraphase engineering | PROJECT: 2118 Milvia Street | | |
| | PROJECT NUMBER: 0034.001.001 | | **FIGURE 2** |

File Name: figure 2 -topography.docx drawn by: jrr checked by: ag

Appendix A

# Qualifications of Environmental Professionals

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Jeff Raines is a registered professional engineer in the State of California with over 34 years of experience in site characterization, remediation, project management, permitting, and agency interaction on projects throughout the United States. He has worked on investigation, remediation, and monitoring programs for sites affected by volatile organic compounds, petroleum hydrocarbons, organochlorine pesticides, polychlorinated biphenyls, metals, and munitions and explosives of concern. Her experience includes design, installation oversight, and operation and maintenance of a variety of soil and groundwater remedial technologies. He also has extensive experience in preparing technical reports in accordance with local and federal guidelines and regulations.

# Soil Gas Survey

March 27, 2015

Ms. Atheria Smith
Peralta Community College District
Facilities Planning and Development Manager
333 East Eighth Street
Oakland, California 94606

*sent via: email*

Subject: Soil Gas Survey Results, 2118 Milvia Street, Berkeley, California

Dear Ms. Smith:

Terraphase Engineering Inc. (Terraphase) is pleased to present the results of our soil gas survey conducted at 2118 Milvia Street in Berkeley, California (the "Site"). Benzene was detected in one soil gas sample collected at the Site at a concentration below the Regional Water Quality Control Board (RWQCB) Environmental Screening Level (ESL) (RWQCB 2013) and below the Department of Toxic Substances Control (DTSC) California Human Health Screening Level (CHHSL) (OEHHA 2005) - 12 micrograms per cubic meter (ug/m3) versus the ESL of 42 ug/m3 and the CHHSL of 36.2 ug/m3 for shallow soil gas under a residential exposure. Students, staff and teachers at the Site would be exposed to the potential vapor impacts for a much shorter duration than a resident. The residential ESL is based on the assumption that the resident would be exposed 350 days per year for 30 years, 24-hours per day.

**Methodology**

Terraphase installed three soil gas sampling points at the locations shown on attached Figure 1 on March 6, 2015. As the sample points were installed with a hand auger, the soil gas samples could not be collected for a minimum of 48 hours to be in accordance with the Department of Toxic Substances Control (DTSC) soil gas sampling protocol (DTSC 2011). Soil gas samples were collected from soil gas sampling points 1 and 2 on March 13, 2015. The soil gas samples were collected under a shroud that contained helium at an approximate concentration of 20% to serve as a leak detection gas. The formation at the location of the third soil gas point was too tight to allow for collection of a soil gas sample.

The soil-gas samples were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method TO-15. Samples were also analyzed for helium by American Society for Testing and Materials (ASTM) modified Method D-1946 with an analytical reporting limit of approximately 500 parts per million by volume (ppmv) to determine if the sample was compromised due to leaks in the sampling train.

**Results**

The laboratory results are attached to this letter. Only meta and para xylene (m,p-xylene), benzene, ethanol (ethyl alcohol), and acetone were detected in soil gas samples collected at the Site. Ethanol and acetone, which are not significant inhalation health threats, are probably laboratory contaminants. Benzene and m,p-xylenes are probably indications of a release of petroleum hydrocarbons somewhere in the vicinity of the Site, though not necessarily at the Site. Benzene was detected in one sample (Soil Gas-1) at a concentration 33% of the CHHSL for residential exposure, which is 36 ug/m3. The commercial/industrial CHHSL for benzene is 122 ug/m3 in shallow soil gas. No chlorinated VOC, such as perchloroethylene (PCE) or trichloroethylene (TCE) were detected in the soil gas samples.

Helium was detected at a concentration of 0.85% in sample Soil Gas-2 indicating that there was some leakage in the sampling train, but less than the 5% that the California Environmental Protection Agency (2010) considers an indication of a significant leak. The oxygen level in both samples was 20%, which indicates that the atmosphere is not oxygen deficient which indicates that significant biodegradation is not occurring at the subsurface in the vicinity of the two sampling points.

Hence, it is unlikely that there are significant quantities of volatile compounds under the Site. Should the existing structure ever be torn down, it is possible that non-volatile substances may be encountered (metals, heavily degraded petroleum). As long as the existing structure remains in place, our opinion is that any subsurface contamination is unlikely to pose a significant threat to the health of occupants of the building.

**Closure**

Terraphase is grateful for the opportunity to provide our services on this important project. If you have any question or comments regarding this report, please feel free to call me at any time at (510) 645-1853.

Sincerely,

For Terraphase Engineering Inc.

Jeff Raines, P.E. (C51120), G.E. (2762)
Principal Geotechnical Engineer

**References**

California Environmental Protection Agency. 2010. Advisory – Active Soil Gas Investigation. March.

Department of Toxic Substances Control (DTSC). 2011. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.LFR. 2009. Additional Soil and Groundwater Investigation Report. Former Plaza Cleaners Facility, 1831 Ygnacio Valley Road (Ygnacio Plaza), Walnut Creek, California. March 20.

Office of Ecological and Human Health Risk Assessment (OEHHA). 2005. Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties. January.

Regional Water Quality Control Board. 2013. Update to Environmental Screening Levels. December 23.

**Table 1**
**Soil Gas Survey Results**
**2118 Milvia Street**
**Berkeley, California**

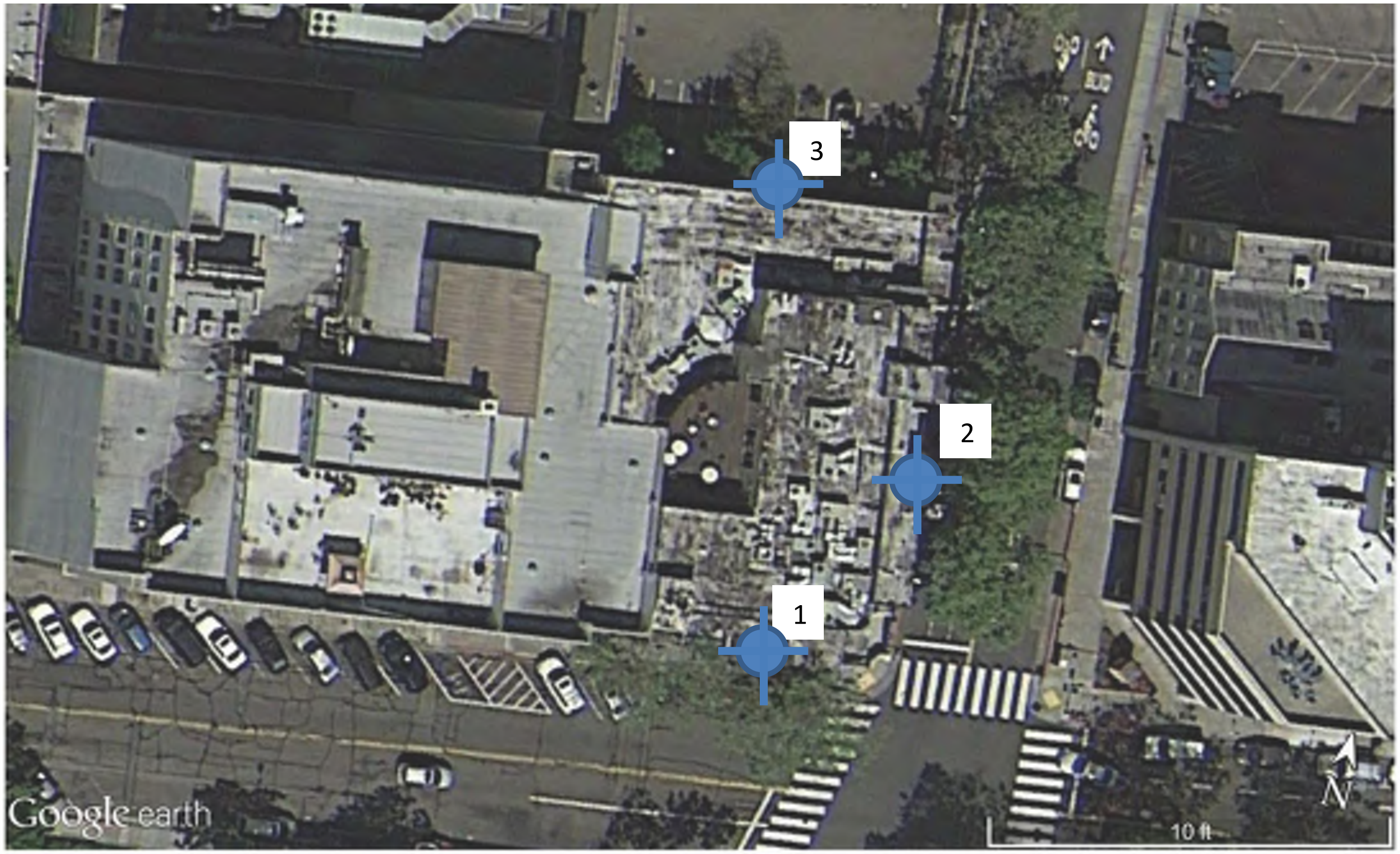
| Sample | Compound Name | Detection Limit (ug/m3) | Results (ug/m3) | Data Flags | Screening Level (ug/m3) | Source |
|---|---|---|---|---|---|---|
| Soil Gas - 1 | m,p-Xylene | 5.1 | 7.3 | | 52,000 | CHHSL |
| Soil Gas - 1 | Benzene | 3.7 | 12 | | 36.2 | CHHSL |
| Soil Gas - 1 | Ethanol | 8.8 | 13 | | | |
| Soil Gas - 1 | Acetone | 28 | 32 | | 16,000,000 | ESL |
| Soil Gas - 1 | 1,1,1-Trichloroethane | 6.4 | | ND | 720,000 | ESL |
| Soil Gas - 1 | 1,1,2,2-Tetrachloroethane | 8.0 | | ND | | |
| Soil Gas - 1 | 1,1,2-Trichloroethane | 6.4 | | ND | | |
| Soil Gas - 1 | 1,1-Dichloroethane | 4.7 | | ND | | |
| Soil Gas - 1 | 1,1-Dichloroethene | 4.6 | | ND | 100,000 | ESL |
| Soil Gas - 1 | 1,2,4-Trichlorobenzene | 35 | | ND | 3,100 | ESL |
| Soil Gas - 1 | 1,2,4-Trimethylbenzene | 5.8 | | ND | | |
| Soil Gas - 1 | 1,2-Dibromoethane (EDB) | 9.0 | | ND | 17 | ESL |
| Soil Gas - 1 | 1,2-Dichlorobenzene | 7.0 | | ND | | |
| Soil Gas - 1 | 1,2-Dichloroethane | 4.7 | | ND | 58 | ESL |
| Soil Gas - 1 | 1,2-Dichloropropane | 5.4 | | ND | 120 | ESL |
| Soil Gas - 1 | 1,3,5-Trimethylbenzene | 5.8 | | ND | | |
| Soil Gas - 1 | 1,3-Butadiene | 2.6 | | ND | | |
| Soil Gas - 1 | 1,3-Dichlorobenzene | 7.0 | | ND | | |
| Soil Gas - 1 | 1,4-Dichlorobenzene | 7.0 | | ND | 110 | ESL |
| Soil Gas - 1 | 1,4-Dioxane | 17 | | ND | | |
| Soil Gas - 1 | 2,2,4-Trimethylpentane | 5.5 | | ND | | |
| Soil Gas - 1 | 2-Butanone (Methyl Ethyl Ketone) | 14 | | ND | 2,600,000 | ESL |
| Soil Gas - 1 | 2-Hexanone | 19 | | ND | | |
| Soil Gas - 1 | 2-Propanol | 12 | | ND | | |
| Soil Gas - 1 | 3-Chloropropene | 15 | | ND | | |
| Soil Gas - 1 | 4-Ethyltoluene | 5.8 | | ND | | |
| Soil Gas - 1 | 4-Methyl-2-pentanone | 4.8 | | ND | | |
| Soil Gas - 1 | alpha-Chlorotoluene | 6.0 | | ND | | |
| Soil Gas - 1 | Bromodichloromethane | 7.8 | | ND | | |
| Soil Gas - 1 | Bromoform | 12 | | ND | | |
| Soil Gas - 1 | Bromomethane | 45 | | ND | 2,600 | ESL |

| Sample | Compound Name | Detection Limit (ug/m3) | Results (ug/m3) | Data Flags | Screening Level (ug/m3) | Source |
|---|---|---|---|---|---|---|
| Soil Gas - 1 | Carbon Disulfide | 14 | | ND | | |
| Soil Gas - 1 | Carbon Tetrachloride | 7.4 | | ND | 29 | ESL |
| Soil Gas - 1 | Chlorobenzene | 5.4 | | ND | 520,000 | ESL |
| Soil Gas - 1 | Chloroethane | 12 | | ND | 16,000,000 | ESL |
| Soil Gas - 1 | Chloroform | 5.7 | | ND | 230 | ESL |
| Soil Gas - 1 | Chloromethane | 24 | | ND | 47,000 | ESL |
| Soil Gas - 1 | cis-1,2-Dichloroethene | 4.6 | | ND | 3,700 | ESL |
| Soil Gas - 1 | cis-1,3-Dichloropropene | 5.3 | | ND | 76 | ESL |
| Soil Gas - 1 | Cumene | 5.8 | | ND | | |
| Soil Gas - 1 | Cyclohexane | 4.0 | | ND | | |
| Soil Gas - 1 | Dibromochloromethane | 10 | | ND | | |
| Soil Gas - 1 | Ethyl Benzene | 5.1 | | ND | 490 | ESL |
| Soil Gas - 1 | Freon 11 | 6.6 | | ND | | |
| Soil Gas - 1 | Freon 113 | 9.0 | | ND | | |
| Soil Gas - 1 | Freon 114 | 8.2 | | ND | | |
| Soil Gas - 1 | Freon 12 | 5.8 | | ND | | |
| Soil Gas - 1 | Heptane | 4.8 | | ND | | |
| Soil Gas - 1 | Hexachlorobutadiene | 50 | | ND | | |
| Soil Gas - 1 | Hexane | 4.1 | | ND | | |
| Soil Gas - 1 | Methyl tert-butyl ether | 4.2 | | ND | 4,700 | ESL |
| Soil Gas - 1 | Methylene Chloride | 41 | | ND | 2,600 | ESL |
| Soil Gas - 1 | o-Xylene | 5.1 | | ND | 52,000 | CHHSL |
| Soil Gas - 1 | Propylbenzene | 5.8 | | ND | | |
| Soil Gas - 1 | Styrene | 5.0 | | ND | 470,000 | ESL |
| Soil Gas - 1 | Tetrachloroethene | 7.9 | | ND | 180 | CHHSL |
| Soil Gas - 1 | Tetrahydrofuran | 3.4 | | ND | | |
| Soil Gas - 1 | Toluene | 4.4 | | ND | 160,000 | CHHSL |
| Soil Gas - 1 | TPH ref. to Gasoline (MW=100) | 480 | | ND | 30,000 | ESL |
| Soil Gas - 1 | trans-1,2-Dichloroethene | 4.6 | | ND | 31,000 | ESL |
| Soil Gas - 1 | trans-1,3-Dichloropropene | 5.3 | | ND | 76 | ESL |
| Soil Gas - 1 | Trichloroethene | 6.3 | | ND | 300 | ESL |
| Soil Gas - 1 | Vinyl Chloride | 3.0 | | ND | 13.3 | CHHSL |
| Soil Gas - 2 | Toluene | 4.2 | 5.9 | | 160,000 | CHHSL |
| Soil Gas - 2 | Ethanol | 8.3 | 33 | | | |
| Soil Gas - 2 | 1,1,1-Trichloroethane | 6.0 | | ND | 720,000 | ESL |
| Soil Gas - 2 | 1,1,2,2-Tetrachloroethane | 7.6 | | ND | | |

| Sample | Compound Name | Detection Limit (ug/m3) | Results (ug/m3) | Data Flags | Screening Level (ug/m3) | Source |
|---|---|---|---|---|---|---|
| Soil Gas - 2 | 1,1,2-Trichloroethane | 6.0 | | ND | | |
| Soil Gas - 2 | 1,1-Dichloroethane | 4.5 | | ND | | |
| Soil Gas - 2 | 1,1-Dichloroethene | 4.4 | | ND | 100,000 | ESL |
| Soil Gas - 2 | 1,2,4-Trichlorobenzene | 33 | | ND | 3,100 | ESL |
| Soil Gas - 2 | 1,2,4-Trimethylbenzene | 5.4 | | ND | | |
| Soil Gas - 2 | 1,2-Dibromoethane (EDB) | 8.5 | | ND | 17 | ESL |
| Soil Gas - 2 | 1,2-Dichlorobenzene | 6.6 | | ND | | |
| Soil Gas - 2 | 1,2-Dichloroethane | 4.5 | | ND | 58 | ESL |
| Soil Gas - 2 | 1,2-Dichloropropane | 5.1 | | ND | 120 | ESL |
| Soil Gas - 2 | 1,3,5-Trimethylbenzene | 5.4 | | ND | | |
| Soil Gas - 2 | 1,3-Butadiene | 2.4 | | ND | | |
| Soil Gas - 2 | 1,3-Dichlorobenzene | 6.6 | | ND | | |
| Soil Gas - 2 | 1,4-Dichlorobenzene | 6.6 | | ND | 110 | ESL |
| Soil Gas - 2 | 1,4-Dioxane | 16 | | ND | | |
| Soil Gas - 2 | 2,2,4-Trimethylpentane | 5.2 | | ND | | |
| Soil Gas - 2 | 2-Butanone (Methyl Ethyl Ketone) | 13 | | ND | 2,600,000 | ESL |
| Soil Gas - 2 | 2-Hexanone | 18 | | ND | | |
| Soil Gas - 2 | 2-Propanol | 11 | | ND | | |
| Soil Gas - 2 | 3-Chloropropene | 14 | | ND | | |
| Soil Gas - 2 | 4-Ethyltoluene | 5.4 | | ND | | |
| Soil Gas - 2 | 4-Methyl-2-pentanone | 4.5 | | ND | | |
| Soil Gas - 2 | Acetone | 26 | | ND | 16,000,000 | ESL |
| Soil Gas - 2 | alpha-Chlorotoluene | 5.7 | | ND | | |
| Soil Gas - 2 | Benzene | 3.5 | | ND | 36.2 | CHHSL |
| Soil Gas - 2 | Bromodichloromethane | 7.4 | | ND | | |
| Soil Gas - 2 | Bromoform | 11 | | ND | | |
| Soil Gas - 2 | Bromomethane | 43 | | ND | 2,600 | ESL |
| Soil Gas - 2 | Carbon Disulfide | 14 | | ND | | |
| Soil Gas - 2 | Carbon Tetrachloride | 7.0 | | ND | 29 | ESL |
| Soil Gas - 2 | Chlorobenzene | 5.1 | | ND | 520,000 | ESL |
| Soil Gas - 2 | Chloroethane | 12 | | ND | 16,000,000 | ESL |
| Soil Gas - 2 | Chloroform | 5.4 | | ND | 230 | ESL |
| Soil Gas - 2 | Chloromethane | 23 | | ND | 47,000 | ESL |
| Soil Gas - 2 | cis-1,2-Dichloroethene | 4.4 | | ND | 3,700 | ESL |
| Soil Gas - 2 | cis-1,3-Dichloropropene | 5.0 | | ND | 76 | ESL |
| Soil Gas - 2 | Cumene | 5.4 | | ND | | |
| Soil Gas - 2 | Cyclohexane | 3.8 | | ND | | |

| Sample | Compound Name | Detection Limit (ug/m3) | Results (ug/m3) | Data Flags | Screening Level (ug/m3) | Source |
|---|---|---|---|---|---|---|
| Soil Gas - 2 | Dibromochloromethane | 9.4 | | ND | | |
| Soil Gas - 2 | Ethyl Benzene | 4.8 | | ND | 490 | ESL |
| Soil Gas - 2 | Freon 11 | 6.2 | | ND | | |
| Soil Gas - 2 | Freon 113 | 8.5 | | ND | | |
| Soil Gas - 2 | Freon 114 | 7.7 | | ND | | |
| Soil Gas - 2 | Freon 12 | 5.5 | | ND | | |
| Soil Gas - 2 | Heptane | 4.5 | | ND | | |
| Soil Gas - 2 | Hexachlorobutadiene | 47 | | ND | | |
| Soil Gas - 2 | Hexane | 3.9 | | ND | | |
| Soil Gas - 2 | m,p-Xylene | 4.8 | | ND | 52,000 | CHHSL |
| Soil Gas - 2 | Methyl tert-butyl ether | 4.0 | | ND | 4,700 | ESL |
| Soil Gas - 2 | Methylene Chloride | 38 | | ND | 2,600 | ESL |
| Soil Gas - 2 | o-Xylene | 4.8 | | ND | 52,000 | CHHSL |
| Soil Gas - 2 | Propylbenzene | 5.4 | | ND | | |
| Soil Gas - 2 | Styrene | 4.7 | | ND | 470,000 | ESL |
| Soil Gas - 2 | Tetrachloroethene | 7.5 | | ND | 180 | CHHSL |
| Soil Gas - 2 | Tetrahydrofuran | 3.2 | | ND | | |
| Soil Gas - 2 | TPH ref. to Gasoline (MW=100) | 450 | | ND | 300,000 | ESL |
| Soil Gas - 2 | trans-1,2-Dichloroethene | 4.4 | | ND | 31,000 | ESL |
| Soil Gas - 2 | trans-1,3-Dichloropropene | 5.0 | | ND | 76 | ESL |
| Soil Gas - 2 | Trichloroethene | 5.9 | | ND | 300 | ESL |
| Soil Gas - 2 | Vinyl Chloride | 2.8 | | ND | 13.3 | CHHSL |

Notes:
ND – not detected
ESL – Environmental Screening Level (RWQCB 2014)
CHHSL – California Human Health Screening Level (OEHHA 2005)
ug/m3 – microgram per cubic meter
Screening level is the lower of the CHHSL or ESL (Residential Exposure)




0 50 100

Scale in feet

N

## LEGEND

2 Approximate soil gas probe location

| SAFETY FIRST | CLIENT: Peralta Community College District | SOIL GAS PROBE LOCATIONS |
|---|---|---|
| terraphase engineering | PROJECT: 2118 Milvia Street, Berkeley | |
| | PROJECT NO.: 0034.002.001 | FIGURE 1 |

File Name: figure 4 - soil gas sampling locations.docx drawn by: jrr checked by: NS

ATTACHMENT 1

## LABORATORY RESULTS

3/24/2015

Mr. William Werner
Terraphase Engineering Inc.
1404 Franklin Street
Suite 600
Oakland CA 94612

Project Name: Peralta C. C.
Project #: 0034.002.001
Workorder #: 1503280A

Dear Mr. William Werner

The following report includes the data for the above referenced project for sample(s) received on 3/17/2015 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kyle Vagadori
Project Manager

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# WORK ORDER #: 1503280A

Work Order Summary

| | | | |
|---|---|---|---|
| **CLIENT:** | Mr. William Werner<br>Terraphase Engineering Inc.<br>1404 Franklin Street<br>Suite 600<br>Oakland, CA 94612 | **BILL TO:** | Mr. William Werner<br>Terraphase Engineering Inc.<br>1404 Franklin Street<br>Suite 600<br>Oakland, CA 94612 |
| **PHONE:** | 510-645-1850 | **P.O. #** | |
| **FAX:** | | **PROJECT #** | 0034.002.001 Peralta C. C. |
| **DATE RECEIVED:** | 03/17/2015 | **CONTACT:** | Kyle Vagadori |
| **DATE COMPLETED:** | 03/24/2015 | | |

| **FRACTION #** | **NAME** | **TEST** | **RECEIPT VAC./PRES.** | **FINAL PRESSURE** |
|---|---|---|---|---|
| 01A | 2118-SG-1 | TO-15 | 4.3 "Hg | 14.8 psi |
| 02A | 2118-SG-2 | TO-15 | 2.6 "Hg | 15 psi |
| 03A | Lab Blank | TO-15 | NA | NA |
| 04A | CCV | TO-15 | NA | NA |
| 05A | LCS | TO-15 | NA | NA |
| 05AA | LCSD | TO-15 | NA | NA |

CERTIFIED BY: Heidi Hayes DATE: 03/24/15

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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**LABORATORY NARRATIVE**
**EPA Method TO-15**
**Terraphase Engineering Inc.**
**Workorder# 1503280A**

Two 1 Liter Summa Canister samples were received on March 17, 2015. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

## Receiving Notes

There were no receiving discrepancies.

## Analytical Notes

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

## Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

# Summary of Detected Compounds
# EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: 2118-SG-1**

**Lab ID#: 1503280A-01A**

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Ethanol | 4.7 | 7.1 | 8.8 | 13 |
| Acetone | 12 | 14 | 28 | 32 |
| Benzene | 1.2 | 3.8 | 3.7 | 12 |
| m,p-Xylene | 1.2 | 1.7 | 5.1 | 7.3 |

**Client Sample ID: 2118-SG-2**

**Lab ID#: 1503280A-02A**

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Ethanol | 4.4 | 18 | 8.3 | 33 |
| Toluene | 1.1 | 1.6 | 4.2 | 5.9 |

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**Client Sample ID: 2118-SG-1**

**Lab ID#: 1503280A-01A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **p032011** | **Date of Collection:** | **3/13/15 4:22:00 PM** |
| **Dil. Factor:** | **2.34** | **Date of Analysis:** | **3/20/15 04:37 PM** |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Freon 12 | 1.2 | Not Detected | 5.8 | Not Detected |
| Freon 114 | 1.2 | Not Detected | 8.2 | Not Detected |
| Chloromethane | 12 | Not Detected | 24 | Not Detected |
| Vinyl Chloride | 1.2 | Not Detected | 3.0 | Not Detected |
| 1,3-Butadiene | 1.2 | Not Detected | 2.6 | Not Detected |
| Bromomethane | 12 | Not Detected | 45 | Not Detected |
| Chloroethane | 4.7 | Not Detected | 12 | Not Detected |
| Freon 11 | 1.2 | Not Detected | 6.6 | Not Detected |
| Ethanol | 4.7 | 7.1 | 8.8 | 13 |
| Freon 113 | 1.2 | Not Detected | 9.0 | Not Detected |
| 1,1-Dichloroethene | 1.2 | Not Detected | 4.6 | Not Detected |
| Acetone | 12 | 14 | 28 | 32 |
| 2-Propanol | 4.7 | Not Detected | 12 | Not Detected |
| Carbon Disulfide | 4.7 | Not Detected | 14 | Not Detected |
| 3-Chloropropene | 4.7 | Not Detected | 15 | Not Detected |
| Methylene Chloride | 12 | Not Detected | 41 | Not Detected |
| Methyl tert-butyl ether | 1.2 | Not Detected | 4.2 | Not Detected |
| trans-1,2-Dichloroethene | 1.2 | Not Detected | 4.6 | Not Detected |
| Hexane | 1.2 | Not Detected | 4.1 | Not Detected |
| 1,1-Dichloroethane | 1.2 | Not Detected | 4.7 | Not Detected |
| 2-Butanone (Methyl Ethyl Ketone) | 4.7 | Not Detected | 14 | Not Detected |
| cis-1,2-Dichloroethene | 1.2 | Not Detected | 4.6 | Not Detected |
| Tetrahydrofuran | 1.2 | Not Detected | 3.4 | Not Detected |
| Chloroform | 1.2 | Not Detected | 5.7 | Not Detected |
| 1,1,1-Trichloroethane | 1.2 | Not Detected | 6.4 | Not Detected |
| Cyclohexane | 1.2 | Not Detected | 4.0 | Not Detected |
| Carbon Tetrachloride | 1.2 | Not Detected | 7.4 | Not Detected |
| 2,2,4-Trimethylpentane | 1.2 | Not Detected | 5.5 | Not Detected |
| Benzene | 1.2 | 3.8 | 3.7 | 12 |
| 1,2-Dichloroethane | 1.2 | Not Detected | 4.7 | Not Detected |
| Heptane | 1.2 | Not Detected | 4.8 | Not Detected |
| Trichloroethene | 1.2 | Not Detected | 6.3 | Not Detected |
| 1,2-Dichloropropane | 1.2 | Not Detected | 5.4 | Not Detected |
| 1,4-Dioxane | 4.7 | Not Detected | 17 | Not Detected |
| Bromodichloromethane | 1.2 | Not Detected | 7.8 | Not Detected |
| cis-1,3-Dichloropropene | 1.2 | Not Detected | 5.3 | Not Detected |
| 4-Methyl-2-pentanone | 1.2 | Not Detected | 4.8 | Not Detected |
| Toluene | 1.2 | Not Detected | 4.4 | Not Detected |
| trans-1,3-Dichloropropene | 1.2 | Not Detected | 5.3 | Not Detected |
| 1,1,2-Trichloroethane | 1.2 | Not Detected | 6.4 | Not Detected |
| Tetrachloroethene | 1.2 | Not Detected | 7.9 | Not Detected |
| 2-Hexanone | 4.7 | Not Detected | 19 | Not Detected |

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**Client Sample ID: 2118-SG-1**

**Lab ID#: 1503280A-01A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | |
|---|---|---|
| **File Name:** | **p032011** | **Date of Collection: 3/13/15 4:22:00 PM** |
| **Dil. Factor:** | **2.34** | **Date of Analysis: 3/20/15 04:37 PM** |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Dibromochloromethane | 1.2 | Not Detected | 10 | Not Detected |
| 1,2-Dibromoethane (EDB) | 1.2 | Not Detected | 9.0 | Not Detected |
| Chlorobenzene | 1.2 | Not Detected | 5.4 | Not Detected |
| Ethyl Benzene | 1.2 | Not Detected | 5.1 | Not Detected |
| m,p-Xylene | 1.2 | 1.7 | 5.1 | 7.3 |
| o-Xylene | 1.2 | Not Detected | 5.1 | Not Detected |
| Styrene | 1.2 | Not Detected | 5.0 | Not Detected |
| Bromoform | 1.2 | Not Detected | 12 | Not Detected |
| Cumene | 1.2 | Not Detected | 5.8 | Not Detected |
| 1,1,2,2-Tetrachloroethane | 1.2 | Not Detected | 8.0 | Not Detected |
| Propylbenzene | 1.2 | Not Detected | 5.8 | Not Detected |
| 4-Ethyltoluene | 1.2 | Not Detected | 5.8 | Not Detected |
| 1,3,5-Trimethylbenzene | 1.2 | Not Detected | 5.8 | Not Detected |
| 1,2,4-Trimethylbenzene | 1.2 | Not Detected | 5.8 | Not Detected |
| 1,3-Dichlorobenzene | 1.2 | Not Detected | 7.0 | Not Detected |
| 1,4-Dichlorobenzene | 1.2 | Not Detected | 7.0 | Not Detected |
| alpha-Chlorotoluene | 1.2 | Not Detected | 6.0 | Not Detected |
| 1,2-Dichlorobenzene | 1.2 | Not Detected | 7.0 | Not Detected |
| 1,2,4-Trichlorobenzene | 4.7 | Not Detected | 35 | Not Detected |
| Hexachlorobutadiene | 4.7 | Not Detected | 50 | Not Detected |
| TPH ref. to Gasoline (MW=100) | 120 | Not Detected | 480 | Not Detected |

**Container Type: 1 Liter Summa Canister**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 102 | 70-130 |
| 1,2-Dichloroethane-d4 | 110 | 70-130 |
| 4-Bromofluorobenzene | 112 | 70-130 |

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**Client Sample ID: 2118-SG-2**

**Lab ID#: 1503280A-02A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| File Name: | p032012 | Date of Collection: | 3/13/15 5:25:00 PM |
| Dil. Factor: | 2.21 | Date of Analysis: | 3/20/15 05:56 PM |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Freon 12 | 1.1 | Not Detected | 5.5 | Not Detected |
| Freon 114 | 1.1 | Not Detected | 7.7 | Not Detected |
| Chloromethane | 11 | Not Detected | 23 | Not Detected |
| Vinyl Chloride | 1.1 | Not Detected | 2.8 | Not Detected |
| 1,3-Butadiene | 1.1 | Not Detected | 2.4 | Not Detected |
| Bromomethane | 11 | Not Detected | 43 | Not Detected |
| Chloroethane | 4.4 | Not Detected | 12 | Not Detected |
| Freon 11 | 1.1 | Not Detected | 6.2 | Not Detected |
| Ethanol | 4.4 | 18 | 8.3 | 33 |
| Freon 113 | 1.1 | Not Detected | 8.5 | Not Detected |
| 1,1-Dichloroethene | 1.1 | Not Detected | 4.4 | Not Detected |
| Acetone | 11 | Not Detected | 26 | Not Detected |
| 2-Propanol | 4.4 | Not Detected | 11 | Not Detected |
| Carbon Disulfide | 4.4 | Not Detected | 14 | Not Detected |
| 3-Chloropropene | 4.4 | Not Detected | 14 | Not Detected |
| Methylene Chloride | 11 | Not Detected | 38 | Not Detected |
| Methyl tert-butyl ether | 1.1 | Not Detected | 4.0 | Not Detected |
| trans-1,2-Dichloroethene | 1.1 | Not Detected | 4.4 | Not Detected |
| Hexane | 1.1 | Not Detected | 3.9 | Not Detected |
| 1,1-Dichloroethane | 1.1 | Not Detected | 4.5 | Not Detected |
| 2-Butanone (Methyl Ethyl Ketone) | 4.4 | Not Detected | 13 | Not Detected |
| cis-1,2-Dichloroethene | 1.1 | Not Detected | 4.4 | Not Detected |
| Tetrahydrofuran | 1.1 | Not Detected | 3.2 | Not Detected |
| Chloroform | 1.1 | Not Detected | 5.4 | Not Detected |
| 1,1,1-Trichloroethane | 1.1 | Not Detected | 6.0 | Not Detected |
| Cyclohexane | 1.1 | Not Detected | 3.8 | Not Detected |
| Carbon Tetrachloride | 1.1 | Not Detected | 7.0 | Not Detected |
| 2,2,4-Trimethylpentane | 1.1 | Not Detected | 5.2 | Not Detected |
| Benzene | 1.1 | Not Detected | 3.5 | Not Detected |
| 1,2-Dichloroethane | 1.1 | Not Detected | 4.5 | Not Detected |
| Heptane | 1.1 | Not Detected | 4.5 | Not Detected |
| Trichloroethene | 1.1 | Not Detected | 5.9 | Not Detected |
| 1,2-Dichloropropane | 1.1 | Not Detected | 5.1 | Not Detected |
| 1,4-Dioxane | 4.4 | Not Detected | 16 | Not Detected |
| Bromodichloromethane | 1.1 | Not Detected | 7.4 | Not Detected |
| cis-1,3-Dichloropropene | 1.1 | Not Detected | 5.0 | Not Detected |
| 4-Methyl-2-pentanone | 1.1 | Not Detected | 4.5 | Not Detected |
| Toluene | 1.1 | 1.6 | 4.2 | 5.9 |
| trans-1,3-Dichloropropene | 1.1 | Not Detected | 5.0 | Not Detected |
| 1,1,2-Trichloroethane | 1.1 | Not Detected | 6.0 | Not Detected |
| Tetrachloroethene | 1.1 | Not Detected | 7.5 | Not Detected |
| 2-Hexanone | 4.4 | Not Detected | 18 | Not Detected |

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**Client Sample ID: 2118-SG-2**

**Lab ID#: 1503280A-02A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | |
|---|---|---|
| **File Name:** | **p032012** | **Date of Collection: 3/13/15 5:25:00 PM** |
| **Dil. Factor:** | **2.21** | **Date of Analysis: 3/20/15 05:56 PM** |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Dibromochloromethane | 1.1 | Not Detected | 9.4 | Not Detected |
| 1,2-Dibromoethane (EDB) | 1.1 | Not Detected | 8.5 | Not Detected |
| Chlorobenzene | 1.1 | Not Detected | 5.1 | Not Detected |
| Ethyl Benzene | 1.1 | Not Detected | 4.8 | Not Detected |
| m,p-Xylene | 1.1 | Not Detected | 4.8 | Not Detected |
| o-Xylene | 1.1 | Not Detected | 4.8 | Not Detected |
| Styrene | 1.1 | Not Detected | 4.7 | Not Detected |
| Bromoform | 1.1 | Not Detected | 11 | Not Detected |
| Cumene | 1.1 | Not Detected | 5.4 | Not Detected |
| 1,1,2,2-Tetrachloroethane | 1.1 | Not Detected | 7.6 | Not Detected |
| Propylbenzene | 1.1 | Not Detected | 5.4 | Not Detected |
| 4-Ethyltoluene | 1.1 | Not Detected | 5.4 | Not Detected |
| 1,3,5-Trimethylbenzene | 1.1 | Not Detected | 5.4 | Not Detected |
| 1,2,4-Trimethylbenzene | 1.1 | Not Detected | 5.4 | Not Detected |
| 1,3-Dichlorobenzene | 1.1 | Not Detected | 6.6 | Not Detected |
| 1,4-Dichlorobenzene | 1.1 | Not Detected | 6.6 | Not Detected |
| alpha-Chlorotoluene | 1.1 | Not Detected | 5.7 | Not Detected |
| 1,2-Dichlorobenzene | 1.1 | Not Detected | 6.6 | Not Detected |
| 1,2,4-Trichlorobenzene | 4.4 | Not Detected | 33 | Not Detected |
| Hexachlorobutadiene | 4.4 | Not Detected | 47 | Not Detected |
| TPH ref. to Gasoline (MW=100) | 110 | Not Detected | 450 | Not Detected |

**Container Type: 1 Liter Summa Canister**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 103 | 70-130 |
| 1,2-Dichloroethane-d4 | 107 | 70-130 |
| 4-Bromofluorobenzene | 107 | 70-130 |

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**Client Sample ID: Lab Blank**

**Lab ID#: 1503280A-03A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | |
|---|---|---|
| **File Name:** | p032007 | **Date of Collection: NA** |
| **Dil. Factor:** | 1.00 | **Date of Analysis: 3/20/15 01:20 PM** |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Freon 12 | 0.50 | Not Detected | 2.5 | Not Detected |
| Freon 114 | 0.50 | Not Detected | 3.5 | Not Detected |
| Chloromethane | 5.0 | Not Detected | 10 | Not Detected |
| Vinyl Chloride | 0.50 | Not Detected | 1.3 | Not Detected |
| 1,3-Butadiene | 0.50 | Not Detected | 1.1 | Not Detected |
| Bromomethane | 5.0 | Not Detected | 19 | Not Detected |
| Chloroethane | 2.0 | Not Detected | 5.3 | Not Detected |
| Freon 11 | 0.50 | Not Detected | 2.8 | Not Detected |
| Ethanol | 2.0 | Not Detected | 3.8 | Not Detected |
| Freon 113 | 0.50 | Not Detected | 3.8 | Not Detected |
| 1,1-Dichloroethene | 0.50 | Not Detected | 2.0 | Not Detected |
| Acetone | 5.0 | Not Detected | 12 | Not Detected |
| 2-Propanol | 2.0 | Not Detected | 4.9 | Not Detected |
| Carbon Disulfide | 2.0 | Not Detected | 6.2 | Not Detected |
| 3-Chloropropene | 2.0 | Not Detected | 6.3 | Not Detected |
| Methylene Chloride | 5.0 | Not Detected | 17 | Not Detected |
| Methyl tert-butyl ether | 0.50 | Not Detected | 1.8 | Not Detected |
| trans-1,2-Dichloroethene | 0.50 | Not Detected | 2.0 | Not Detected |
| Hexane | 0.50 | Not Detected | 1.8 | Not Detected |
| 1,1-Dichloroethane | 0.50 | Not Detected | 2.0 | Not Detected |
| 2-Butanone (Methyl Ethyl Ketone) | 2.0 | Not Detected | 5.9 | Not Detected |
| cis-1,2-Dichloroethene | 0.50 | Not Detected | 2.0 | Not Detected |
| Tetrahydrofuran | 0.50 | Not Detected | 1.5 | Not Detected |
| Chloroform | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,1,1-Trichloroethane | 0.50 | Not Detected | 2.7 | Not Detected |
| Cyclohexane | 0.50 | Not Detected | 1.7 | Not Detected |
| Carbon Tetrachloride | 0.50 | Not Detected | 3.1 | Not Detected |
| 2,2,4-Trimethylpentane | 0.50 | Not Detected | 2.3 | Not Detected |
| Benzene | 0.50 | Not Detected | 1.6 | Not Detected |
| 1,2-Dichloroethane | 0.50 | Not Detected | 2.0 | Not Detected |
| Heptane | 0.50 | Not Detected | 2.0 | Not Detected |
| Trichloroethene | 0.50 | Not Detected | 2.7 | Not Detected |
| 1,2-Dichloropropane | 0.50 | Not Detected | 2.3 | Not Detected |
| 1,4-Dioxane | 2.0 | Not Detected | 7.2 | Not Detected |
| Bromodichloromethane | 0.50 | Not Detected | 3.4 | Not Detected |
| cis-1,3-Dichloropropene | 0.50 | Not Detected | 2.3 | Not Detected |
| 4-Methyl-2-pentanone | 0.50 | Not Detected | 2.0 | Not Detected |
| Toluene | 0.50 | Not Detected | 1.9 | Not Detected |
| trans-1,3-Dichloropropene | 0.50 | Not Detected | 2.3 | Not Detected |
| 1,1,2-Trichloroethane | 0.50 | Not Detected | 2.7 | Not Detected |
| Tetrachloroethene | 0.50 | Not Detected | 3.4 | Not Detected |
| 2-Hexanone | 2.0 | Not Detected | 8.2 | Not Detected |

**Client Sample ID: Lab Blank**

**Lab ID#: 1503280A-03A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **p032007** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/20/15 01:20 PM** | |

| Compound | Rpt. Limit (ppbv) | Amount (ppbv) | Rpt. Limit (ug/m3) | Amount (ug/m3) |
|---|---|---|---|---|
| Dibromochloromethane | 0.50 | Not Detected | 4.2 | Not Detected |
| 1,2-Dibromoethane (EDB) | 0.50 | Not Detected | 3.8 | Not Detected |
| Chlorobenzene | 0.50 | Not Detected | 2.3 | Not Detected |
| Ethyl Benzene | 0.50 | Not Detected | 2.2 | Not Detected |
| m,p-Xylene | 0.50 | Not Detected | 2.2 | Not Detected |
| o-Xylene | 0.50 | Not Detected | 2.2 | Not Detected |
| Styrene | 0.50 | Not Detected | 2.1 | Not Detected |
| Bromoform | 0.50 | Not Detected | 5.2 | Not Detected |
| Cumene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,1,2,2-Tetrachloroethane | 0.50 | Not Detected | 3.4 | Not Detected |
| Propylbenzene | 0.50 | Not Detected | 2.4 | Not Detected |
| 4-Ethyltoluene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,3,5-Trimethylbenzene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,2,4-Trimethylbenzene | 0.50 | Not Detected | 2.4 | Not Detected |
| 1,3-Dichlorobenzene | 0.50 | Not Detected | 3.0 | Not Detected |
| 1,4-Dichlorobenzene | 0.50 | Not Detected | 3.0 | Not Detected |
| alpha-Chlorotoluene | 0.50 | Not Detected | 2.6 | Not Detected |
| 1,2-Dichlorobenzene | 0.50 | Not Detected | 3.0 | Not Detected |
| 1,2,4-Trichlorobenzene | 2.0 | Not Detected | 15 | Not Detected |
| Hexachlorobutadiene | 2.0 | Not Detected | 21 | Not Detected |
| TPH ref. to Gasoline (MW=100) | 50 | Not Detected | 200 | Not Detected |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 104 | 70-130 |
| 1,2-Dichloroethane-d4 | 101 | 70-130 |
| 4-Bromofluorobenzene | 108 | 70-130 |

**Client Sample ID: CCV**

**Lab ID#: 1503280A-04A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | |
|---|---|---|
| **File Name:** | **p032003** | **Date of Collection: NA** |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/20/15 10:52 AM** |

| Compound | %Recovery |
|---|---|
| Freon 12 | 109 |
| Freon 114 | 105 |
| Chloromethane | 100 |
| Vinyl Chloride | 103 |
| 1,3-Butadiene | 107 |
| Bromomethane | 104 |
| Chloroethane | 96 |
| Freon 11 | 107 |
| Ethanol | 98 |
| Freon 113 | 99 |
| 1,1-Dichloroethene | 93 |
| Acetone | 101 |
| 2-Propanol | 101 |
| Carbon Disulfide | 96 |
| 3-Chloropropene | 91 |
| Methylene Chloride | 100 |
| Methyl tert-butyl ether | 95 |
| trans-1,2-Dichloroethene | 97 |
| Hexane | 94 |
| 1,1-Dichloroethane | 97 |
| 2-Butanone (Methyl Ethyl Ketone) | 100 |
| cis-1,2-Dichloroethene | 103 |
| Tetrahydrofuran | 98 |
| Chloroform | 104 |
| 1,1,1-Trichloroethane | 110 |
| Cyclohexane | 101 |
| Carbon Tetrachloride | 113 |
| 2,2,4-Trimethylpentane | 104 |
| Benzene | 96 |
| 1,2-Dichloroethane | 110 |
| Heptane | 86 |
| Trichloroethene | 99 |
| 1,2-Dichloropropane | 104 |
| 1,4-Dioxane | 105 |
| Bromodichloromethane | 104 |
| cis-1,3-Dichloropropene | 103 |
| 4-Methyl-2-pentanone | 102 |
| Toluene | 101 |
| trans-1,3-Dichloropropene | 95 |
| 1,1,2-Trichloroethane | 96 |
| Tetrachloroethene | 100 |
| 2-Hexanone | 101 |

**Client Sample ID: CCV**
**Lab ID#: 1503280A-04A**
**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | |
|---|---|---|
| **File Name:** | **p032003** | **Date of Collection: NA** |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/20/15 10:52 AM** |

| Compound | %Recovery |
|---|---|
| Dibromochloromethane | 105 |
| 1,2-Dibromoethane (EDB) | 103 |
| Chlorobenzene | 101 |
| Ethyl Benzene | 98 |
| m,p-Xylene | 100 |
| o-Xylene | 102 |
| Styrene | 100 |
| Bromoform | 109 |
| Cumene | 102 |
| 1,1,2,2-Tetrachloroethane | 102 |
| Propylbenzene | 101 |
| 4-Ethyltoluene | 104 |
| 1,3,5-Trimethylbenzene | 106 |
| 1,2,4-Trimethylbenzene | 102 |
| 1,3-Dichlorobenzene | 106 |
| 1,4-Dichlorobenzene | 107 |
| alpha-Chlorotoluene | 106 |
| 1,2-Dichlorobenzene | 107 |
| 1,2,4-Trichlorobenzene | 109 |
| Hexachlorobutadiene | 109 |
| TPH ref. to Gasoline (MW=100) | 100 |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 102 | 70-130 |
| 1,2-Dichloroethane-d4 | 110 | 70-130 |
| 4-Bromofluorobenzene | 111 | 70-130 |

**Client Sample ID: LCS**

**Lab ID#: 1503280A-05A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | |
|---|---|---|
| **File Name:** | **p032004** | **Date of Collection: NA** |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/20/15 11:27 AM** |

| Compound | %Recovery | Method Limits |
|---|---|---|
| Freon 12 | 106 | 70-130 |
| Freon 114 | 106 | 70-130 |
| Chloromethane | 98 | 70-130 |
| Vinyl Chloride | 101 | 70-130 |
| 1,3-Butadiene | 99 | 70-130 |
| Bromomethane | 102 | 70-130 |
| Chloroethane | 93 | 70-130 |
| Freon 11 | 104 | 70-130 |
| Ethanol | 92 | 70-130 |
| Freon 113 | 92 | 70-130 |
| 1,1-Dichloroethene | 88 | 70-130 |
| Acetone | 89 | 70-130 |
| 2-Propanol | 95 | 70-130 |
| Carbon Disulfide | 80 | 70-130 |
| 3-Chloropropene | 77 | 70-130 |
| Methylene Chloride | 92 | 70-130 |
| Methyl tert-butyl ether | 86 | 70-130 |
| trans-1,2-Dichloroethene | 80 | 70-130 |
| Hexane | 84 | 70-130 |
| 1,1-Dichloroethane | 91 | 70-130 |
| 2-Butanone (Methyl Ethyl Ketone) | 79 | 70-130 |
| cis-1,2-Dichloroethene | 97 | 70-130 |
| Tetrahydrofuran | 83 | 70-130 |
| Chloroform | 90 | 70-130 |
| 1,1,1-Trichloroethane | 97 | 70-130 |
| Cyclohexane | 89 | 70-130 |
| Carbon Tetrachloride | 98 | 70-130 |
| 2,2,4-Trimethylpentane | 93 | 70-130 |
| Benzene | 81 | 70-130 |
| 1,2-Dichloroethane | 96 | 70-130 |
| Heptane | 74 | 70-130 |
| Trichloroethene | 88 | 70-130 |
| 1,2-Dichloropropane | 91 | 70-130 |
| 1,4-Dioxane | 86 | 70-130 |
| Bromodichloromethane | 92 | 70-130 |
| cis-1,3-Dichloropropene | 84 | 70-130 |
| 4-Methyl-2-pentanone | 88 | 70-130 |
| Toluene | 88 | 70-130 |
| trans-1,3-Dichloropropene | 80 | 70-130 |
| 1,1,2-Trichloroethane | 79 | 70-130 |
| Tetrachloroethene | 82 | 70-130 |
| 2-Hexanone | 83 | 70-130 |

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**Client Sample ID: LCS**

**Lab ID#: 1503280A-05A**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | |
|---|---|---|
| **File Name:** | **p032004** | **Date of Collection: NA** |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/20/15 11:27 AM** |

| Compound | %Recovery | Method Limits |
|---|---|---|
| Dibromochloromethane | 88 | 70-130 |
| 1,2-Dibromoethane (EDB) | 87 | 70-130 |
| Chlorobenzene | 86 | 70-130 |
| Ethyl Benzene | 84 | 70-130 |
| m,p-Xylene | 85 | 70-130 |
| o-Xylene | 89 | 70-130 |
| Styrene | 84 | 70-130 |
| Bromoform | 96 | 70-130 |
| Cumene | 87 | 70-130 |
| 1,1,2,2-Tetrachloroethane | 86 | 70-130 |
| Propylbenzene | 89 | 70-130 |
| 4-Ethyltoluene | 89 | 70-130 |
| 1,3,5-Trimethylbenzene | 93 | 70-130 |
| 1,2,4-Trimethylbenzene | 89 | 70-130 |
| 1,3-Dichlorobenzene | 94 | 70-130 |
| 1,4-Dichlorobenzene | 93 | 70-130 |
| alpha-Chlorotoluene | 97 | 70-130 |
| 1,2-Dichlorobenzene | 95 | 70-130 |
| 1,2,4-Trichlorobenzene | 107 | 70-130 |
| Hexachlorobutadiene | 105 | 70-130 |
| TPH ref. to Gasoline (MW=100) | Not Spiked | |

**Container Type: NA - Not Applicable**

| Surrogates | %Recovery | Method Limits |
|---|---|---|
| Toluene-d8 | 104 | 70-130 |
| 1,2-Dichloroethane-d4 | 111 | 70-130 |
| 4-Bromofluorobenzene | 105 | 70-130 |

**Client Sample ID: LCSD**
**Lab ID#: 1503280A-05AA**
**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | | |
|---|---|---|---|
| **File Name:** | **p032005** | **Date of Collection: NA** | |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/20/15 11:51 AM** | |

| Compound | %Recovery | Method Limits |
|---|---|---|
| Freon 12 | 95 | 70-130 |
| Freon 114 | 94 | 70-130 |
| Chloromethane | 85 | 70-130 |
| Vinyl Chloride | 88 | 70-130 |
| 1,3-Butadiene | 88 | 70-130 |
| Bromomethane | 86 | 70-130 |
| Chloroethane | 82 | 70-130 |
| Freon 11 | 92 | 70-130 |
| Ethanol | 87 | 70-130 |
| Freon 113 | 82 | 70-130 |
| 1,1-Dichloroethene | 75 | 70-130 |
| Acetone | 80 | 70-130 |
| 2-Propanol | 86 | 70-130 |
| Carbon Disulfide | 69 Q | 70-130 |
| 3-Chloropropene | 70 | 70-130 |
| Methylene Chloride | 80 | 70-130 |
| Methyl tert-butyl ether | 76 | 70-130 |
| trans-1,2-Dichloroethene | 71 | 70-130 |
| Hexane | 76 | 70-130 |
| 1,1-Dichloroethane | 80 | 70-130 |
| 2-Butanone (Methyl Ethyl Ketone) | 79 | 70-130 |
| cis-1,2-Dichloroethene | 90 | 70-130 |
| Tetrahydrofuran | 76 | 70-130 |
| Chloroform | 84 | 70-130 |
| 1,1,1-Trichloroethane | 91 | 70-130 |
| Cyclohexane | 83 | 70-130 |
| Carbon Tetrachloride | 92 | 70-130 |
| 2,2,4-Trimethylpentane | 88 | 70-130 |
| Benzene | 79 | 70-130 |
| 1,2-Dichloroethane | 94 | 70-130 |
| Heptane | 72 | 70-130 |
| Trichloroethene | 84 | 70-130 |
| 1,2-Dichloropropane | 87 | 70-130 |
| 1,4-Dioxane | 87 | 70-130 |
| Bromodichloromethane | 88 | 70-130 |
| cis-1,3-Dichloropropene | 82 | 70-130 |
| 4-Methyl-2-pentanone | 86 | 70-130 |
| Toluene | 85 | 70-130 |
| trans-1,3-Dichloropropene | 78 | 70-130 |
| 1,1,2-Trichloroethane | 78 | 70-130 |
| Tetrachloroethene | 82 | 70-130 |
| 2-Hexanone | 81 | 70-130 |

**Client Sample ID: LCSD**

**Lab ID#: 1503280A-05AA**

**EPA METHOD TO-15 GC/MS FULL SCAN**

| | | |
|---|---|---|
| **File Name:** | **p032005** | **Date of Collection: NA** |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/20/15 11:51 AM** |

| **Compound** | **%Recovery** | **Method Limits** |
|---|---|---|
| Dibromochloromethane | 86 | 70-130 |
| 1,2-Dibromoethane (EDB) | 84 | 70-130 |
| Chlorobenzene | 83 | 70-130 |
| Ethyl Benzene | 81 | 70-130 |
| m,p-Xylene | 84 | 70-130 |
| o-Xylene | 87 | 70-130 |
| Styrene | 80 | 70-130 |
| Bromoform | 92 | 70-130 |
| Cumene | 85 | 70-130 |
| 1,1,2,2-Tetrachloroethane | 85 | 70-130 |
| Propylbenzene | 86 | 70-130 |
| 4-Ethyltoluene | 86 | 70-130 |
| 1,3,5-Trimethylbenzene | 89 | 70-130 |
| 1,2,4-Trimethylbenzene | 89 | 70-130 |
| 1,3-Dichlorobenzene | 91 | 70-130 |
| 1,4-Dichlorobenzene | 92 | 70-130 |
| alpha-Chlorotoluene | 94 | 70-130 |
| 1,2-Dichlorobenzene | 92 | 70-130 |
| 1,2,4-Trichlorobenzene | 106 | 70-130 |
| Hexachlorobutadiene | 101 | 70-130 |
| TPH ref. to Gasoline (MW=100) | Not Spiked | |

Q = Exceeds Quality Control limits.

**Container Type: NA - Not Applicable**

| **Surrogates** | **%Recovery** | **Method Limits** |
|---|---|---|
| Toluene-d8 | 104 | 70-130 |
| 1,2-Dichloroethane-d4 | 108 | 70-130 |
| 4-Bromofluorobenzene | 107 | 70-130 |

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3/21/2015

Mr. William Werner

Terraphase Engineering Inc.

1404 Franklin Street

Suite 600

Oakland CA 94612

Project Name: Peralta C. C.

Project #: 0034.002.001

Workorder #: 1503280B

Dear Mr. William Werner

The following report includes the data for the above referenced project for sample(s) received on 3/17/2015 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kyle Vagadori

Project Manager



Eurofins Air Toxics, Inc.
180 Blue Ravine Road, Suite B
Folsom, CA 95630
T | 916-985-1000
F | 916-985-1020
www.airtoxics.com

# WORK ORDER #: 1503280B

Work Order Summary

| | | | |
|---|---|---|---|
| **CLIENT:** | Mr. William Werner<br>Terraphase Engineering Inc.<br>1404 Franklin Street<br>Suite 600<br>Oakland, CA 94612 | **BILL TO:** | Mr. William Werner<br>Terraphase Engineering Inc.<br>1404 Franklin Street<br>Suite 600<br>Oakland, CA 94612 |
| **PHONE:** | 510-645-1850 | **P.O. #** | |
| **FAX:** | | **PROJECT #** | 0034.002.001 Peralta C. C. |
| **DATE RECEIVED:** | 03/17/2015 | **CONTACT:** | Kyle Vagadori |
| **DATE COMPLETED:** | 03/21/2015 | | |

| FRACTION # | NAME | TEST | RECEIPT VAC./PRES. | FINAL PRESSURE |
|---|---|---|---|---|
| 01A | 2118-SG-1 | Modified ASTM D-1946 | 4.3 "Hg | 14.8 psi |
| 02A | 2118-SG-2 | Modified ASTM D-1946 | 2.6 "Hg | 15 psi |
| 03A | Lab Blank | Modified ASTM D-1946 | NA | NA |
| 03B | Lab Blank | Modified ASTM D-1946 | NA | NA |
| 04A | LCS | Modified ASTM D-1946 | NA | NA |
| 04AA | LCSD | Modified ASTM D-1946 | NA | NA |

CERTIFIED BY: Heidi Hayes DATE: 03/21/15

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

**LABORATORY NARRATIVE**
**Modified ASTM D-1946**
**Terraphase Engineering Inc.**
**Workorder# 1503280B**

Two 1 Liter Summa Canister samples were received on March 17, 2015. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

| ***Requirement*** | ***ASTM D-1946*** | ***ATL Modifications*** |
|---|---|---|
| Calibration | A single point calibration is performed using a reference standard closely matching the composition of the unknown. | A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor. |
| Reference Standard | The composition of any reference standard must be known to within 0.01 mol % for any component. | The standards used by ATL are blended to a >/= 95% accuracy. |
| Sample Injection Volume | Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL. | The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum. |
| Normalization | Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%. | Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix. |
| Precision | Precision requirements established at each concentration level. | Duplicates should agree within 25% RPD for detections > 5 X's the RL. |

## Receiving Notes

There were no receiving discrepancies.

**Analytical Notes**

There were no analytical discrepancies.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

# Summary of Detected Compounds
# NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

**Client Sample ID: 2118-SG-1**

**Lab ID#: 1503280B-01A**

| Compound | Rpt. Limit (%) | Amount (%) |
|---|---|---|
| Oxygen | 0.23 | 20 |

**Client Sample ID: 2118-SG-2**

**Lab ID#: 1503280B-02A**

| Compound | Rpt. Limit (%) | Amount (%) |
|---|---|---|
| Oxygen | 0.22 | 20 |
| Helium | 0.11 | 0.85 |

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**Client Sample ID: 2118-SG-1**

**Lab ID#: 1503280B-01A**

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

| | | |
|---|---|---|
| **File Name:** | **9031912** | **Date of Collection: 3/13/15 4:22:00 PM** |
| **Dil. Factor:** | **2.34** | **Date of Analysis: 3/19/15 03:29 PM** |

| **Compound** | **Rpt. Limit (%)** | **Amount (%)** |
|---|---|---|
| Oxygen | 0.23 | 20 |
| Methane | 0.00023 | Not Detected |
| Helium | 0.12 | Not Detected |

**Container Type: 1 Liter Summa Canister**

**Client Sample ID: 2118-SG-2**

**Lab ID#: 1503280B-02A**

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

| | | |
|---|---|---|
| **File Name:** | **9031913** | **Date of Collection: 3/13/15 5:25:00 PM** |
| **Dil. Factor:** | **2.22** | **Date of Analysis: 3/19/15 03:54 PM** |

| **Compound** | **Rpt. Limit (%)** | **Amount (%)** |
|---|---|---|
| Oxygen | 0.22 | 20 |
| Methane | 0.00022 | Not Detected |
| Helium | 0.11 | 0.85 |

**Container Type: 1 Liter Summa Canister**

Client Sample ID: Lab Blank

Lab ID#: 1503280B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

| | | |
|---|---|---|
| **File Name:** | **9031905** | **Date of Collection: NA** |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/19/15 10:31 AM** |

| Compound | Rpt. Limit (%) | Amount (%) |
|---|---|---|
| Oxygen | 0.10 | Not Detected |
| Methane | 0.00010 | Not Detected |

**Container Type: NA - Not Applicable**

**Client Sample ID: Lab Blank**

**Lab ID#: 1503280B-03B**

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

| | | |
|---|---|---|
| **File Name:** | **9031904b** | **Date of Collection: NA** |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/19/15 10:09 AM** |

| Compound | Rpt. Limit (%) | Amount (%) |
|---|---|---|
| Helium | 0.050 | Not Detected |

**Container Type: NA - Not Applicable**

**Client Sample ID: LCS**

**Lab ID#: 1503280B-04A**

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

| | | |
|---|---|---|
| **File Name:** | **9031902** | **Date of Collection: NA** |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/19/15 09:14 AM** |

| Compound | %Recovery | Method Limits |
|---|---|---|
| Oxygen | 97 | 85-115 |
| Methane | 97 | 85-115 |
| Helium | 102 | 85-115 |

**Container Type: NA - Not Applicable**

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**Client Sample ID: LCSD**

**Lab ID#: 1503280B-04AA**

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

| | | |
|---|---|---|
| **File Name:** | **9031924** | **Date of Collection: NA** |
| **Dil. Factor:** | **1.00** | **Date of Analysis: 3/19/15 09:42 PM** |

| Compound | %Recovery | Method Limits |
|---|---|---|
| Oxygen | 97 | 85-115 |
| Methane | 96 | 85-115 |
| Helium | 102 | 85-115 |

**Container Type: NA - Not Applicable**

# Appendix HR

Historic Resource Assessment

# Berkeley City College
# 2118 Milvia Street Project

## Historical Resource Assessment


*prepared by*

**Peralta Community College District**
333 East 8th Street
Oakland, California 94606
Contact: Seraphine Nzomo

*with the assistance of*

**Rincon Consultants, Inc.**
449 15th Street, Suite 303
Oakland, California 94612


**March 2021**


RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Please cite report as follows:

Williams, James and Steven Treffers

2021. *Historical Resource Assessment of 2118 Milvia Street, Berkeley, California*. Rincon Consultants Project No. 20-10138. Report on file at the Northwest information Center, Sonoma State University, Rohnert Park, California.

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# Executive Summary

The Peralta Community College District retained Rincon Consultants, Inc. (Rincon) to complete a historical resources assessment for the Berkeley City College 2118 Milvia Street Project in the City of Berkeley, Alameda County, California. The proposed project involves the demolition of the extant building at 2118 Milvia Street and construction of a new six-story building as part of Berkeley City College. The project is subject to the California Environmental Quality Act (CEQA) with the Peralta Community College District serving as the lead agency. This assessment was prepared as a component of environmental review to support compliance with CEQA and includes background research, a historical resources survey, and preparation of this report. The scope of this study is limited to built environment historical resources; a separate study has been prepared to address potential impacts to archaeological resources.

Based on the results of the background research and historical resources survey, one historic-age building was identified within the project site and evaluated for historical resources eligibility using National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) criteria. As a result of this evaluation, Rincon recommends the property ineligible for NRHP or CRHR listing; it therefore does not qualify as a historical resource and its demolition would not result in a significant impact pursuant to Section 15064.5 of the CEQA Guidelines.

Although the project site does not contain any historical resources, the project site is adjacent to the Berkeley Civic Center Historic District (BCCHD), which is listed in the NRHP and is also a locally designated historic district. Two buildings which are adjacent to the project site and contributors to this historic district are also individually designated City of Berkeley Landmarks: the State Farm Insurance Company Building at 1947 Center Street and the old Federal Land Bank building, which is the current Berkeley City Hall at 2180 Milvia Street. As NRHP-listed properties, the historic district and the two adjacent contributors are historical resources under CEQA.

In consideration of potential impacts to these historical resources, the proposed project would not directly alter any contributing elements. It would introduce a new visual element to the surrounding setting of the historic district and its contributing buildings; however, this impact would be minimal given this historically urbanized setting. Further, the proposed six-story height of the new building is consistent with those buildings found within and adjacent to the historic district. Contributing buildings within the BCCHD are generally two-to-six stories in height with limited or no setbacks and rectangular massing. The contributing and individually landmarked State Farm Insurance building, abutting the project site to the west, and the Federal Bank Land Bank building/City Hall, across Center street to the south, are six and five stories, respectively. The proposed building would therefore be approximately the same height as these buildings and exhibit similar setbacks.

For these reasons, the project would not materially impair the surroundings of any adjacent historical resources. Additionally, design guidance measures are currently being considered as part of the project to address potential impacts to aesthetics under CEQA. The adoption of these measures would further ensure the project would not result in a substantial adverse change to the setting of the BCCHD and its contributing resources. For these reasons, Rincon recommends a ***finding of no impact to historical resources*** under CEQA for the proposed project.

# 1 Introduction

The Peralta Community College District retained Rincon Consultants, Inc. (Rincon) to complete a historical resources assessment for the Berkeley City College 2118 Milvia Street Project in the City of Berkeley, Alameda County, California. The project is subject to the California Environmental Quality Act (CEQA) with the Peralta Community College District acting as the lead agency. This assessment was prepared to support compliance with CEQA and includes background research, a historical resources survey, and the preparation of this report. The scope of this study is limited to built environment historical resources; a separate study has been prepared to address potential impacts to archaeological resources.

## 1.1 Project Summary

Located at 2118 Milvia Street, on the northwest corner of Milvia Street and Center Street in the City of Berkeley (Assessor's Parcel Number 57-2022-5-1), the project site is 11,326 square feet (0.26 acre). Figure 1 shows the regional location of the project site, and Figure 2 shows the site's location in its neighborhood context. The project site encompasses portions of Township 3 South, Range 2 West, Section 31 on the Oakland West, California United States Geological Survey 7.5-minute topographic quadrangle.

The proposed project would involve demolition of the existing three-story building at 2118 Milvia Street (subject property), constructed in 1966-67, and development of a new six-story building as part of Berkeley City College. The proposed building would have a total floor area of approximately 60,000 square feet, with 38,000 square feet of general education facilities (anthropology lab, art studio, classrooms, communications lab, and storage), faculty facilities (offices and support), administrative offices (offices, reception area, storage, workrooms, and work stations), outdoor meeting area (rooftop patio, staging, and storage), student services and learning communities (health center, mental wellness, veterans center, multicultural resource center, undocumented community resource center, bookstore, student lounge, and meeting/quiet rooms), learning resource center (offices, study area, open area, computer lab, and storage), building services (building entrance and operations), and informal meeting and gathering space on each floor. The proposed building would be 90 feet in height to the top of the roof, with an additional 15 feet to the top of the solar panels. Although the project's massing and floorplans have been proposed, its exterior design has yet to be finalized.

**Figure 1 Project Location and Vicinity**

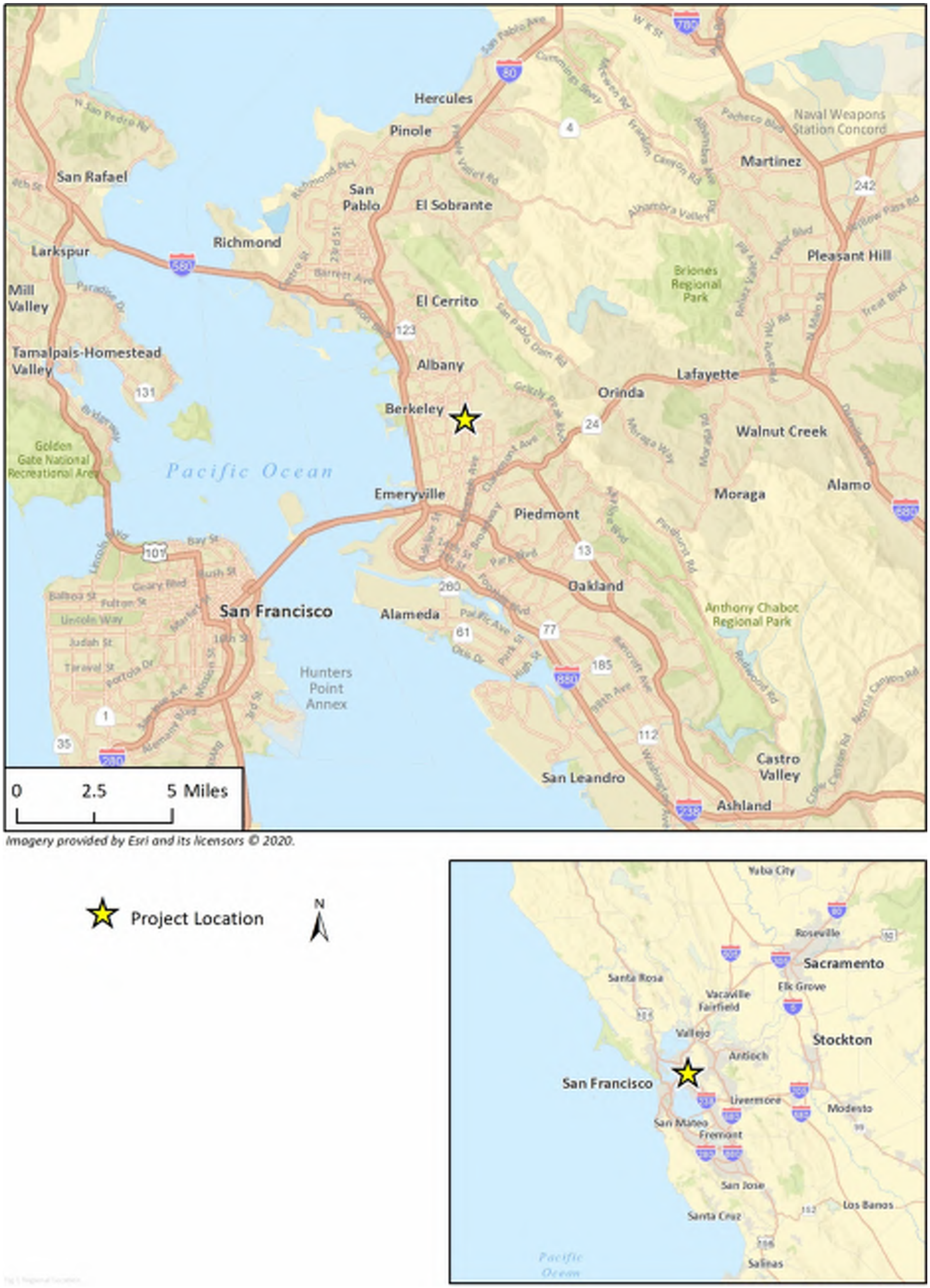

**Figure 2 Project Site**


*Imagery provided by Microsoft Bing and its licensors © 2021.*

## 1.2 Rincon Personnel

Senior Architectural Historian Steven Treffers, MHP, managed and provided oversight for this historical resources assessment. Architectural Historian James Williams, MA, conducted background research and is the primary author of this report. Mr. Treffers and Mr. Williams meet the Secretary of the Interior's Professional Qualifications Standards for history and architectural history (National Park Service 1983). Geographic Information Systems Analyst Allysen Valencia prepared the figures found in this report. Shannon Carmack, Principal, reviewed this report for quality control.

# 2 Regulatory Framework

## 2.1 California Environmental Quality Act

Public Resources Code (PRC) §5024.1, §15064.5 of the CEQA Guidelines, and PRC §§21083.2 and 21084.1 were used as the basic guidelines for this historical resources assessment. CEQA (§21084.1) requires that a lead agency determine if a project could have a significant effect on historical resources. A historical resource is one listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR) (§21084.1), included in a local register of historical resources (§15064.5[a][2]), or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (§15064.5[a][3]). Resources listed in the National Register of Historic Places (NRHP) are automatically listed in the CRHR.

According to CEQA, impacts that adversely alter the significance of a resource listed in, or eligible for listing in the CRHR, are considered a significant effect on the environment. These impacts could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired (CEQA Guidelines §15064.5 [b][1]). Material impairment is defined as demolition or alteration, in an adverse manner, of those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register (CEQA Guidelines §15064.5[b][2][A]).

## 2.2 National Register of Historic Places

The NRHP was established by the National Historic Preservation Act of 1966 as “an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation’s cultural resources and to indicate what properties should be considered for protection from destruction or impairment” (36 Code of Federal Regulations 60.2). The NRHP recognizes properties significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- **Criterion A.** It is associated with events that have made a significant contribution to the broad patterns of our history.
- **Criterion B.** It is associated with the lives of persons who are significant in our past.
- **Criterion C.** It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
- **Criterion D.** It has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting these criteria, a property must retain historic integrity, defined in National Register Bulletin 15 as the “ability of a property to convey its significance” (National Park Service 1995). 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, defined in the following manner in National Register Bulletin 15:

- **Location**. The place where the historic property was constructed or the place where the historic event occurred.
- **Design**. The combination of elements that create the form, plan, space, structure, and style of a property.
- **Setting**. The physical environment of a historic property.
- **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.
- **Workmanship**. The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
- **Feeling**. The property's expression of the aesthetic or historic sense of a particular period of time.
- **Association**. The direct link between an important historic event or person and a historic property.

## 2.3 California Register of Historical Resources

The CRHR was created by Assembly Bill 2881, which was established in 1992. The CRHR is an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (PRC, 5024.1(a)). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for state use in order to include a range of historical resources that better reflect the history of California (PRC, 5024.1(b)). Certain properties are determined by the statute to be automatically included in the CRHR by operation of law, including California properties formally determined eligible for, or listed in, the NRHP.

According to PRC Section 5024.1(c)(1–4), a resource is considered *historically significant* if it 1) retains substantial integrity and 2) meets at least one of the following criteria for inclusion in the CRHR:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. It is associated with the lives of persons important in our past.
3. It embodies the distinctive characteristics of a type, period, region, or method of installation; or represents the work of an important creative individual; or possesses high artistic values.
4. It has yielded or may be likely to yield information important in prehistory or history.

# 3 Historic Context

## 3.1 Downtown Berkeley

The following historical context statement for the downtown Berkeley area is excerpted from the *City of Berkeley Downtown Area Plan Historic Resource Evaluation* (ARG 2008).

> Located within Alameda County, California, the development of the City of Berkeley was heavily influenced by East Bay transportation routes and the establishment of the University of California, Berkeley. The principal commercial center for Berkeley began to take shape in 1876 when Francis Kittredge Shattuck and J. L. Barker persuaded the stockholders of the Central Pacific Railroad (later Southern Pacific) to run a spur line through Shattuck's property. Rail access provided the impetus for new commercial growth in what became Downtown Berkeley. Further, the relocation of the University to lands just east of downtown in 1873 also provided opportunity for commercial growth to support the University community. When the Town of Berkeley was incorporated in 1878, Shattuck Avenue was already established as the city's "Main Street." By the 1890s a fully operational rail line with steam trains ran along Shattuck Avenue terminating at what is now Berkeley Square and Shattuck Square. Additional commercial centers established during Berkeley's early history were West Berkeley (Ocean View), North Berkeley (Berryman's) and the Telegraph Avenue area, south of the University of California campus. Others which came later were the Elmwood area along College near Ashby, San Pablo Avenue, South Berkeley (formerly the Lorin District), and Thousand Oaks along Solano Avenue.
>
> The 1906 Earthquake resulted in an influx of new residents to Berkeley, and businesses in the downtown quickly began to accommodate the expanded population. Downtown Berkeley became a bustling business, commercial, and light industrial center in the 1920s and continued to grow and expand into the 1940s. As with many commercial downtowns in California, post-World War II suburban expansion resulted in the creation of new residential and commercial areas away from the historic commercial core.
>
> Today, Berkeley's commercial downtown is eclectic, with numerous businesses, government agencies, and educational institutions reflective of Berkeley's wealth of ethnic diversity established after World War II. Close proximity to the University of California, Berkeley campus and access to public transportation has enabled Berkeley to expand, grow and thrive. Throughout the downtown there is a mix of older commercial buildings, post-war development and more recent modern additions to the commercial core. The historic resources present in downtown reflect a wide range of themes and historic contexts including: residential and commercial development; civic, government and educational institutions; transportation; recreation; and cultural groups.

## 3.2 Brutalist-Style Architecture

The project site contains a building which exhibits elements of Brutalist-style architecture, a style generally dating to the 1960s through the 1980s. To provide architectural context, the following excerpt is presented from the *San Francisco Modern Architecture and Landscape Design 1935-1970: Historic Context Statement* (Brown 2020):

The term Brutalism is derived from the French term “beton brut” or raw concrete. It was coined by English architects Alison and Peter Smithson in 1953. The architectural style evolves from Le Corbusier’s 1940s-1950s experimentation with rough concrete in its crudest, most brutal form. Brutalist buildings often incorporate large expanses of glass, however fenestration is often deeply recessed, resulting in shadowed windows that appear as dark voids. The plasticity of reinforced concrete allows for a myriad of shapes and forms, though repetitive angled geometries predominate. Concrete is poured on-site and left unpolished, often revealing the texture and grain of wood forms and small pebbles of the aggregate. The raw, expressive quality of Brutalist buildings are the antithesis of precision-machined glass and steel vertical boxes then dominating large-scale projects. Brutalist designs are considered a reaction against the slickness and anonymity of corporate Miesian glass curtain wall buildings.

## 3.3 Business Incubation

Archival research confirmed the building at 2118 Milvia Street was occupied by the business incubation company Teknekron. The following is presented to provide additional historic context relating to this theme.

Business or start-up incubation is a business practice by which a so-called incubator provides material, financial, managerial, and other forms of support to a new entrepreneurial enterprise with the expectation that that firm will eventually develop into a profitable venture. By this model, once a firm reaches profitability, it can successfully exist as an autonomous company (Bruneel et al. 2012). The business incubation concept has a long, evolving history in the United States, but its establishment as a formal practice is usually traced to 1959, when the Batavia Industrial Center was established in Batavia, New York. The Batavia Industrial Center was typical of first phase in the evolution of business incubators, which spanned the period between 1959 and the early 1980s. During these years, business incubation was viewed as a means of promoting local economic development in the wake of deindustrialization and other factors impeding growth. The Batavia Industrial Center pursued this goal by providing low-cost physical working space and other infrastructural services to reduce the overhead costs of companies in their vulnerable early stages (Bruneel et al. 2012; Ryzhonkof 2013). Between the mid-1980s and mid-1990s, a second phase business incubation practices emerged. In these years, governmental and private actors grew skeptical that subsidizing overhead costs was sufficient to the task for promoting economic development, especially in high-technology firms and other innovative enterprises, and offered expanded services to entrepreneurs, typically managerial and technical assistance. The third and present phase of this evolution revolves around facilitating start-ups’ “access to technological, professional, and financial networks” (Ryzhonkof 2013). Such practices became common during the dot-com boom of the 1990s and have continued to the present (Bruneel et al. 2012; Ryzhonkof 2013)

# 4 Background Research

## 4.1 Previous Survey Findings

Rincon reviewed a variety of sources to identify known and potential historical resources in and adjacent to the project site. These include the listings of the NRHP, California Historical Landmarks, California Points of Historic Interest, and the current California Office of Historic Preservation Built Environment Resource Directory (and former California Historical Resources Inventory). In addition, Rincon reviewed local of City of Berkeley listings and historical resources-related documentation, including past surveys encompassing the current project site, which are discussed further below.

These sources confirmed that the subject property at 2118 Milvia Street is neither designated at the federal, state, or local level, nor has it been previously identified as a potentially significant historical resource or property warranting further consideration as such.

The project site is adjacent, however, to the Berkeley Civic Center Historic District (BCCHD), which is listed in the NRHP and is also a locally designated historic district (Figure 3). Two buildings which are adjacent to the project site and contributors to this historic district are also individually designated City of Berkeley Landmarks: the State Farm Insurance Company Building at 1947 Center Street and the old Federal Land Bank building, which is the current Berkeley City Hall at 2180 Milvia Street.

### Historic Survey of Downtown (1987)

In 1987, the Berkeley Architectural Heritage Association (BAHA) conducted an intensive level historic resources survey of the downtown Berkeley area (BAHA 1987). As part of this effort, BAHA compiled an inventory of historically significant properties downtown designated at the local, state, or national level or were otherwise deemed significant by BAHA. The subject property at 2118 Milvia Street was not included in this inventory, indicating the building had not been designated at any level or otherwise recognized as historically significant as of 1987. Two properties located in the immediate vicinity of the project site are included in the inventory, however. Adjacent to the west is the State Farm Insurance Building at 1947 Center Street and across Center Street to the south is Farm Credit/City Hall Building at 2180 Milvia Street. Although the report contains historic resource inventory forms for several properties, inventory forms for these two properties were not included in the documentation reviewed as part of this study.

### City of Berkeley Downtown Area Plan Historical Resource Evaluation (2008)

In 2008, Architectural Resources Group completed the City of Berkeley *Downtown Area Plan Historical Resource Evaluation* in support of the Downtown Area Plan (DAP) (ARG 2008). The study included a reconnaissance-level survey of the DAP, which encompassed the current project site at 2118 Milvia Street. As the 2008 study was a reconnaissance-level survey, no formal NRHP, CRHR, or local eligibility assessments were completed. Rather a matrix was developed which inventoried the approximately 600 properties within the DAP area, provided preliminary integrity assessments and identified properties which were recommended for further study and evaluation on California Department of Parks and Recreation (DPR) 523 series forms. The subject property at 2118 Milvia Street is included in the matrix but was not recommended for further research or evaluation, and no comments on its integrity were noted. The report does identify the locally and federally designated Berkeley Historic Civic Center District and contributors adjacent to the project site.

## Adjacent Historical Resources

As discussed above and depicted in Figure 3 below, the project site is adjacent to the northeast boundary of the BCCHD, which is listed in the NRHP and is a locally designated historic district. Generally, the district's boundaries are defined on the north by Center Street, on the south by Allston and Kittredge streets, on the east by Milvia Street, and on the west by Martin Luther King, Jr. Way. The district consists of nine contributing and three non-contributing buildings, one contributing structure, and one contributing site. The district is significant under NRHP Criterion A as a collection of community buildings that "embodies the political trends of the nation as well as the region and the city during the district's period of significance, 1909-1950" (Cerny et al. 1998). Specifically, the district represents the influence of such momentous national events as the Great Depression and the two world wars, in addition to Berkeley's ascent as a regional agricultural center "due to the influence of the first state university, the University of California, Berkeley" (Cerny et al. 1998). Under Criterion C, the district is "locally significant as an ensemble of harmoniously planned buildings and as a collective body of civic architecture" exhibiting the influence of the City Beautiful, Beaux Arts Classicism, Art Deco, and Art Moderne design traditions (Cerny et al. 1998). As a NRHP listed and locally designated historic district, the BCCHD is a historical resource as defined by CEQA.

Two contributing buildings to the BCCHD are adjacent to the project site and are also locally designated Berkeley Landmarks. Abutting the western property line of the project site and constructed in 1948, the six-story State Farm Insurance Company building at 1947 Center Street exhibits elements of Art Moderne. Located across the Center Street to the south, the Federal Bank Land Bank building (currently the Berkeley City Hall), a five-story building constructed in 1939 at 2180 Milvia Street also exhibits influences of Art Moderne-style architecture. As contributing buildings and locally designated landmarks, these two buildings are also considered historical resources under CEQA.

**Figure 3 Designated Cultural Resources in the Vicinity of 2118 Milvia Street**


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## 4.2 Archival Research

In addition to the efforts discussed above, Rincon conducted archival research throughout December 2020 and January 2021 to identify property-specific information and historical and architectural contexts. Research methodology focused on the review of primary and secondary source materials relating to the history and development of the area surrounding the project site. Sources included, but were not limited to, historic-era maps, aerial photographs, and written histories of the area. A list of sources and repositories consulted to identify pertinent materials is included below.

- Historic aerial photographs, Sanborn fire insurance maps, United States Geological Survey topographical maps, and historical city directory listings accessed via Environmental Research Data, Inc.
- Historic-era newspaper articles accessed via newspapers.com
- Alameda County Assessor’s Office
- Building permits accessed via the City of Berkeley Building and Safety Department
- Records of BAHA
- Online collections of Internet Archive, Calisphere, Online Archive of California, and University of California, Berkeley Digital Collections
- Other sources as noted in the references list

# 5 Methods

## 5.1 Field Survey

Rincon conducted a field survey of the project site and immediate vicinity on August 7, 2020. The field survey served to identify built environment features in the project site and consisted of digital photography and field notes to record observations. The building on the site was examined to assess overall condition and integrity and to identify and document any potential character-defining features. Access was limited to the public right-of-way; no interior photographs were taken. The building on the project site was recorded on California DPR 523 series forms, included in Appendix B of this report. A reconnaissance survey of the immediately surrounding area was also conducted to characterize the existing conditions of the BCCHD and other surrounding properties.

# 6 Results

## 6.1 2118 Milvia Street

### Architectural Description

The property at 2118 Milvia Street is a three-story office building located at the northwest corner of Milvia and Center streets in downtown Berkeley (Figure 4 and Figure 5). Rectangular in plan, the building has a concrete foundation and is capped with a flat roof with rolled composition sheeting. The exterior exposes structural concrete-block and stucco cladding. Overall, the building features a series of bays projecting from the primary planes of the street-facing south and east facades. These modular design elements including the building’s concrete materials exhibit characteristics align Brutalist- and Late Modern-style architecture. The main entrance is located on the east elevation, where a recessed commercial-type glazed metal door and sidelight is situated beneath an inward-sloping ceiling. On the south elevation, a secondary entrance with a metal security gate expresses a similar setting. Windows chiefly consist of large, single- and double-pane, floor-to-ceiling windows set into projecting bays. Vertically oriented apertures with three-pane windows punctuate the recesses between the projections. Additional detailing is limited but include a small third-story balcony with simple wood or metal railing and a canted southeast corner. Alterations, aside from a non-original blade sign affixed to the southeast corner and plywood screens applied to several ground-level windows on the south and east elevations, appear few. Because the building extends to the property lines, landscaping resorts to mature street trees.

**Figure 4 2118 Milvia Street, South and East Elevations, Facing Northwest**

**Figure 5 2118 Milvia Way, South Elevation, Facing North**

In a slightly larger lot diagonally opposite to the subject property at the southeastern corner of the Milvia and Center streets intersection, a four-story building, designed and constructed in conjunction with the subject building, exhibits similar design and construction materials. A dense concentration of low- and mid-rise buildings, most of which are commercial or civic in character, surround the area and typically extend to the front lot lines. While many buildings in the vicinity date from the first half of the twentieth century, the area has been subject to intermittent redevelopment up to recent years. As a result, buildings in the area embody a range of architectural styles that includes Beaux Arts Classicism, Art Moderne, Modernist, and contemporary influences.

## Property History

According to City of Berkeley building permits, property owner James Y. Smith (sometimes listed in association with the entity Berkeley Properties) commissioned the architecture firm L.L. Freels and Associates to design the subject building in 1966 and, on the opposing street corner to the southeast, the extant four-story building of similar design at 2175 Milvia Street (sometimes independently referred to as the Berkeley Center). Contractor Kirkham, Chaon, and Kirkham was selected to construct the subject building at an estimated cost of $300,000 (City of Berkeley Building and Safety Department 1966). Smith's real estate development firm briefly operated from the subject property; however, Smith died in an airplane crash in 1968, approximately two years after construction of the subject building began (Oakland Tribune 8/18/1968). Research for this study found no information of consequence regarding the firm Kirkham, Chaon, and Kirkham. Details regarding the career of Larry L. Freels follows.

A native of Kansas City, Missouri, Freels studied architecture and environmental design at the University of California, Berkeley. His professional experience included a stint as a designer at the architecture firm of Floyd, Comstock, and Associates of Walnut Creek and as the officer and director at Duffel-Smoot Co. of Lafayette, before establishing his own architectural practice, L.L. Freels and Associates, in Berkeley in 1963. Freels twice won a merit award from the Northern California chapter of the American Institute of Architects—in 1962, for the Creekside Apartments in Walnut Creek and in 1967 for the subject building, which was one of 15 projects that year to win a merit award (Marquis Who's Who n.d.; Napa Valley Register 8/2/1962; Oakland Tribune 11/27/1967). A search of the newspaper database Newspapers.com suggests that Freels was primarily a designer of office buildings and apartment complexes (Napa Valley Register 8/2/1962; San Francisco Examiner 11/3/1963; Oakland Tribune 3/24/1968; 8/10/1969; 10/10/1969; 8/30/1970). Freels was also involved in real estate development, serving as chairman of the board of the Land West Development Corporation (Marquis Who's Who n.d.). Despite Freels' having won two merit awards from the Northern California chapter of the American Institute of Architects, available sources do not suggest his career was especially distinguished or that he should be considered a master architect.

The subject building was completed by Spring 1967. The counterpart at the southeastern intersection of Milvia and Center streets, the Berkeley Center, was not finished for another four years. Although the subject building and the Berkeley Center were commissioned by the same owner and feature similar design features, they are otherwise not associated one another and are independent commercial real estate properties. Building permits and related documentation indicate that, although James Y. Smith hired Freels to design the nearby Berkeley Center office building 2175 Milvia Street in 1966, construction of that building was delayed until 1969 or 1970, about two years following Smith's death. That same year, the architectural practice of Jens Hansen took over the role of supervising architect for 2175 Milvia Street. The building was completed in 1971 (City of Berkeley Building and Safety Department 1969; 1970; 1971). Although the Berkeley Center is a story taller and occupies and a larger lot than the subject building at 2118 Milvia Street, the buildings have several design elements in common, including concrete-block construction, floor-to-ceiling windows, projecting bays with upper-story overhangs, a canted corner, and vertically oriented windows placed between the projecting bays.

Following completion in 1967, the subject building was, for decades, home to a succession of commercial and institutional tenants. One of the longer term and more documented tenants was the firm Teknekron, which occupied the building from at least 1973 through 1983. Founded in 1968 by Harvey E. Wagner and several computer engineers from the University of California, Berkeley, the firm has been described as an early Berkeley-area startup incubator (Teknekron Corporation 2020; Castelle 2019). When Teknekron entered the arena of business incubation remains unclear. Newspaper articles from the 1960s and 1970s describe the firm in terms consistent with a traditional research and development company or a consultancy. An article published in the Oakland Tribune in 1970, for example, explained that Teknekron "[sought] to move technology from the universities to industry by maintaining constant contact with work being done by university scientists and engineers and by evaluating emerging scientific developments in terms of their probable applications." The article suggests firm's close work with university researchers may have been a worthwhile innovation in a business environment in which company's favored in-house research and development. At the time of the article's publication, Teknekron was promoting its development of the Public Urban Locator Service (also known by the acronym PULSE), which employed electronic sensors to track the movement of city buses (Oakland Tribune 7/26/1970).

By the 1970s, the firm operated several subsidiaries, but its main emphasis was the development of computerized financial analysis systems used to acquire and analyze stock market data and provide other services to financial institutions (Computer History Museum 2020). Through the 1970s, the company's consulting operations generated several news items pertaining to contracts to conduct social and environmental planning studies concerning, for example, alternatives to the State of California's mental health hospitals and public support for a proposed national speed limit of 55 miles per hour on interstate highways (Santa Cruz Sentinel 11/4/1977; Tampa Times 1/20/1979).

By the time Teknekron appears to have left the building in the early 1980s, it had expanded to also include a "hardware-oriented integrated automated division" nearby at 2121 Allston Street, and additional offices in Emeryville, Texas, New York, Maryland, and Nevada (Berkeley Gazette 10/19/1983). Reuters later acquired the Teknekron in 1994 and its divisions were sold off to other firms in the late 1990s (Computer History Museum 2020).

By the early 1980s, the building was owned by Nora Wagner (no apparent relation to Harvey E. Wagner of Teknekron). Nora Wagner, or a company affiliated with her (N.E.W. Milvia Property) held title to the property through at least 2011, during which time the building continued to be occupied by a variety of tenants and organizations. The Peralta Community College District Board of Trustees acquired the building in 2015 as part of a plan to expand the Berkeley City College physical plant (Peralta Community College District n.d.).

Building permits and related documents on file with the City of Berkeley Building and Safety Department indicate the building has been subject to many alterations, although most pertain to interior remodeling, electrical and mechanical upgrades, and other actions that had little effect on the integrity of the building's design. A few notable alterations, include the closure of an interior light shaft ca. 1967, alteration of second-floor light well in 1977, installation of a metal security gate at the Center Street entrance in 1994, and installation of non-original exterior sliding glass doors in 2011 (City of Berkeley Building and Planning Department 1967; 1977; 1994; 2011). In addition, drawings for a seismic retrofitting of the building were prepared in 1995, but it is not clear whether the work proposed was completed (Tipping 2014).

A summary of the construction, alteration, and ownership/occupancy history of 2118 Milvia Street are included in Table 1and Table 2 below.

### Table 1 Select Construction History of 2118 Milvia Street

| Application/ Permit # | Date Issued | Description of Work | Architect/ Contractor | Property Owner | Notes |
|---|---|---|---|---|---|
| N/A | 1966 | Construction of building | L.L. Freels and Associates | James Y. Smith | |
| N/A | 1966 | Construction of building foundation | L.L. Freels and Associates | James Y. Smith | Permit is for construction of the foundation only |
| N/A | 1967 | Filling of unpermitted light well | L.L. Freels and Associates | James Y. Smith | |
| 040974829 | 1974 | Interior remodeling | N/A | N/A | Permit issued to Tepping Realty |
| 081376493 | 1976 | Interior remodeling | James R. Lewis, designer | N/A | Permit issued to Teknekron, Inc. |
| 091576114 | 1976 | HVAC installation | Engineered Air Systems | N/A | |

| Application/ Permit # | Date Issued | Description of Work | Architect/ Contractor | Property Owner | Notes |
|---|---|---|---|---|---|
| 092876407 | 1976 | Plumbing | Finzel Plumbing | N/A | Permit issued to Teknekron, Inc |
| 040974827 | 1977 | Alterations to second-floor light well | George Kinnell, designer | N/A | Permit issued to Tepping Realty |
| 50977914, 040877431, and 040877431 | 1977 | Electrical work | Clifford Electric | N/A | Permit issued to Teknekron, Inc. |
| B072877383 | 1977 | Remodel second floor interior | Strktures, contractor; James R. Lewis, designer | N/A | Permit issued to Tekenekron |
| E071177062 | 1980 | Electrical work | Clifford Electric | N/A | Permit issued to Tekenekron |
| B065280088 | 1980 | Interior remodeling | Dome Construction | N/A | Permit issued to Tekenekron |
| E0709800371 | 1980 | Electrical work | Clifford Electric | Nora E. Wagner | |
| B0302815506 | 1981 | Reroofing | N/A | N/A | Permit issued to Technical, Inc. |
| N/A | 1981 | Electrical | N/A | N/A | Permit issued to Tekenekron |
| N/A | 1993 | Interior remodeling | N/A | Nora E. Wagner | |
| 94-000000217 | 1994 | Install metal security gate | N/A | Nora E. Wagner Trust | |
| 7-2389, 07-4453, and 7-5914 | 2007 | Interior improvements | Kevin Greene / Greene Builders, Inc. | N.E.W. Milvia Properties | |
| 07-4818 | 2007 | Gate and fence at front entry | Kevin Greene | | |

N/A = not applicable

Source: City of Berkeley building permits

### Table 2 Ownership/Occupancy History of 5446 West Harold Way

| Date | Property Owners/Tenants | Source |
|---|---|---|
| 1967 | Evelyn Wood Reading Dynamics Institute | Daily Independent Journal (San Rafael) |
| 1967 | General Electric Information Service Department | Oakland Tribune |
| 1968 | James Y. Smith | Oakland Tribune |
| 1968 | Online Decisions, Inc. | Oakland Tribune |

| Date | Property Owners/Tenants | Source |
|---|---|---|
| 1970 | Anthropology Curriculum Study Project; Davenport Associates; Provident Mutual Life Insurance Co. of Philadelphia; Electrical Industry Bid Registry of Bay Counties Inc.; Evelyn Wood Reading Dynamics; Federal Bureau of Investigation; General Electric Company Service; Cecelia Hurwich Interiors; Information Concepts Inc.; George H. Kreep Insurance; Mutual Life Insurance Company of New York; Provident Mutual Life Insurance Co. of Philadelphia; Reading Dynamics of Northern California, Inc.; Robert J. Sciutto Insurance; George A. Shwab, III Insurance; State Farm Insurance Companies; Teknekron Inc.; United States Government; Joseph Ware; Yvonne Ware. | City Directory |
| 1971 | Federal Bureau of Investigation | Oakland Tribune |
| 1971 | Davenport Associates | Oakland Tribune |
| 1973 | Teknekron, Inc. | Berkeley Gazette |
| 1973 | Tepping Realty Company | Napa Valley Register |
| 1973 | Beryl Jones | Berkeley Gazette |
| 1975 | Lampard Otter, Inc. | City Directory |
| 1976 | University Properties; Harvey Wagner | Berkeley Gazette |
| 1976 | Teknekron | Berkeley Gazette |
| 1980 | Insurance Technolgy Co.; Lampard Otter, Inc.; Walter A. Landauer; Albert M. Lampard Otter; Technekron, Inc. | City Directory |
| 1983 | Teknekron, Inc. | Berkeley Gazette |
| 1986 | Walter A. Landauer | City Directory |
| 1996 | Society of Magnetic Resonance | City Directory |
| 2000 | Society of Magnetic Resonance | City Directory |
| 2006 | Society of Magnetic Resonance | City Directory |
| 2008 | City of Berkeley; Society of Magnetic Resonance | City Directory |

Sources: EDR 2014c; Newspapers.com var.

## Historical Resources Evaluation

### *Significance Criterion A/1*

Constructed in downtown Berkeley in 1966, the property does not appear eligible for associations with significant events or themes important to history. Research for this study suggests the property is an ordinary office building and was not significant in the development of downtown Berkeley or the city as a whole. Likewise, no evidence was uncovered suggesting the property is significant for its association with Teknekron in the history of business incubation, research and development, or any other facet or sector of the economy. Although Teknekron may have been one of the earliest firms to apply business incubation practices to technology-focused businesses, available sources provide no concrete evidence that Teknekron's approach was directly influential in the concept of incubation or business practices in the high-technology sector, or that Teknekron or its associated firms produced notable technological innovations. The property is not significant for an association with any other event or pattern of events significant in the history of the city, region, state, or nation (Criterion A/1).

### *Significance Criterion B/2*

The property does not appear eligible for associations with individuals known to have made significant historical contributions. Aside from the property's current owner, research for this study identified only two previous owners, James Y. Smith and Nora E. Wagner. No available evidence suggested either figure made any significant historical contributions. The overwhelming majority of the building's occupants were individuals who left no consequential mark in the historical record. Harvey E. Wagner, founder of Teknekron, Inc., was perhaps more documented than other occupants; however, whatever Wagner's accomplishments in research and development, technical consulting, and business incubation, available evidence suggests that Wagner adopted an approach business incubation which at most was regarded as unconventional rather than influential. Based on the research for this study, relevant scholarship on the history of business development does not link Wagner to any direct or lasting contribution to the history of business incubation or technological innovation. The subject property is therefore recommended ineligible for listing under Criterion B/2.

### *Significance Criterion C/3*

The property does not appear eligible as a distinctive example of an architectural style or the work of a master. The building exhibits elements of Brutalist- and Late Modern-style architecture; however, these features are largely limited to its its use of concrete and modular design features and is not a notable example of either style. The building does not possess many of the other hallmarks of the Brutalist style, such as deeply recessed windows, poured and unpolished concrete with rough textures, or a raw expressive quality; nor does it display the glass skin or exceptional sculptural characteristics of Late Modern-style architecture. Although the building's designer was awarded a merit award from the American Institute of Architects upon its completion, it was one of 15 projects that year to win this award that year and further historical perspective indicates it is not an exceptional example of any architectural style. As such, it cannot be considered significant a distinctive example of an architectural style and is not significant under this criterion. Additionally, research found no evidence that Freels is or should be considered a master architect or that the subject building's builder, the firm Kirkham, Chaon, and Kirkham, is a master builder (Criterion C/3).

### *Significance Criterion D/4*

Research for the current study uncovered no evidence suggesting 2118 Milvia Street may be significant for its potential to yield important information about prehistory or history. As such, it is recommended ineligible under Criterion D/4.

# 7 Impacts Analysis and Conclusions

The property at 2118 Milvia Street is recommended ineligible for listing in the NRHP or the CRHR. As such, it does not qualify as a historical resource, and its demolition would not result in a significant adverse impact to historical resources as defined by Section 15064.5 of the CEQA Guidelines.

Although the project site does not contain any historical resources, it is immediately adjacent to (but outside the boundaries of) the BCCHD and two contributing resources, which area also individually designated landmarks, the State Farm Insurance Company Building at 1947 Center Street and the old Federal Land Bank building, which is the current Berkeley City Hall at 2180 Milvia Street. The historic district and its contributing resources are significant as a collection of buildings embodying the political trends of the nation and region (NRHP Criterion A) and exhibiting the influence of Beaux Arts Classicism, Art Deco, and Art Moderne design traditions (NRHP Criterion C).

In general, contributors to the district are two-to-six stories in height and feature rectangular massing and limited setbacks, symmetrical main facades, and vertically oriented windows that are regularly spaced. Main facades are often distinguished with variety of details that include upper floor cornices, bas relief ornamentation, rustication, and bracketed overhangs. Exterior wall materials include concrete-stucco and brick, while roofs are generally hidden behind parapets with slate or clay tile cladding. As described in the NRHP Registration Form for the district, the State Farm Insurance Company Building (1947 Center Street) and the Federal Land Bank Building (2180 Milvia Street) were constructed in the Classic Moderne and WPA Moderne styles, respectively, and share common architectural elements, including concrete-stucco exterior, roofs concealed behind parapets, vertically oriented windows grouped in threes, simple cornices above the second floors and along the parapet, square pilasters, and minimal ornament (Cerny et al. 1998). The period of significance for the BCCHD is defined as 1909 through 1950 and since this time, the historic district and its setting has evolved through continued redevelopment. Many properties immediately surrounding the district were constructed in the second half of the twentieth century and later and exhibit modernistic styles that feature simple, rectilinear forms with glass and stucco facades and limited ornament.

Although outside of the current project site, potential indirect impacts to these adjacent historical resources are discussed in accordance with the CEQA Guidelines. Section 15064.5(b) of the CEQA Guidelines stipulates a project will result in a significant effect on the environment if it causes a substantial adverse change in the significance of a historical resource. A substantial adverse change "means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired." Material impairment is constituted by an action that "alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for" listing in a historical register.

The proposed project is outside the boundaries of the BCCHD and would not directly alter any contributing elements. It would replace the existing three-story office building with a six-story educational building, which would extend to the lot lines of the 0.26-acre parcel. This new building would introduce a new visual element to the surrounding setting of the historic district and its contributing buildings; however, this impact would be minimal given this setting is and has historically been urban in nature. Further, the proposed six-story height of the new building is consistent with those buildings found within and adjacent to the historic district. Contributing buildings within the BCCHD are generally two-to-six stories in height with limited or no setbacks and rectangular massing. The contributing and individually landmarked State Farm Insurance building, abutting the project site to the west, and the Federal Bank Land Bank building/City Hall, across Center street to the south, are six and five stories respectively. The proposed building would therefore be approximately the same height as these buildings and exhibit similar setbacks.

For these reasons, the project would not materially impair the surroundings of any adjacent historical resources. Additionally, design guidance measures are currently being considered as part of the project to address potential impacts to aesthetics under CEQA. The adoption of these measures would further ensure the project would not result in a substantial adverse change to the setting of the BCCHD and its contributing resources. For these reasons recommends a ***finding of no impact to historical resources*** under CEQA for the proposed project.

# 8 References

Architectural Resources Group (ARG)

2008 City of Berkeley Downtown Area Plan Historical Resource Evaluation. Prepared for Lamphier-Gregory.

Archives and Architecture

2015 Shattuck Avenue Commercial Corridor Historic Context and Survey. Prepared for the City of Berkeley Department of Planning and Development. May.

Bean, Walton

1968 *California: An Interpretive History*. New York, New York: McGraw-Hill Book Company.

Berkeley, City of

2012 Downtown Berkeley Design Guidelines.

Berkeley, City of. Building and Safety Department

Var. Historical building permits for 2118 and 2175 Milvia Street. Documents on file with the City of Berkeley Building and Safety Division, Berkeley, CA.

Berkeley Architectural Heritage Association (BAHA)

1987 *Historic Survey of Downtown*. Berkeley, CA.

Berkeley Gazette

1973 "Teknetron [sic] Appointment," May 22. www.newspapers.com (accessed January 5, 2021).

1973 Advertisement for Dynamics Institute of Hypnosis. September 10. www.newspapers.com (accessed December 22, 2020).

1973 Real estate advertisement. October 25. www.newspapers.com (accessed December 22, 2020).

1976 Fictitious Business Name Statement. April 3. www.newspapers.com (accessed December 22, 2020).

1976 Classified advertisement. August 4. www.newspapers.com (accessed December 22, 2020).

1983 "Teknekron Expands Here," October 19. www.newspapers.com (accessed December 22, 2020).

Bruneel, Johan, Tiago Ratinho, Bart Clarysse, Aard Groen

2012 "The Evolution of Business Incubators: Comparing demand and supply of business incubation services across different incubator generations," Technovation 32.

Castelle, Michael

2019 “Middleware’s Message: The Financial Technics of Codata,” Philosophy and Technology. December 9. https://link.springer.com/article/10.1007/s13347-019-00379-2?shared-article-renderer.

Cerny, Susan, Jerri Holan, and Linda Perry

1998 Berkeley Historic Civic Center District NRHP Registration Form.

Computer History Museum

2020 “Teknekron, Inc.” Selling the Computer Revolution on the Computer History Musuem website. https://www.computerhistory.org/brochures/t-z/teknekron-inc/ (accessed December 22, 2020).

Daily Independent Journal (San Rafael)

1967 Advertisement for Evelyn Wood Reading Dynamics Institute. May 22. www.newspapers.com (accessed December 22, 2020).

1969 “Span Bus Idea to Be Studied,” February 3. www.newspapers.com (accessed January 6, 2021).

Environmental Data Research (EDR), Inc.

2014a Certified Sanborn Map Report: Office Building, 2118 Milvia Street. Inquiry No. 4167666.3. December 22, 2014.

2014b Aerial Photo Decade Packet: Office Building, 2118 Milvia Street. Inquiry No. 4167666.12. December 23, 2014.

2014c The EDR City Directory Abstract: Office Building, 2118 Milvia Street. Inquiry No. 4167666.5. December 23, 2014.

Geberhard, David, Eric Sandweiss, and Robert Winter

1985 *The Guide to Architecture in San Francisco and Northern California*. Revised ed. Salt Lake City, UT. Gibbs and Smith, Inc., Peregrine Books. Internet Archive website. https://archive.org (accessed December 30, 2020).

Hatfield, Larry D.

1971 “’Catch 22’ at Ord: The Case of the Balky Lieutenant,” San Francisco Examiner, July 21 www.newspapers.com (accessed December 22, 2020).

Hoover, Mildred Brook et al.

2002 *Historic Spots in California.* Edited by Douglas E. Kyle. Stanford: Stanford University Press.

Netronline

Var. “Historic Aerials.” [digital photograph database]. Aerial images of 2118 Milvia Street, Berkeley, CA, and vicinity viewed online. https://www.historicaerials.com/viewer (accessed January 4, 2021).

Los Angeles Times

1970 “Business & People,” June 30. www.newspapers.com (accessed January 6, 2021).

Marquis Who's Who

N.d. *Who's Who in the West: A Biographical Dictionary of Noteworthy Men and Women of The Pacific Coastal and Western States* (1976-1977 edition). Chicago: Marquis Who's Who. Internet Archive website. https://archive.org/details/whoswhoinwest76-77marq (accessed January 4, 2021).

Napa Valley Register

1962 "130 Apartment Units Planned," August 2. www.newspapers.com (accessed December 30, 2020).

1973 Classified advertisement. July 5. www.newspapers.com (accessed December 22, 2020).

National Park Service

1983 *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*. National Park Service, Washington D.C.

1995 *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin, National Park Service, Washington D.C.

Oakland Tribune

1966 "Berkeley Building," March 30. www.newspapers.com (accessed December 22, 2020).

1967 Advertisement for General Electric, Information Service Department. October 1. www.newspapers.com (accessed December 22, 2020).

1967 "Oakland Coliseum Wind Design Prize," November 27. www.newspapers.com (accessed December 22, 2020).

1968 "Deluxe Apartments Planned," March 24. www.newspapers.com (accessed December 30, 2020).

1968 "Bodies of 2 Air Victims Recovered," August 18. www.newspapers.com (accessed December 22, 2020).

1969 "Pool Adds Interest for Back of Building Offices," August 10. www.newspapers.com (accessed December 30, 2020).

1969 "Concord Office Unit Construction Begins," October 10. www.newspapers.com (accessed December 30, 2020).

1970 "A Conduit from Campus to Office," July 26. www.newspapers.com (accessed January 6, 2021).

1970 "Northwood Construction Starts," August 30. www.newspapers.com (accessed December 30, 2020).

1971 "50 Protesters Raid Berkeley FBI Headquarters," February 6. www.newspapers.com (accessed December 22, 2020).

1972 Advertisement for Davenport Associates. February 29. www.newspapers.com (accessed December 22, 2020).

Peralta Community College District

n.d. “History of Berkeley City College.” Electronic document on file at Rincon Consultants, Ventura CA.

ProQuest

Var. “Digital Sanborn Maps, 1867-1970.” [digital map database]. Fire insurance maps of the 2118 Milvia Street, Berkeley, CA, and vicinity. http://sanborn.umi.com.ezproxy.lapl.org/splash.html (accessed April 2020).

Rolle, Andrew

2003 *California: A History*. Harlan Davidson, Wheeling, Illinois.

Ryzhonkof, Vasily

2013 “The History of Business Incubation (part 2),” Entrepreneurship, Business Incubation, Business Models & Strategy Blog. March 22. https://worldbusinessincubation.wordpress.com/2013/03/22/426/ (accessed January 5, 2021).

San Francisco Examiner

1963 “New Office Complex at Walnut Creek,” November 3. www.newspapers.com (accessed December 30, 2020).

1968 Advertisement for On-Line Decisions, Inc. September 11. www.newspapers.com (accessed December 22, 2020).

1971 “A Rowdy Protest at Berkeley FBI,” February 6. www.newspapers.com (accessed December 22, 2020).

Santa Cruz Sentinel

1977 “Should Mental Patients Be Allowed to Refuse Drugs” November 4. www.newspapers.com (accessed January 26, 2021).

Shumway, Burgess M.

2007 *California Ranchos: Patented Private Land Grants Listed by County*. Michael Burgess and Mary Wickizer Burgess, eds. Rockville, Maryland: Borgo Publishing Press.

Tampa Times

1979 “Drivers Back 55 MPH Limit,” January 20. www.newspapers.com (accessed January 26, 2021).

Teknekron Corporation

2020 “Open Corporation,” Teknekron Corporation web site. https://teknekroncorp.com/open-corporation.html (accessed December 22, 2020).

Tipping, Steven

2014 Letter to Debbie Budd, Ed. D., Berkeley Community College. July 7. Peralta Community College web site. https://web.peralta.edu/purchasing/files/2012/06/2118-Milvia-Street-Study-2014-Tipping-Mar.pdf (accessed January 6, 2021).

University of California, Santa Barbara (UCSB) Map & Imagery Lab

1939 Aerial photograph, Flight C_5750, Frame 289-99. http://mil.library.ucsb.edu/ap_indexes/FrameFinder/ (accessed January 28, 2021).

1965 Aerial photograph, Flight CAS_65_130, Frame 15-140. http://mil.library.ucsb.edu/ap_indexes/FrameFinder/ (accessed January 28, 2021).

# Appendix A

California Department of Parks and Recreation Forms

# Appendix NOI

Noise Modeling Files

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/19/2021
Case Description: 2118 Milvia St

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) Daytime | Evening | Night |
|---|---|---|---|---|
| Residence | Residential | 60 | 60 | 60 |

Equipment

| Description | Impact Device | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
|---|---|---|---|---|---|---|
| Concrete Saw | No | 20 | | 89.6 | 185 | 0 |
| Dozer | No | 40 | | 81.7 | 185 | 0 |

Results

| | | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Concrete Saw | | 78.2 | 71.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Dozer | | 70.3 | 66.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | Total | 78.2 | 72.4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/5/2021
Case Description: 2118 Milvia St

---- Receptor #1 ----

| | | Baselines (dBA) | | |
|---|---|---|---|---|
| Description | Land Use | Daytime | Evening | Night |
| Residence | Residential | 65 | 65 | 65 |

| | | | Equipment | | | |
|---|---|---|---|---|---|---|
| | | | Spec | Actual | Receptor | Estimated |
| | Impact | | Lmax | Lmax | Distance | Shielding |
| Description | Device | Usage(%) | (dBA) | (dBA) | (feet) | (dBA) |
| Impact Pile Driver | Yes | 20 | | 101.3 | 20 | 0 |

Results

| | | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Impact Pile Driver | | 109.2 | 102.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | Total | 109.2 | 102.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2021
Case Description: 2118 Milvia St

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) Daytime | Evening | Night |
|---|---|---|---|---|
| Residence | Residential | 65 | 65 | 65 |

| Description | Impact Device | Usage(%) | Equipment Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
|---|---|---|---|---|---|---|
| Impact Pile Driver | Yes | 20 | | 101.3 | 100 | 0 |

Results

| | | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Impact Pile Driver | | 95.2 | 88.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | Total | 95.2 | 88.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/5/2021
Case Description: 2118 Milvia St

---- Receptor #1 ----

| | | Baselines (dBA) | | |
|---|---|---|---|---|
| Description | Land Use | Daytime | Evening | Night |
| Residence | Residential | 65 | 65 | 65 |

| | Impact | | Equipment Spec Lmax | Actual Lmax | Receptor Distance | Estimated Shielding |
|---|---|---|---|---|---|---|
| Description | Device | Usage(%) | (dBA) | (dBA) | (feet) | (dBA) |
| Auger Drill Rig | No | 20 | | 84.4 | 20 | 0 |

Results

| | | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Auger Drill Rig | | 92.3 | 85.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | Total | 92.3 | 85.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2021
Case Description: 2118 Milvia St

---- Receptor #1 ----

| | | Baselines (dBA) | | |
|---|---|---|---|---|
| Description | Land Use | Daytime | Evening | Night |
| Residence | Residential | 65 | 65 | 65 |

| | | | Equipment | | | |
|---|---|---|---|---|---|---|
| | Impact | | Spec Lmax | Actual Lmax | Receptor Distance | Estimated Shielding |
| Description | Device | Usage(%) | (dBA) | (dBA) | (feet) | (dBA) |
| Auger Drill Rig | No | 20 | | 84.4 | 100 | 0 |

Results

| | | Calculated (dBA) | | Noise Limits (dBA) | | | | | | Noise Limit Exceedance (dBA) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Day | | Evening | | Night | | Day | | Evening | | Night | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Auger Drill Rig | | 78.3 | 71.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | Total | 78.3 | 71.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

# Appendix NRG

Fuel Consumption Calculations

# 2118 Milvia Street Project

Last Updated: March 2, 2021

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

| | | | |
|---|---|---|---|
| HP: 0 to 100 | 0.0588 | HP: Greater than 100 | 0.0529 |

*Values above are expressed in gallons per horsepower-hour/BSFC.*

**CONSTRUCTION EQUIPMENT**

| Construction Equipment | # | Hours per Day | Horsepower | Load Factor | Construction Phase | Fuel Used (gallons) |
|---|---|---|---|---|---|---|
| Concrete/Industrial Saws | 1 | 8 | 81 | 0.73 | Demolition Phase | 1,862.45 |
| Excavators | 1 | 8 | 158 | 0.38 | Demolition Phase | 1,701.08 |
| Rubber Tired Dozers | 1 | 8 | 247 | 0.40 | Demolition Phase | 2,799.24 |
| Tractors/Loaders/Backhoes | 1 | 6 | 97 | 0.37 | Demolition Phase | 847.84 |
| Tractors/Loaders/Backhoes | 1 | 8 | 97 | 0.37 | Site Preparation Phase | 556.79 |
| Graders | 1 | 8 | 187 | 0.41 | Site Preparation Phase | 1,069.91 |
| Rollers | 1 | 8 | 80 | 0.38 | Grading Phase | 457.33 |
| Rubber Tired Dozers | 1 | 8 | 247 | 0.40 | Grading Phase | 1,336.95 |
| Tractors/Loaders/Backhoes | 1 | 6 | 97 | 0.37 | Grading Phase | 404.94 |
| Concrete/Industrial Saws | 1 | 8 | 81 | 0.73 | Grading Phase | 889.53 |
| Cranes | 1 | 4 | 231 | 0.29 | Building Construction Phase | 7,407.82 |
| Forklifts | 1 | 6 | 89 | 0.20 | Building Construction Phase | 3,282.36 |
| Pumps | 1 | 8 | 84 | 0.74 | Building Construction Phase | 15,283.25 |
| Tractors/Loaders/Backhoes | 1 | 8 | 97 | 0.37 | Building Construction Phase | 8,824.26 |
| Air Compressors | 1 | 6 | 78 | 0.48 | Architectural Coating Phase | 66.00 |
| Cement and Mortar Mixers | 1 | 6 | 9 | 0.56 | Paving Phase | 355.41 |
| Pavers | 1 | 7 | 130 | 0.42 | Paving Phase | 4,040.54 |
| Paving Equipment | 1 | 7 | 132 | 0.36 | Paving Phase | 3,516.60 |
| Rollers | 1 | 7 | 80 | 0.38 | Paving Phase | 2,501.01 |
| Tractors/Loaders/Backhoes | 1 | 7 | 97 | 0.37 | Paving Phase | 2,952.67 |
| | | | | | **Total Fuel Used** | **60,155.97 (Gallons)** |

| Construction Phase | Days of Operation |
|---|---|
| Demolition Phase | 67 |
| Site Preparation Phase | 33 |
| Grading Phase | 32 |
| Building Construction Phase | 523 |
| Paving Phase | 200 |
| Architectural Coating Phase | 5 |
| Total Days | 860 |

| WORKER TRIPS | | | | |
|---|---|---|---|---|
| **Constuction Phase** | **MPG [2]** | **Trips** | **Trip Length (miles)** | **Fuel Used (gallons)** |
| Demolition Phase | 24.4 | 10 | 10.8 | 296.56 |
| Site Preparation Phase | 24.4 | 5 | 10.8 | 73.03 |
| Grading Phase | 24.4 | 10 | 10.8 | 141.64 |
| Building Construction Phase | 24.4 | 25 | 10.8 | 5,787.30 |
| Paving Phase | 24.4 | 13 | 10.8 | 1,150.82 |
| Architectural Coating Phase | 24.4 | 5 | 10.8 | 11.07 |
| | | | **Total** | **7,460.41** |

| HAULING AND VENDOR TRIPS | | | | |
|---|---|---|---|---|
| **Trip Class** | **MPG [2]** | **Trips** | **Trip Length (miles)** | **Fuel Used (gallons)** |
| **HAULING TRIPS** | | | | |
| Demolition Phase | 7.5 | 114 | 20.0 | 304.00 |
| Site Preparation Phase | 7.5 | 188 | 20.0 | 501.33 |
| Grading Phase | 7.5 | 0 | 20.0 | - |
| Building Construction Phase | 7.5 | 0 | 20.0 | - |
| Paving Phase | 7.5 | 0 | 20.0 | - |
| Architectural Coating Phase | 7.5 | 0 | 20.0 | - |
| | | | **Total** | **805.33** |
| **VENDOR TRIPS** | | | | |
| Demolition Phase | 7.5 | 0 | 7.3 | - |
| Site Preparation Phase | 7.5 | 0 | 7.3 | - |
| Grading Phase | 7.5 | 0 | 7.3 | - |
| Building Construction Phase | 7.5 | 10 | 7.3 | 5,090.53 |
| Paving Phase | 7.5 | 0 | 7.3 | - |
| Architectural Coating Phase | 7.5 | 0 | 7.3 | - |
| | | | **Total** | **5,090.53** |

| | |
|---|---|
| **Total Gasoline Consumption (gallons)** | **7,460.41** |
| **Total Diesel Consumption (gallons)** | **66,051.84** |

**Sources:**

**[1]** United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

**[2]** United States Department of Transportation, Bureau of Transportation Statistics. 2019. *National Transportation Statistics 2019* . Available at: https://www.bts.gov/topics/national-transportation-statistics.

# 2118 Milvia Street Project

Last Updated: March 2, 2021

**Populate one of the following tables (Leave the other blank):**

| **Annual VMT** | | **OR** | **Daily Vehicle Trips** | |
|---|---|---|---|---|
| Annual VMT: | 1,718,323 | | Daily Vehicle Trips: | |
| | | | Average Trip Distance: | |

| **Fleet Class** | **Fleet Mix** |
|---|---|
| Light Duty Auto (LDA) | 0.581705 |
| Light Duty Truck 1 (LDT1) | 0.037849 |
| Light Duty Truck 2 (LDT2) | 0.193793 |
| Medium Duty Vehicle (MDV) | 0.109044 |
| Light Heavy Duty 1 (LHD1) | 0.014574 |
| Light Heavy Duty 2 (LHD2) | 0.005304 |
| Medium Heavy Duty (MHD) | 0.018664 |
| Heavy Heavy Duty (HHD) | 0.026966 |
| Other Bus (OBUS) | 0.002656 |
| Urban Bus (UBUS) | 0.002072 |
| Motorcycle (MCY) | 0.005755 |
| School Bus (SBUS) | 0.000900 |
| Motorhome (MH) | 0.000719 |

| **Fuel Economy (MPG) [1]** | |
|---|---|
| Passenger Vehicles | 24.4 |
| Light-Med Duty Trucks | 17.9 |
| Heavy Trucks/Other | 7.5 |
| Motorcycles | 44 |

**Fleet Mix**

| **Vehicle Type** | **Percent** | **Fuel Type** | **Annual VMT: VMT** | **Vehicle Trips: VMT** | **Fuel Consumption (Gallons)** |
|---|---|---|---|---|---|
| Passenger Vehicles | *58.17%* | *Gasoline* | 999,557 | 0.00 | 40,965.45 |
| Light-Medium Duty Trucks | *34.07%* | *Gasoline* | 585,409 | 0.00 | 32,704.39 |
| Heavy Trucks/Other | *7.19%* | *Diesel* | 123,470 | 0.00 | 16,462.68 |
| Motorcycle | *0.58%* | *Gasoline* | 9,889 | 0.00 | 224.75 |

| | |
|---|---|
| **Total Gasoline Consumption (gallons)** | **73,894.59** |
| **Total Diesel Consumption (gallons)** | **16,462.68** |

Sources:

[1] United States Department of Transportation, Bureau of Transportation Statistics. 2019. National Transportation Statistics 2019. Available at: https://www.bts.gov/topics/national-transportation-statistics.

# Appendix TRA

Transportation Technical Memorandum

# Berkeley City College
# 2118 Milvia Street Project

## Transportation Technical Memorandum

## Draft #1

**Prepared for:**

Peralta Community College District
333 East 8th Street
Oakland, CA 94606

**Prepared by:**


**CHS Consulting Group**
1617 Clay Street
Oakland, CA 94612

**February 2021**

# Table of Contents



# Tables and Figures

# Appendices

# 1.0 Introduction

This transportation technical memorandum describes the existing transportation setting and provides a transportation impact analysis for the proposed Berkeley City College Project (herein referred to as the "proposed project").

## 1.1 Project Location

The project site is located at 2118 Milvia Street, on the northwest corner of the Milvia Street/Center Street intersection in the City of Berkeley (Assessor's Parcel Number 57-2022-5-1). The project site is 11,326 square feet in size. It is bounded by Milvia Street to the east, Center Street to the south, a six-story building (City of Berkeley municipal offices) to the west, and a parking lot with a three-story commercial building to the north. The project site is zoned C-DMU Buffer (Downtown Mixed Use), as defined by the City's Zoning Ordinance. The building was previously occupied by the City of Berkeley as municipal office space and is now vacant. **Figure 1** shows the project location.

## 1.2 Project Description

The Peralta Community College District (District) proposes to demolish the existing building at 2118 Milvia Street and construct a new six-story building. The new building would serve as an expansion of the main Berkeley City College (BCC) building located at 2050 Center Street, approximately 200 feet east of the project site. BCC currently occupies approximately 165,000 gross square feet of space in 2050 Center Street and the 2000 Center Street annex. When the proposed project is constructed, BCC would relocate part of its facilities to the project site and the 2000 Center Street annex would no longer be needed.

The proposed building would be approximately 60,000 gross square feet including general education facilities (labs, art studios, classrooms), faculty and administrative offices, and student services. The proposed project would not include on-site vehicle parking. Bicycle parking is proposed on the building's first floor adjacent to the main entrance on Milvia Street. No modifications to existing street parking are proposed. Pedestrians would access the building from the main entrance on Milvia Street and two additional side doors connected to two stairwells each on Milvia Street and Center Street. The proposed project would also include a loading dock on Center Street accessed by a roll up door.

## Figure 1 Project Site Location


Imagery provided by Microsoft Bing and its licensors © 2020.

# 2.0 Setting

This section describes the existing transportation conditions in the vicinity of the project site including roadways, local and regional transit service, bicycle and pedestrian facilities, and parking conditions.

## 2.1 Roadway Network

### 2.1.1 Regional Access

The project site is located approximately 1.8 miles east of Interstate 580 (I-580) and 2.4 miles north of State Route 24 (SR-24). These freeway facilities are described below.

- ***Interstate 580 (I-580)*** is a major freeway that runs in a general east-west direction between US 101 in San Rafael and Interstate 5 in Tracy. Near the project site, I-580 runs north-south and has five lanes in each direction. Access to I-580 to/from the project site is provided via University Avenue on- and off-ramps.
- ***State Route 24 (SR-24)*** is a 15-mile-long east-west freeway that runs between I-580 in Oakland and I-680 in Walnut Creek. Near the project site, SR-24 has four lanes in each direction. The project site can be accessed via the Telegraph Avenue on- and off-ramps in the eastbound direction or the Martin Luther King Jr. Way on- and off-ramps in the westbound direction.

### 2.1.2 Local Access

Local access is provided by arterial and local roadways in the vicinity of project site. The functional designation of local roadways was obtained from the *City of Berkeley General Plan (General Plan)*.[1] These roadways are described below.

- **Milvia Street** is a north-south roadway that runs between Hopkins Street and Shattuck Avenue. Near the project site, this roadway has one travel lane in each direction and parallel parking on both sides. Milvia Street is designated as a Class III bike route between Hopkins Street and Allston Way. The *General Plan* identifies Milvia Street as a collector street and an emergency access and evacuation route (between University Avenue and Channing Way).
- **Center Street** is an east-west roadway that runs between Martin Luther King Jr. Way and Oxford Street. Near the project site, Center Street has one travel lane in each direction, 45-degree angled parking between Martin Luther King Jr. Way and Milvia Street, and parallel parking on both sides between Milvia and Oxford streets. There are Class II bike lanes between Milvia and Oxford streets. The *General Plan* identifies Center Street as a local street and an

[1] City of Berkeley General Plan, 2003

emergency access and evacuation route (between Martin Luther King Jr. Way and Oxford Street).

- **University Avenue** is an east-west roadway that runs between Oxford Street and the Berkeley Pier. Near the project site, University Avenue has two travel lanes in each direction and parallel parking on both sides. The *General Plan* identifies University Avenue as a major street and an emergency access and evacuation route.
- **Martin Luther King Jr. Way** is a north-south roadway that runs between Yolo Avenue and Adeline Street. Near the project site, Martin Luther King Jr. Way has two travel lanes in each direction and parallel parking on both sides. The *General Plan* identifies Martin Luther King Jr. Way as a major street and an emergency access and evacuation route.

## 2.2 Transit Network

The study area for transit generally covers a quarter-mile radius from the project site, which is served by Alameda-Contra Costa Transit District (AC Transit) buses and Bay Area Rapid Transit (BART) rail service.

### 2.2.1 Alameda-Contra Costa Transit (AC Transit)

AC Transit operates bus service within 13 cities and unincorporated areas in Alameda and Contra Costa counties, as well as connecting transbay service to and from San Francisco. **Table 1** shows AC Transit bus routes operating within a quarter-mile radius from the project site.

**Table 1: AC Transit Routes**

| Route | Service Area | Service Hours | Frequency | Nearest Stop (Distance from Project Site) |
|---|---|---|---|---|
| **18** | Albany, Berkeley, and Oakland | 6:21 AM to 12:27 AM | 20 min | Shattuck Avenue/ Allston Way (800 feet) |
| **51B** | Berkeley and Oakland | 5:21 AM to 12:09 AM | 10 min | Shattuck Avenue/ Center Street (1,000 feet) |
| **52** | Albany and Berkeley | 8:20 AM to 8:01 PM | 20 min | Shattuck Avenue/ Center Street (1,000 feet) |
| **65** | Berkeley | 7:30 AM to 7:22 PM | 60 min | Shattuck Avenue/ Center Street (1,000 feet) |
| **67** | Berkeley | 8:12 AM to 6:56 PM | 60 min | Shattuck Avenue/ Center Street (1,000 feet) |
| **79** | El Cerrito, Kensington, Berkeley, and Oakland | 6:04 AM to 8:33 PM | 30 min | Shattuck Avenue/ Center Street (1,000 feet) |

| | | | | |
|---|---|---|---|---|
| **88** | Berkeley and Oakland | 5:48 AM to 10:11 PM | 20 min | Center Street and Shattuck Avenue (600 feet) |
| **800** | Albany, Berkeley, Oakland, and San Francisco | 11:50 PM to 6:57 AM | 30 min | Shattuck Avenue/ Allston Way (800 feet) |
| **F** | Berkeley, Emeryville, and San Francisco | 6:46 AM to 1:16 AM | 30 min | Shattuck Avenue/ Allston Way (800 feet) |

Source: AC Transit, 2021; CHS Consulting Group, 2021.

### 2.2.2 Bay Area Rapid Transit (BART)

BART provides regional commuter rail service between the East Bay (from Pittsburg/Bay Point, Richmond, Dublin/Pleasanton, and Berryessa), San Mateo County (from San Francisco International Airport and Millbrae), and San Francisco, with operating hours between 4:00 AM and midnight on weekdays, and 7:30 AM to 1:00 AM on weekends. The Downtown Berkeley BART Station is located approximately 800 feet east of the project site. It is served by two routes (i.e., Richmond-Millbrae and Richmond-Berryessa) which operate with approximately 30-minute frequency during the peak hour.[2]

## 2.3 Bicycle Conditions

On-street bicycle facilities include Class I bikeways (bike paths with exclusive right-of-way for use by bicyclists or pedestrians); Class II bike lanes (bike lanes striped within the paved areas of roadways and established for the preferential use of bicycles); Class III bikeways (signed bike routes that allow bicycles to share travel lanes with vehicles); and Class IV cycle tracks (facilities for the exclusive use of bicycles that include physical separation from motor vehicle traffic). The following bicycle facilities are in the vicinity of the project site:

- **Class II Bike Lanes**
    - Milvia Street, between Allston Way and Haste Street
    - Center Street, between Milvia and Oxford streets
    - Oxford Street, between Hearst Avenue and Channing Way
- **Class III Bike Routes**
    - Milvia Street, between Hopkins Street and Allston Way

The *City of Berkeley Bicycle Plan (Bicycle Plan)* recommends developing the following additional bicycle facilities near the project site[3]:

[2] BART timetables as of September 2020.

[3] City of Berkeley Bicycle Plan, 2017.

- **Class III Bicycle Boulevard Network**
  - Milvia Street, between Hopkins and Russell streets
  - Addison Street, between Bolivar Drive and Oxford Street
- **Class IV Cycletrack**
  - University Avenue, between 4th and Oxford streets
  - Bancroft Way, between Milvia Street and Piedmont Avenue
  - Oxford Street, between Virginia and Bancroft streets
  - Shattuck Avenue, between Rose and Woolsey streets

## 2.4 Pedestrian Conditions

Existing sidewalks on Center and Milvia streets fronting the project site are generally eight feet wide with a six-foot effective width. The signalized Center Street/Milvia Street intersection has high-visibility crosswalks with pedestrian push buttons and signal heads at all four legs, as well as ADA-accessible curb ramps at all four corners.

The proposed project is located within the Downtown Mixed-Use zone established in the *City of Berkeley Pedestrian Master Plan* (*Pedestrian Plan*).[4] Near the project site, the *Pedestrian Plan* identifies University Avenue, Martin Luther King Jr. Way, Shattuck Avenue, and Oxford Street as high-injury streets where Berkeley's most severe pedestrian collisions occur. The *Pedestrian Plan* proposes upgrading and adding enhanced sidewalks on the following street segments near the project site:

- University Avenue, between San Pablo Avenue and Oxford Street
- Shattuck Avenue, between Adeline Street and the Berkeley city limits
- Martin Luther King Jr. Way, between Dwight Way and Adeline Street

## 2.5 Parking Conditions

There are several private parking facilities located nearby, mostly serving employees and customers of local businesses. The nearest off-street parking facility is the city-owned Center Street Parking Garage located approximately 250-feet east of the project site, which provides a combination of reserved parking at monthly, daily, and hourly rates. On-street parking in the vicinity of the project site consists of time-limited metered spaces located along both sides of most streets.

[4] City of Berkeley Pedestrian Master Plan, 2020.

# 3.0 Travel Demand

This section presents the methodology and assumptions used to estimate the travel demand for the proposed project.

## 3.1 Methodology

Berkeley City College's student population is expected to continue growing at a similar rate to the increases experienced over the past few years and these increases are not driven by this project. As a result, under the Existing plus Project condition, the existing BCC population at 2000/2050 Center Street would simply be distributed between the project site and 2050 Center Street without any new trip generation. For the purposes of transportation analysis, the proposed project's travel demand was estimated for the Existing condition (Year 2020) and Future Cumulative condition (Year 2040), using the anticipated growth rate obtained from the District. Year 2040 was chosen because it is the timeline included in the Alameda County Transportation Commission's countywide travel demand model. The process for projecting the proposed project's travel demand is described in the following steps:

- **Step 1 Population Estimates** – Existing BCC population was estimated based on student and faculty data. Future BCC population was estimated by applying an annual growth rate of 2.4 percent to the existing population.
- **Step 2 Trip Generation** – The estimated existing and future BCC populations from Step 1 were converted to daily, AM, and PM peak hour person trips based on comparable person-to-trip rates obtained from similar college/university projects in the San Francisco Bay Area.
- **Step 3 Mode Split** – The estimated existing and future BCC person trips were assigned to various transportation modes based on the BCC student and faculty transportation survey data.

Detailed trip generation analysis spreadsheets and assumptions are provided in **Appendix A**.

## 3.2 Population Estimates

CHS's estimates of BCC's current population are based on the existing student enrollment data provided by the District and a faculty directory obtained from the District's website.[5], [6] In addition, CHS estimated the existing number of BCC staff using the student-to-staff ratio documented in the Transportation Study prepared for the University of San Francisco's Institutional Master Plan.[7] To forecast BCC's 2040 population, CHS applied the annual student enrollment growth rate of 2.4 percent

[5] Peralta Community College District Enrollment Report, September 29, 2020

[6] https://www.berkeleycitycollege.edu/wp/administration/faculty-staff-directory/, accessed January 2021.

[7] University of San Francisco Institutional Master Plan Transportation Study, March 2012.

observed from 2016 to 2021 and assumed that the number of faculty and staff will increase in proportion to enrollment growth over the same period.

**Table 2** includes the existing and future BCC population estimates. It shows that there are a total of 1,820 persons as of the fall semester in 2020, including 1,491 full-time equivalent students, 128 faculty, and 201 staff. Under the Existing plus Project condition, total BCC population would be the same as the Existing condition because there would be no growth in student enrollment in the same year. Under the Future Cumulative condition, BCC's population is expected to increase to a total 2,925 persons by 2040. This equates to a net increase in 1,105 persons, including 905 full-time equivalent students, 78 faculty, and 122 staff.

**Table 2: Existing (2020) and Future (2040) BCC Population Estimates**

| Scenario Year | Students | Faculty | Staff | Total |
|---|---|---|---|---|
| **Existing (Year 2020)** | 1,491 | 128 | 201 | 1,820 |
| **Existing plus Project (Year 2020)** | 1,491 | 128 | 201 | 1,820 |
| **Future Cumulative (Year 2040)** | 2,396 | 206 | 323 | 2,925 |
| **Annual Growth Rate** | 2.4% | 2.4% | 2.4% | 2.4% |
| **Net Change** | 905 | 78 | 122 | 1,105 |

Source: Berkeley City College, 2021; CHS Consulting Group, 2021.

## 3.3 Trip Generation

To estimate the number of "trips" generated by the BCC population, CHS reviewed industry standard trip generation rates as well as trip generation rates used for similar college/university projects in the San Francisco Bay Area. Although the Institute of Transportation Engineers (ITE) Trip Generation Manual is widely used as an industry standard for trip generation analysis, its rates are based on a national average that does not accurately represent the trip generation characteristics of an urban college such as BCC. CHS also reviewed the trip generation rates used for urban colleges in the Bay Area including the Academy of Art University (AAU) Transportation Study and University of San Francisco (USF) Institutional Master Plan Transportation Study. After analyzing the geographic settings and operational characteristics of AAU and USF, it was determined that the USF trip rates were the most applicable to BCC.[8] These rates were derived from direct reporting from students on their arrival and departure times from campus.[9] **Table 3** shows daily person trip rates for students, faculty, and staff and the proportion of daily trips occurring during the AM and PM peak hours.

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[8] Academy of Art University has a dispersed campus that requires students to travel between various parts of San Francisco to attend different classes. USF has classes located in a main consolidated campus.

[9] University of San Francisco Institutional Master Plan Transportation Study, March 2012; Faculty, Staff, and Student Travel Surveys (including questions on travel mode to campus, arrival and departure times, days per week traveling to campus) were conducted in April 2011.

## Table 3: Project Trip Generation Rates

| | Daily Trip Rate | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|
| | | IB % of Daily | OB % of Daily | IB % of Daily | OB % of Daily |
| Student | 1.6 /person | 21% | 1% | 4% | 16% |
| Faculty | 1.6 /person | 20% | 0% | 2% | 16% |
| Staff | 2.0 /person | 53% | 0% | 0% | 55% |

Source: University of San Francisco Institutional Master Plan Transportation Study, November 2019.

Notes: IB = Inbound, OB = Outbound

Person trips were estimated based on the total number of existing and future BCC students, faculty, and staff (see **Table 2**) and the average daily trip rates for each population type (see **Table 3**). **Table 4** shows the existing (Year 2020) and future (Year 2040) person trips generated by BCC on a daily, AM, and PM peak hour basis. It shows that BCC currently generates approximately 2,993 daily trips and 779 AM and 735 PM peak hour trips. Under the Year 2040 Future Cumulative condition, BCC-generated trips would increase to 4,810 daily trips, and 1,252 AM and 1,182 PM peak hour trips.

## Table 4: Existing (2020) and Future (2040) BCC Trip Generation

| | Population | Daily Trips | AM Peak Hour Trips | | | PM Peak Hour Trips | | |
|---|---|---|---|---|---|---|---|---|
| | | | Inbound | Outbound | Total | Inbound | Outbound | Total |
| **Existing/ Existing plus Project (Year 2020)** | | | | | | | | |
| Student | 1,491 | 2,386 | 501 | 24 | 525 | 95 | 382 | 477 |
| Faculty | 128 | 205 | 41 | 0 | 41 | 4 | 33 | 37 |
| Staff | 201 | 402 | 213 | 0 | 213 | 0 | 221 | 221 |
| *Total* | *1,820* | *2,993* | *755* | *24* | *779* | *99* | *636* | *735* |
| **Future Cumulative (Year 2040)** | | | | | | | | |
| Student | 2,396 | 3,834 | 805 | 38 | 843 | 153 | 613 | 766 |
| Faculty | 206 | 329 | 66 | 0 | 66 | 7 | 53 | 60 |
| Staff | 323 | 647 | 343 | 0 | 343 | 0 | 356 | 356 |
| *Total* | *2,925* | *4,810* | *1,214* | *38* | *1,252* | *160* | *1,022* | *1,182* |
| **Net Change from Year 2020 to Year 2040** | | | | | | | | |
| **Total** | **1,105** | **1,817** | **459** | **14** | **473** | **61** | **386** | **447** |

Source: CHS Consulting Group, 2021.

Notes: The numbers presented in the table herein may marginally differ from calculations provided in the technical appendix due to rounding.

Existing BCC operations are located at 2050 Center Street and 2000 Center Street (leased annex). When the proposed project is constructed, BCC plans to move many of these functions to the project site, making the 2000 Center Street annex obsolete. Therefore, the share of trips generated to and from the project site and at 2050 Center Street were estimated based on the gross square footage for each building (i.e., 165,000 square feet at 2050 Center Street and 60,000 square feet at 2118 Milvia Street).

**Table 5** shows the number of trips generated to and from the project site and 2050 Center Street. Under the Existing plus Project condition, the total BCC-generated trips would remain the same as the Existing condition (i.e., 2,993 daily and 779 AM and 736 PM peak hour trips) but would spread between the project site and 2050 Center Street. Under the Year 2040 Future Cumulative condition, the project site would generate approximately 1,282 new daily trips and 334 AM and 315 PM peak hour trips while trips to 2050 Center Street would also have increased by approximately 534 daily trips and 139 AM and 130 PM peak hour trips.

### Table 5: Existing (2020) and Future (2040) BCC Trip Generation by Location

| | Daily Trips | AM Peak Hour Trips | | | PM Peak Hour Trips | | |
|---|---|---|---|---|---|---|---|
| | | Inbound | Outbound | Total | Inbound | Outbound | Total |
| **Existing (Year 2020)** | | | | | | | |
| 2000/2050 Center Street | 2,993 | 755 | 24 | 779 | 100 | 636 | 736 |
| **Existing plus Project (Year 2020)** | | | | | | | |
| 2050 Center Street | 2,195 | 554 | 18 | 572 | 73 | 466 | 539 |
| 2118 Milvia Street | 798 | 201 | 6 | 207 | 27 | 170 | 197 |
| *Total* | *2,993* | *755* | *24* | *779* | *100* | *636* | *736* |
| **Future Cumulative (Year 2040)** | | | | | | | |
| 2050 Center Street | 3,527 | 890 | 28 | 918 | 117 | 749 | 866 |
| 2118 Milvia Street | 1,282 | 324 | 10 | 334 | 43 | 272 | 315 |
| *Total* | *4,809* | *1,214* | *38* | *1,252* | *160* | *1,021* | *1,181* |
| **Net Change from Year 2020 to Year 2040** | | | | | | | |
| 2050 Center Street | 534 | 135 | 4 | 139 | 17 | 113 | 130 |
| 2118 Milvia Street | 1,282 | 324 | 10 | 334 | 43 | 272 | 315 |
| *Total* | *1,816* | *459* | *14* | *473* | *60* | *385* | *445* |

Source: CHS Consulting Group, 2021.

Notes: The numbers presented in the table herein may marginally differ from calculations provided in the technical appendix due to rounding.

## 3.4 Project Mode Split

The average mode splits for current students, faculty, and staff were provided by the District. **Table 6** shows the existing mode splits and the estimated BCC trip generation by mode. It shows that BCC would generate approximately 1,169 additional automobile trips (drive and park or pick-up/drop-off) on a daily basis, and 189 AM and 179 PM peak hour trips by Year 2040. It would also add 1,198 daily transit riders and 194 AM and 183 PM peak hour transit riders by Year 2040.

### Table 6: Existing (2020) and Future (2040) BCC Trip Generation by Mode

| Mode of Travel | % | Year 2020 | | | Year 2040 | | | Net Change | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Daily | AM | PM | Daily | AM | PM | Daily | AM | PM |
| Drive and Park | 36% | 1,733 | 280 | 265 | 2,784 | 451 | 425 | 1,052 | 170 | 161 |
| Pick-up/Drop-off | 4% | 193 | 31 | 29 | 309 | 50 | 47 | 117 | 19 | 18 |
| Transit | 41% | 1,973 | 319 | 301 | 3,171 | 513 | 484 | 1,198 | 194 | 183 |
| Bike or Walk | 15% | 722 | 117 | 110 | 1,160 | 188 | 177 | 438 | 71 | 67 |
| Other | 4% | 193 | 31 | 29 | 309 | 50 | 47 | 117 | 19 | 18 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **100%** | 4,814 | 778 | 734 | 7,734 | 1,252 | 1,180 | 2,922 | 473 | 447 |
| ***Vehicle Trips*** | | *1,926* | *311* | *294* | *3,093* | *501* | *472* | *1,169* | *189* | *179* |

Source: CHS Consulting Group, 2021.

Notes: IB = Inbound, OB = Outbound; The numbers presented in the table herein may marginally differ from calculations provided in the technical appendix due to rounding.

# 4.0 Transportation Evaluation

This section presents the assessment of transportation conditions impacted by the proposed project, in terms of vehicle miles traveled (VMT); transit; pedestrian and bicycle access; and emergency access. Transportation-related impacts are analyzed for Existing plus Project (Year 2020) and Future Cumulative (Year 2040) conditions.

## 4.1 Existing plus Project Condition (Year 2020)

### 4.1.1 VMT Impacts

Effective July 1, 2020, Senate Bill (SB) 743 requires all CEQA lead agencies to establish VMT as the metric replacing LOS for evaluating CEQA traffic and transportation impacts. The District has not established VMT per capita thresholds for its uses as there is no available data, and any assumptions would be speculative. The Governor's Office of Planning and Research (OPR) guidance establishes that a project that is located in a traffic analysis zone (TAZ) generating VMT per capita at least 15 percent below regional averages would have a less than significant impact.[10] It also recommends that lead agencies screen out VMT impacts for projects located within one-half mile of an existing major transit stop or an existing stop along a high-quality transit corridor.[11]

For the purpose of this study, the Alameda County Transportation Commission (Alameda CTC) Countywide Travel Demand Model was used to determine the average VMT per capita consistent with SB 743 guidance from the OPR. Since the model does not provide VMT for educational land uses, the analysis utilized its office designation as a proxy land use to determine an average VMT per employee.[12] As shown in **Table 7**, the average daily VMT per employee in TAZ 59 where the project site is located is 9.5, which is below the 15 percent minus the citywide average (19.5) or countywide average (24.2) thresholds. Because the proposed project would generate vehicle trips in an area with relatively low VMT, it would not have an adverse effect related to VMT. Furthermore, the proposed project would be located within one-half mile of a major transit stop (see *Section 2.2*), which would reduce the proposed project's vehicle trips and associated VMT.

**Table 7: Year 2020 VMT per Employee**

| Region | Regional Average | Regional Average minus 15% | TAZ 59 |
|---|---|---|---|

[10] Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018.

[11] Major transit stop includes an existing rail transit station or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods (Pub. Resources Code, § 21064.3); A high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours (Public Resource Code, § 21155).

[12] The Alameda CTC travel demand model provides VMT thresholds for residential, office, and retail uses only.

| | | | |
|---|---|---|---|
| City of Berkeley | 22.9 | 19.5 | 9.5 |
| Alameda County | 28.5 | 24.2 | |

Source: Alameda CTC Countywide Travel Demand Model; CHS Consulting Group, 2021

As explained in *Section 3.0*, under the Existing plus Project Condition, the same number of trips currently generated at 2000/2050 Center Street would be distributed between the project site (2118 Milvia Street) and 2050 Center Street. Since the project site is located directly across the Center Street/Miliva Street intersection from 2050 Center Street and would not provide any new off-street or on-street parking supply, vehicle trips generated by either building would likely use the same parking or on-street loading facilities in the area. Therefore, any shift in vehicle trips from 2050 Center Street to the project site would not result in a substantial increase in VMT.

The project site is in a low-VMT zone and within a half mile from a major transit stop, and it would not generate net new trips under the Existing plus Project condition. Therefore, the proposed project would result in less-than-significant impacts related to VMT.

### 4.1.2 Other Impacts

The proposed project would not include on-site parking that would otherwise concentrate vehicle traffic to a specific driveway, and thus, would not increase potential conflicts with nearby vehicular circulation, transit operations, or bicycle access. There would be increased pedestrian trips between the project site and the existing BCC facilities at 2050 Center Street. These pedestrian trips would be adequately and safely accommodated by the existing pedestrian facilities at the Center Street/Milvia Street intersection, which has high visibility crosswalks and pedestrian signal heads on all four legs of the intersection. Furthermore, the proposed project does not feature any unusual design elements that could obstruct emergency vehicle access or otherwise pose a substantial safety hazard to vehicles, bicyclists, or pedestrians. Therefore, the proposed project would result in less-than-significant impacts related to transit, bicycle, pedestrian, and emergency access.

## 4.2 Future Cumulative Condition (Year 2040)

This section presents an assessment of the proposed project's contributions to transportation impacts under the Future Cumulative condition. This scenario is defined as future Year 2040 including added traffic from the anticipated growth in student enrollment and proportional increases in the number of BCC faculty and staff.

### 4.2.1 VMT

The Alameda CTC Countywide Travel Demand Model provides the average regional daily VMT per employee under the Future Cumulative conditions (2040) but does not provide estimates for specific TAZs. The average VMT in TAZ 59 is not anticipated to significantly increase from existing conditions given its dense urban setting with close proximity to a major transit stop. As such, the existing VMT per employee for TAZ 59 are used for this analysis. As shown in **Table 8**, the average daily VMT of 9.5 per employee would be below the 15 percent minus the citywide average (20.7) or countywide average (24.7) thresholds under the Year 2040 Future Cumulative condition. Because the proposed project would generate vehicle trips in an area with relatively low VMT, it would not have an adverse effect related to VMT.

**Table 8: Year 2040 VMT per Employee**

| Region | Regional Average | Regional Average minus 15% | TAZ 59 |
|---|---|---|---|
| City of Berkeley | 24.4 | 20.7 | 9.5 |
| Alameda County | 29.1 | 24.7 | |

Source: Alameda CTC Countywide Travel Demand Model; CHS Consulting Group, 2021

Although the proposed project is expected to generate 1,169 net new daily vehicle trips when compared to existing conditions, the proposed project's existing per capita VMT is not anticipated to change since the proposed project would not provide any new off-street or on-street parking supply. The Project site is located within one-half mile of a major transit stop, and the proposed project would continue to generate vehicle trips in an area with relatively low VMT which would reduce the proposed project's vehicle trips and associated VMT. For these reasons, the proposed project would result in less-than-significant cumulative impacts related to VMT.

### 4.2.2 Transit

The proposed project is not directly adjacent to any existing or planned transit facilities on Center or Milvia streets and would not conflict with nearby transit routes that could result in hazardous conditions or transit delays. Although there would be a net increase of 189 AM and 179 PM peak hour vehicle trips, these trips would be dispersed throughout Downtown Berkeley, and thus would not conflict with existing or planned transit operations. The cumulative net increase of 194 AM and 183 PM peak hour transit riders constitute approximately six percent of the existing seating capacity on AC Transit bus routes and BART lines serving the project area (see *Section 2.2*).[13] This increase would likely be accommodated by the existing transit capacity, which typically includes seats and standees. For these reasons, the proposed project would have a less-than-significant cumulative impacts to transit.

[13] Assumes an average of 36 seats per bus and a total of 21 bus trips during a peak hour based on the existing service frequency of eight daytime bus routes (36 seats per bus*21 bus trips=756 seats). For BART service, it assumes an average of 56 seats per car, 10 car trains, and a total of four trips during a peak hour (56 seats per car*10 cars*4 trips=2,240 seats).

### 4.2.3 Bicycle and Pedestrian Access

The proposed project is located directly adjacent to a Class III bike route on Milvia Street and near Class II bike lanes on Center Street (east of Milvia Street). The proposed project would not include on-site parking that would otherwise concentrate vehicle traffic to a specific driveway, and thus, would not increase potential conflicts with nearby bicycle access. To encourage and accommodate alternative modes of travel, the proposed project would provide Class I bicycle parking on the building's first floor adjacent to the main entrance.[14] The high level of pedestrian traffic that would be generated between the existing BCC facilities at 2050 Center Street and the project site would be adequately and safely accommodated by existing pedestrian facilities at the Center Street/Milvia Street intersection. Furthermore, planned changes to the existing bicycle and pedestrian network would improve pedestrian conditions in the project area. For these reasons, the proposed project would result in less-than-significant cumulative impacts to bicycle and pedestrian access.

### 4.2.4 Emergency Access

The proposed project does not include any unusual design elements that could obstruct emergency vehicle access or otherwise pose a substantial safety hazard to vehicles, bicyclists, or pedestrians. Although there would be a net increase of 189 AM and 179 PM peak hour vehicle trips, these trips would be dispersed throughout Downtown Berkeley, and thus would not impede or hinder the movement of emergency vehicles in the project area. For these reasons, the proposed project would result in no cumulative impact to emergency access.

[14] Class I bicycle parking is defined as secure bicycle lockers, rooms, or cages where bicycles can be individually locked.

# Appendix A

## Project Trip Generation Calculations and Assumptions

**Berkeley City College Campus Expansion Project Transportation Study**
**Trip Generation Analysis**

| BCC Population | | | | |
|---|---|---|---|---|
| Analysis Year | Student | Faculty | Staff | Total |
| 2020 | 1,491 [a] | 128 [b] | 201 [c] | 1,820 |
| 2040 | 2,396 | 206 | 323 | 2,925 |
| Annual Growth Rate [d] | 2.4% | 2.4% | 2.4% | 2.4% |
| Net Change | 905 | 78 | 122 | 1,105 |

**Notes:**

[a] Source: Full time equivalent students (FTES) in 2020 Fall Semester, Peralta Community College District Enrollment Report, 9/29/2020.

[b] Source: BCC Faculty Directory, https://web.peralta.edu/directory/, accessed 1/6/2020.

[c] The same student-to-staff ratio in USF (7.4:1) is used to estimate the number of staff in BCC (BCC's existing student-to-faculty ratio is similar to USF).

[d] The annual growth rate from 2016-2021 (i.e., 2.4%) as was used per email from Aileen Mahoney (Rincon Consultants) on 12/29/2020.
It is assumed that the number of faculty and staff will increase in proportion to enrollment growth over the same period.

| BCC Population by Location | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Gross Floor | Use | | | BCC Population [a] | | | |
| BCC Site | Area (GSF) | Existing | Existing+PJ | Cumulative | Existing | Existing+PJ | Cumulative | Percent |
| 2050 Center Street | 165,000 | BCC | BCC | BCC | 1,820 | 1,335 | 2,145 | 73% |
| 2000 Center Street | | BCC | N/A | N/A | | - | - | 0% |
| 2118 Milvia Street | 60,000 | Vacant | BCC | BCC | - | 485 | 780 | 27% |
| Total | 225,000 | | | | 1,820 | 1,820 | 2,925 | 100% |

**Notes:**

GSF=Gross Square Feet

[a] Total estimated population under the Project condition is distributed between 2050 Center Street and 2118 Milvia Street in proportion of GFA at each site.

| Project Trip Generation | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily | | | AM Peak Hour | | | | PM Peak Hour | | | |
| **Existing (Year 2020)** | Population | Person Trips | Trip Rate [a] | IB Trips | OB Trips | IB % of Daily | OB % of Daily | IB Trips | OB Trips | IB % of Daily | OB % of Daily |
| Student | 1,491 | 2,386 | 1.6 /person | 501 | 24 | 21% | 1% | 95 | 382 | 4% | 16% |
| Faculty | 128 | 205 | 1.6 /person | 41 | - | 20% | 0% | 4 | 33 | 2% | 16% |
| Staff | 201 | 402 | 2.0 /person | 213 | - | 53% | 0% | - | 221 | 0% | 55% |
| Total | 1,820 | 2,993 | | 755 | 24 | | | 100 | 636 | | |
| *2050 Center Street* | *1,820* | *2,993* | - | *755* | *24* | - | - | *100* | *636* | - | - |
| | Daily | | | AM Peak Hour | | | | PM Peak Hour | | | |
| **Existing plus Project (Year 2020)** | Population | Person Trips | Trip Rate | IB Trips | OB Trips | IB % of Daily | OB % of Daily | IB Trips | OB Trips | IB % of Daily | OB % of Daily |
| *2050 Center Street* | *1,335* | *2,195* | - | *554* | *17* | - | - | *73* | *466* | - | - |
| *2118 Milvia Street* | *485* | *798* | - | *201* | *6* | - | - | *27* | *170* | - | - |
| | Daily | | | AM Peak Hour | | | | PM Peak Hour | | | |
| **Future (Year 2040)** | Population | Person Trips | Trip Rate | IB Trips | OB Trips | IB % of Daily | OB % of Daily | IB Trips | OB Trips | IB % of Daily | OB % of Daily |
| Student | 2,396 | 3,834 | 1.6 /person | 805 | 38 | 21% | 1% | 153 | 613 | 4% | 16% |
| Faculty | 206 | 329 | 1.6 /person | 66 | - | 20% | 0% | 7 | 53 | 2% | 16% |
| Staff | 323 | 647 | 2.0 /person | 343 | - | 53% | 0% | - | 356 | 0% | 55% |
| Total | 2,925 | 4,809 | | 1,214 | 38 | | | 160 | 1,022 | | |
| *2050 Center Street* | *2,145* | *3,527* | - | *890* | *28* | - | - | *117* | *749* | - | - |
| *2118 Milvia Street* | *780* | *1,282* | - | *324* | *10* | - | - | *43* | *272* | - | - |
| | Daily | | | AM Peak Hour | | | | PM Peak Hour | | | |
| **Net Change from 2020 to 2040** | Population | Person Trips | Trip Rate | IB Trips | OB Trips | IB % of Daily | OB % of Daily | IB Trips | OB Trips | IB % of Daily | OB % of Daily |
| Student | 905 | 1,448 | 1.6 /person | 304 | 14 | 21% | 1% | 58 | 232 | 4% | 16% |
| Faculty | 78 | 124 | 1.6 /person | 25 | - | 20% | 0% | 2 | 20 | 2% | 16% |
| Staff | 122 | 244 | 2.0 /person | 129 | - | 53% | 0% | - | 134 | 0% | 55% |
| Total | 1,105 | 1,816 | | 458 | 14 | | | 60 | 386 | | |
| *2050 Center Street* | *325* | *534* | - | *135* | *4* | - | - | *18* | *113* | - | - |
| *2118 Milvia Street* | *780* | *1,282* | - | *324* | *10* | - | - | *43* | *272* | - | - |

**Notes:**

[a] Used the same trip generation rates developed for the University of San Francisco Institutional Master Plan Transportation Study.

**Berkeley City College Campus Expansion Project Transportation Study**
**Mode Split and VMT**

**Daily Trips**

| | Exisitng/ Existing plus Project (2020) | | | | Cumulative (2040) | | | | Net Change | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mode of Travel | Mode Split | Inbound PT | Outbound PT | Total PT | Mode Split | Inbound PT | Outbound PT | Total PT | Inbound PT | Outbound PT | Total PT |
| Drive and Park | 36% | 655 | 1,077 | 1,733 | 36% | 1,053 | 1,731 | 2,784 | 398 | 654 | 1,052 |
| Picked-up/Dropped-Off | 4% | 73 | 120 | 193 | 4% | 117 | 192 | 309 | 44 | 73 | 117 |
| Transit (BART/Bus) | 41% | 746 | 1,227 | 1,973 | 41% | 1,199 | 1,972 | 3,171 | 453 | 745 | 1,198 |
| Bike or Walk | 15% | 273 | 449 | 722 | 15% | 439 | 721 | 1,160 | 166 | 272 | 438 |
| Other | 4% | 73 | 120 | 193 | 4% | 117 | 192 | 309 | 44 | 73 | 117 |
| Total | 100% | 1,820 | 2,993 | 4,813 | 100% | 2,925 | 4,809 | 7,734 | 1,105 | 1,816 | 2,921 |
| *2050 Center Street* | | *1,335* | *2,195* | *3,530* | | *2,145* | *3,527* | *5,672* | *810* | *1,332* | *2,142* |
| *2118 Milvia Street* | | *485* | *798* | *1,283* | | *780* | *1,282* | *2,062* | *295* | *484* | *779* |
| | | | | | | | | | | | |
| Vehicle Trips [a] | 40% | 728 | 1,197 | 1,925 | 40% | 1,170 | 1,924 | 3,094 | 442 | 727 | 1,168 |
| Daily VMT [b] | | 11,649 | 19,154 | 30,804 | | 18,720 | 30,780 | 49,500 | 7,070 | 11,625 | 18,696 |

**Notes:**

[a] Include Drive and Park and Pick-up/Drop-off. For the purpose of transportation analysis, vehicle occupancy rate is assumed to be 1.

[b] Average travel distance for students and faculty = 16

**AM Peak Hour Trips**

| | Exisitng/ Existing plus Project (2020) | | | | Cumulative (2040) | | | | Net Change | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mode of Travel | Mode Split | Inbound PT | Outbound PT | Total PT | Mode Split | Inbound PT | Outbound PT | Total PT | Inbound PT | Outbound PT | Total PT |
| Drive and Park | 36% | 272 | 9 | 280 | 36% | 437 | 14 | 451 | 165 | 5 | 170 |
| Picked-up/Dropped-Off | 4% | 30 | 1 | 31 | 4% | 49 | 2 | 50 | 18 | 1 | 19 |
| Transit (BART/Bus) | 41% | 310 | 10 | 319 | 41% | 498 | 16 | 513 | 188 | 6 | 194 |
| Bike or Walk | 15% | 113 | 4 | 117 | 15% | 182 | 6 | 188 | 69 | 2 | 71 |
| Other | 4% | 30 | 1 | 31 | 4% | 49 | 2 | 50 | 18 | 1 | 19 |
| Total | 100% | 755 | 24 | 779 | 100% | 1,214 | 38 | 1,252 | 458 | 14 | 473 |
| *2050 Center Street* | | *554* | *17* | *571* | | *890* | *28* | *918* | *336* | *11* | *347* |
| *2118 Milvia Street* | | *201* | *6* | *208* | | *324* | *10* | *334* | *122* | *4* | *126* |
| | | | | | | | | | | | |
| Vehicle Trips | 40% | 302 | 10 | 312 | 40% | 485 | 15 | 501 | 183 | 6 | 189 |

**PM Peak Hour Trips**

| | Exisitng/ Existing plus Project (2020) | | | | Cumulative (2040) | | | | Net Change | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mode of Travel | Mode Split | Inbound PT | Outbound PT | Total PT | Mode Split | Inbound PT | Outbound PT | Total PT | Inbound PT | Outbound PT | Total PT |
| Drive and Park | 36% | 36 | 229 | 265 | 36% | 58 | 368 | 425 | 22 | 139 | 161 |
| Picked-up/Dropped-Off | 4% | 4 | 25 | 29 | 4% | 6 | 41 | 47 | 2 | 15 | 18 |
| Transit (BART/Bus) | 41% | 41 | 261 | 301 | 41% | 66 | 419 | 484 | 25 | 158 | 183 |
| Bike or Walk | 15% | 15 | 95 | 110 | 15% | 24 | 153 | 177 | 9 | 58 | 67 |
| Other | 4% | 4 | 25 | 29 | 4% | 6 | 41 | 47 | 2 | 15 | 18 |
| Total | 100% | 100 | 636 | 735 | 100% | 160 | 1,022 | 1,182 | 60 | 386 | 446 |
| *2050 Center Street* | | *73* | *466* | *539* | | *117* | *749* | *867* | *44* | *283* | *327* |
| *2118 Milvia Street* | | *27* | *170* | *196* | | *43* | *272* | *315* | *16* | *103* | *119* |
| | | | | | | | | | | | |
| Vehicle Trips | 40% | 40 | 254 | 294 | 40% | 64 | 409 | 473 | 24 | 154 | 179 |

## Berkeley City College Campus Expansion Project Transportation Study
## Trip Generation Rate Comparables

### University of San Francisco

| Population Type | Daily Population and Trips (2012) | | | | AM Peak Hour Trips | | PM Peak Hour Trips | |
|---|---|---|---|---|---|---|---|---|
| | | | | | % of Daily Trips | | | |
| | Population | Percent | Person Trips | Trip Rate [1] | Inbound | Outbound | Inbound | Outbound |
| Students | 8,810 | 80% | 14,096 | 1.6 trips/person | 21.0% | 1.0% | 4.0% | 16.0% |
| Faculty | 1,001 | 9% | 1,602 | 1.6 trips/person | 20.0% | 0.0% | 2.0% | 16.0% |
| Staff | 1,189 | 11% | 2,378 | 2.0 trips/person | 53.0% | 0.0% | 0.0% | 55.0% |
| Total | 11,000 | 100% | 18,076 | 1.6 trips/person | | | | |

***Source: University of San Francisco IMP Transportation Impact Study, Fehr & Peers, 1/2012.***

[1] Daily, AM and PM trip generation rates were derived based on an online survey of USF students, faculty and staff;
USF students and faculty reported coming to campus four days per week, and staff reported coming to work five days per week.

### Academy of Art University

| Trip Rates for Academic/Admin Building | | | |
|---|---|---|---|
| | Trip Rate | Inbound | Outbound |
| Daily | 53.65 trips/ksf | 50% | 50% |
| AM Peak Hour | 4.56 trips/ksf | N/A | N/A |
| PM Peak Hour | 4.56 trips/ksf | 39% | 61% |

***Source: AAU Transportation Impact Study, CHS, 5/2014; AAU Existing Sites Transportation Memo, CHS, 2016.***

| Population Type | Daily Population (2014) | | Land Use (2014) | |
|---|---|---|---|---|
| | Population | Percent | Use | GSF |
| Students | 17,711 | 89% | Institutional | 890,104 |
| Faculty | 2,291 | 11% | Residential | 272,769 |
| Staff | | | Other | 50,700 |
| Total | 20,002 | 100% | Total | 1,213,573 |

### Comparison

**Population Composition**

| | USF | AAU | *BCC* |
|---|---|---|---|
| Students | 80% | 89% | *82%* |
| Faculty | 9% | 11% | *7%* |
| Staff | 11% | | *11%* |
| Total | 100% | 100% | *100%* |

**Trip Rates (per Student)**

| | USF | AAU | ITE |
|---|---|---|---|
| Daily | **2.05** | 2.68 | 1.56 |
| AM | **0.53** | 0.23 | 0.15 |
| PM | **0.50** | 0.23 | 0.15 |

***BCC Trip Estimation***

| *USF Rates* | *AAU Rates* | *ITE Rates* |
|---|---|---|
| 3,059 | 3,989 | 2,326 |
| 792 | 339 | 224 |
| 747 | 339 | 224 |

**Trip Rates (per 1,000 gsf)**

| | USF | AAU | ITE |
|---|---|---|---|
| Daily | N/A | 53.65 | **26.04** |
| AM | N/A | 4.56 | **1.09** |
| PM | N/A | 4.56 | **1.17** |

| *USF Rates* | *AAU Rates* | *ITE Rates* |
|---|---|---|
| N/A | 12,071 | 5,859 |
| N/A | 245 | 245 |
| N/A | 263 | 263 |

***CHS decided to use the USF rates for the following reasons:***

1. Both USF and BCC are located in an urban setting with insitutional buidlings/classrooms clustered in close proximity to each other.
2. AAU rates are substantially higher because students travel throughout SF to attend classes in different parts of the City, as opposed to moving around within a campus or building.
4. ITE rates tend to be lower because they represent a national average including those located in a suburban location.
5. USF rates result in a conservation estimation of AM and PM peak hour trips.