1652-1658 University Avenue Mixed-Use Project

Initial Study/Mitigated Negative Declaration

prepared by

City of Berkeley Planning & Development Department
Land Use Division
1947 Center Street, 2nd Floor
Berkeley, California 94704
Contact: Allison Riemer, Associate Planner

prepared with the assistance of

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

August 2023

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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Initial Study

1. Project Title

1652-1658 University Avenue Mixed-Use Project

2. Lead Agency Name and Address

City of Berkeley Planning & Development Department, Land Use Division
1947 Center Street, 2nd Floor
Berkeley, California 94704

3. Contact Person and Phone Number

Allison Riemer, Associate Planner
(510) 981-7433
Ariemer@berkeleyca.gov

4. Project Location

The project site is located on the southeast corner of University Avenue and Jefferson Avenue in Berkeley, California, and consists of a single parcel that measures approximately 0.17 acre (7,480 square feet). The assessor's parcel number is 56-200-402-000. Regional access to the project site is available via University Avenue, San Pablo Avenue (State Route [SR] 123), Ashby Avenue (SR 13), and Interstate 80/580. Figure 1 shows the project site location in a regional context. Figure 2 shows the location of the project site relative to the immediately surrounding area.

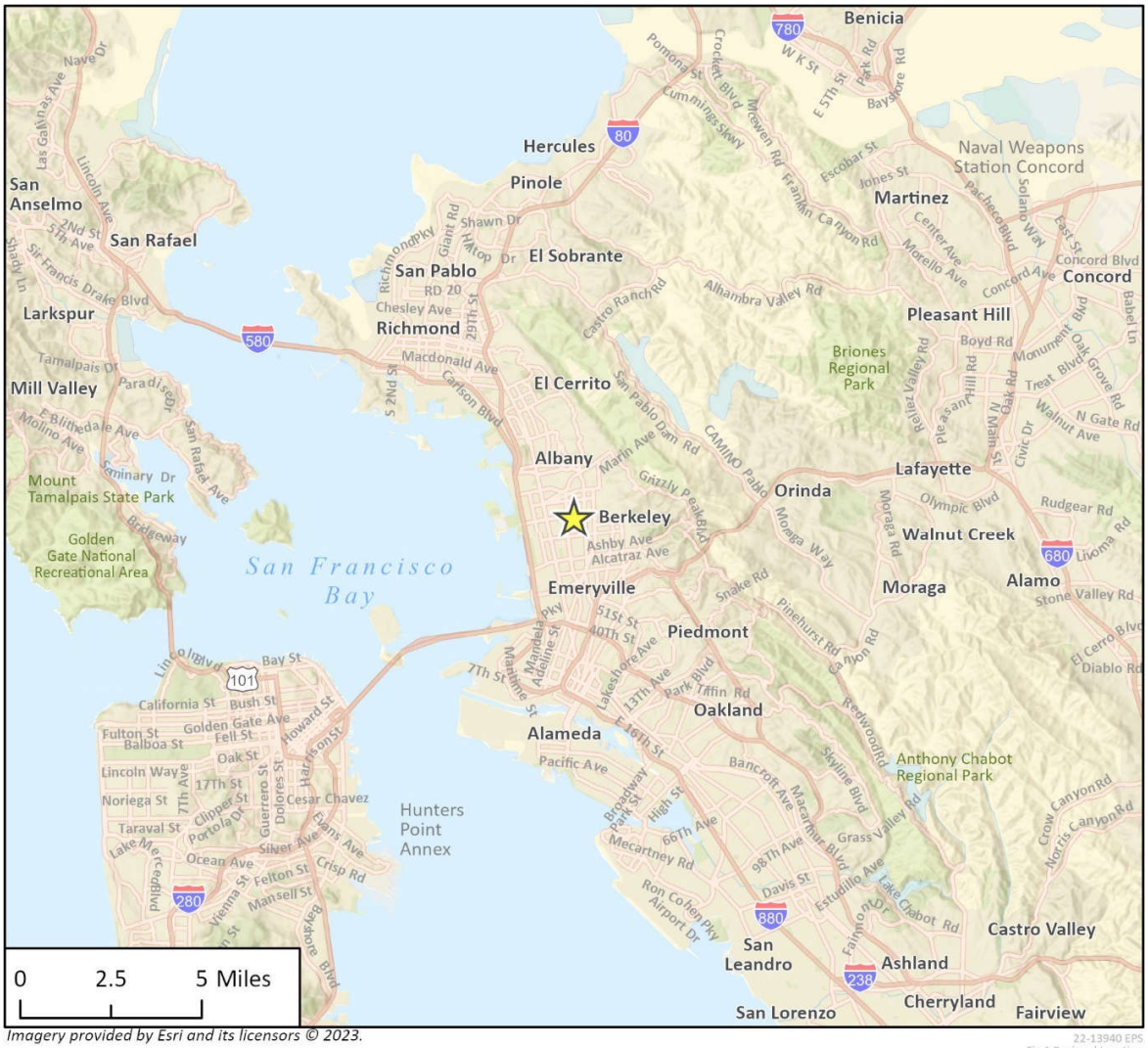
5. Project Sponsor's Name and Address

Studio KDA
1810 Sixth Street
Berkeley, California 94710
(510) 841-3555

6. General Plan Designation

The project site is designated Avenue Commercial by the City of Berkeley General Plan. Allowed uses include local-serving and regional-serving commercial, residential, office, community service, and institutional. Building intensity ranges from a Floor Area Ratio (FAR) of less than 1 to 5 (City of Berkeley 2002c).

Figure 1 Regional Map



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22-13940 EPS
Fig 1 Regional Location

Project Location

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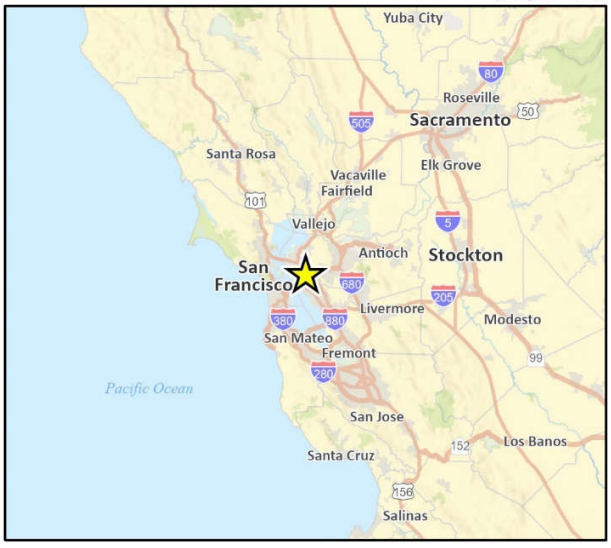


Figure 2 Project Location

Imagery provided by Microsoft Bing and its licensors © 2023.

22-13940 EPS
Fig 2 Project Location

7. Zoning District

The project site is located within the University Commercial (C-U) zoning district and is identified as within a University Avenue Node Area in the University Avenue Strategic Plan (UASP). The Berkeley Municipal Code (BMC) lists the following purposes for the C-U district (BMC Section 23.204.060).

A. Implement the General Plan's designations for Avenue Commercial areas;
B. Provide locations for a wide variety of activities along thoroughfares;
C. Encourage development in underutilized neighborhood and community shopping areas; and
D. Promote development compatible with adjacent commercial and residential areas.
E. Implement the University Avenue Strategic Plan by:
    i. Increasing public safety for residents, merchants, and customers;
    ii. Revitalize the University Avenue corridor through appropriate economic development and housing;
    iii. Protecting and improving neighborhood quality of life;
    iv. Encourage more pedestrian-oriented development and an appropriate mix of uses to improve neighborhood identity;
    v. Enhancing University Avenue as a gateway to the city, a series of neighborhoods, and the downtown;
    vi. Coordinating and enhance public transit systems, pedestrian access, and bicycle circulation; and
    vii. Encouraging a concentration of commercial activity at the designated nodes.

Within the UASP, new residential uses must be integrated with non-residential uses in a mixed-use development.

8. Surrounding Land Uses and Existing Setting

The rectangular-shaped, generally level project site comprises a single parcel of approximately 0.17 acre (7,500 square feet). It is currently developed with a two-story commercial building (vacant on the ground floor and occupied on the second floor), asphalt paved parking, a detached multi-car garage structure, and minimal landscaping, as shown in Figure 3. The mature oak tree on the adjacent parcel to the east is shown in Figure 4.

The University Avenue corridor is a mixed-use area, and surrounding properties include commercial, institutional, and residential uses. Properties directly to the south are residential. The properties directly to the north, east, and west are developed with mixed residential and commercial uses. The property directly adjacent to the east at 1670–76 University Avenue, known as Fox Common, was designated Berkeley Landmark #211 in 1998. Covenant Presbyterian Church is directly to the northwest, across University Avenue. Selected surrounding land uses are shown in Figure 2 and photographs of selected surrounding properties are included in Figure 5.

Figure 3 Project Site Photographs

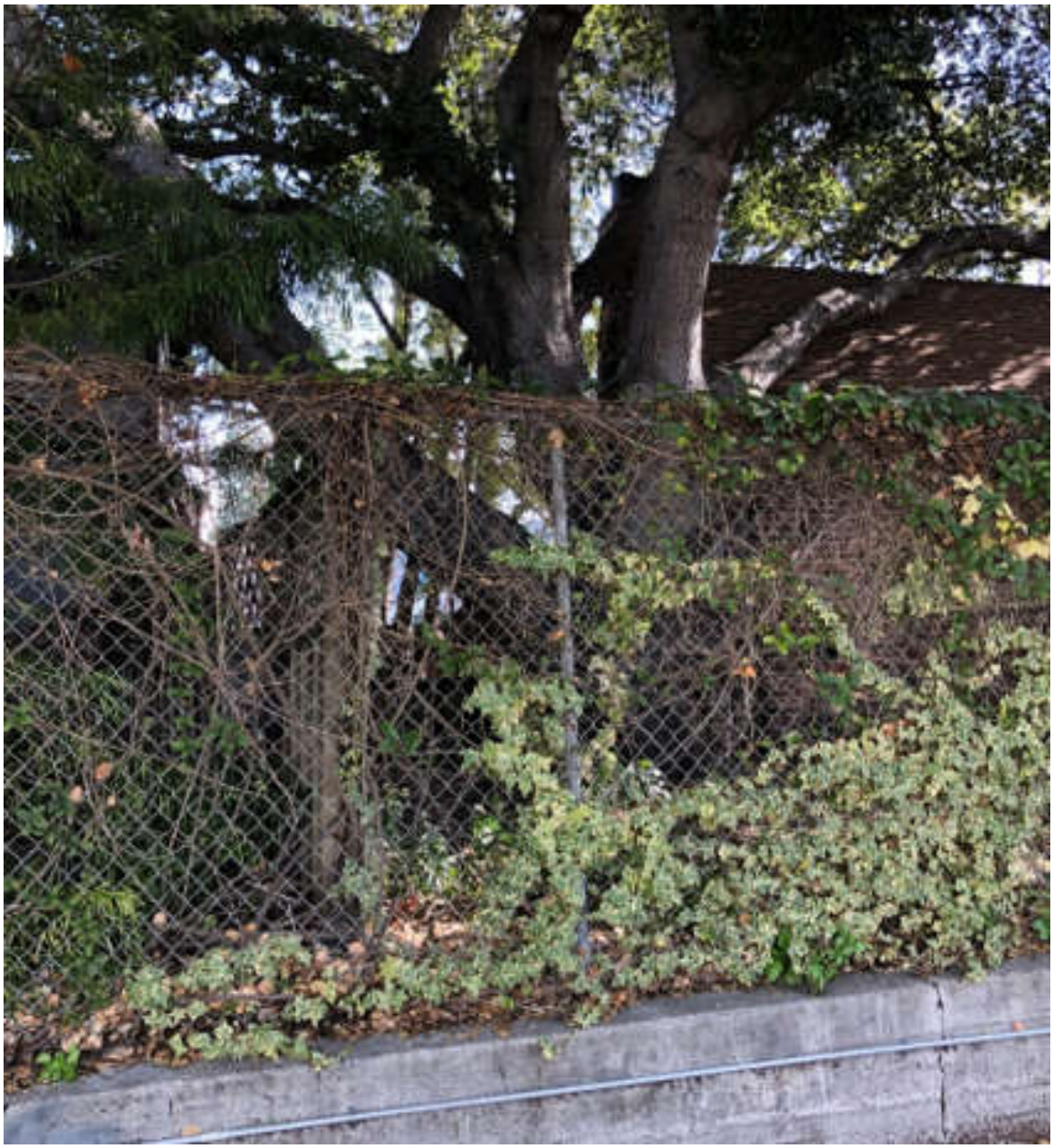
Photograph 1. Main building on the project site looking southwest from University Avenue. The adjacent historic structure is visible to the east.

Photograph 2. Main building on the project site looking southeast from the intersection of University Avenue and Jefferson Avenue

Photograph 3. Detached garage in the southern portion of the project site, looking south from Jefferson Avenue

Photograph 4. Rear façade of the main building on the project site, looking northeast from Jefferson Avenue surface parking lot.

Figure 4 Mature Oak Tree



Photograph 5. The mature oak tree on the adjacent parcel to the east of the surface parking lot on the project site. A small retaining wall at the property boundary and a chain link fence are in the foreground.

Photograph 6. The mature oak tree on the adjacent parcel to the east, looking east from the surface parking lot on the project site.

Figure 5 Selected Surrounding Properties Photographs

Photograph 7. The recently completed mixed-use building east along the same block of University Avenue, looking east from University Avenue.

Photograph 8. The existing mixed-use buildings across Jefferson Avenue from the project site, looking northwest from Jefferson Avenue.

9. Project Description

The proposed project would demolish the existing two-story commercial building and a detached garage located south of the main building. The existing building is currently vacant on the first floor and occupied by Berkeley Community Scholars and Berkeley Self-Healing Massage on the second floor. Proposed new construction would consist of a 24,732 square-foot, five-story (59 feet 10 inches tall) mixed use building with 26 residential units, two live-work units, and 3,145 square feet of ground floor commercial space (inclusive of the live-work units). No parking would be constructed. Figure 6 shows the proposed renderings from the Jefferson Avenue and University Avenue frontages. Figure 7 and Figure 8 show the ground floor plans and the proposed fifth floor residential floor plan, respectively.

Figure 6 Proposed Jefferson Avenue and University Avenue (Front) Renderings

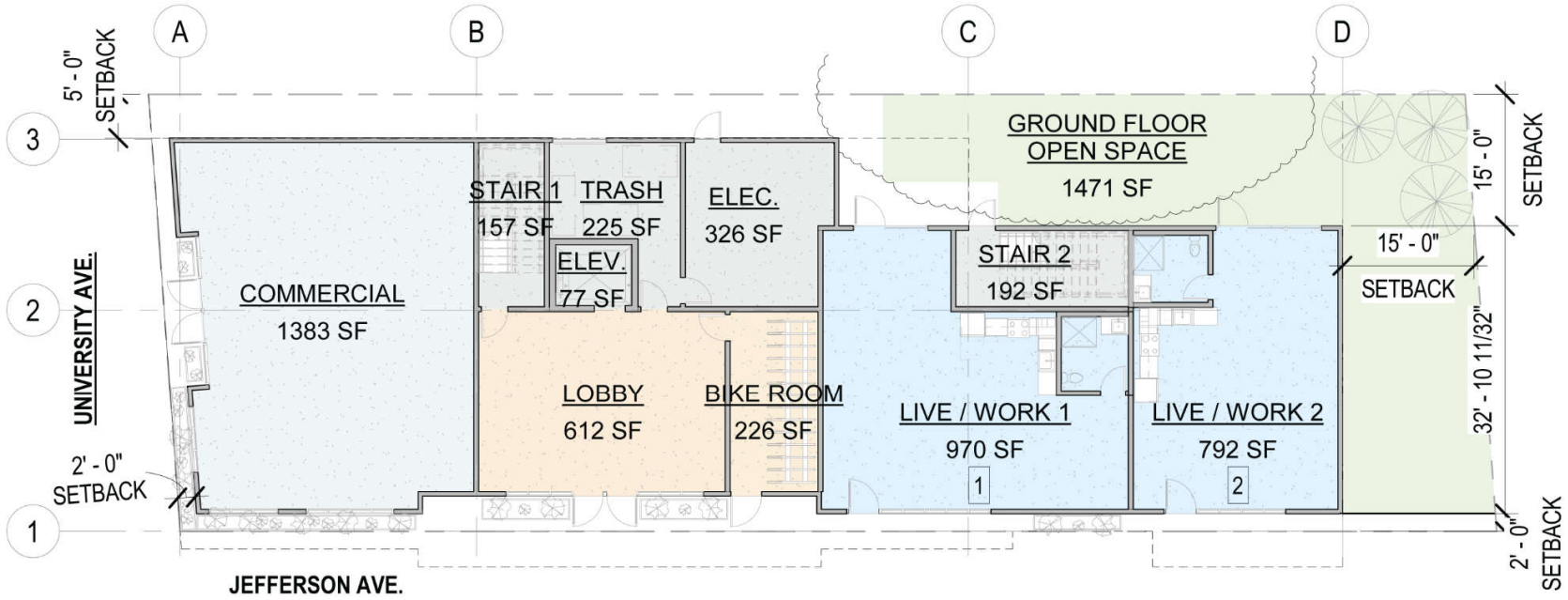
JEFFERSON STREET STRIP ELEVATION - PROPOSED

UNIVERSITY STREET STRIP ELEVATION - PROPOSED

0 16 32
Feet

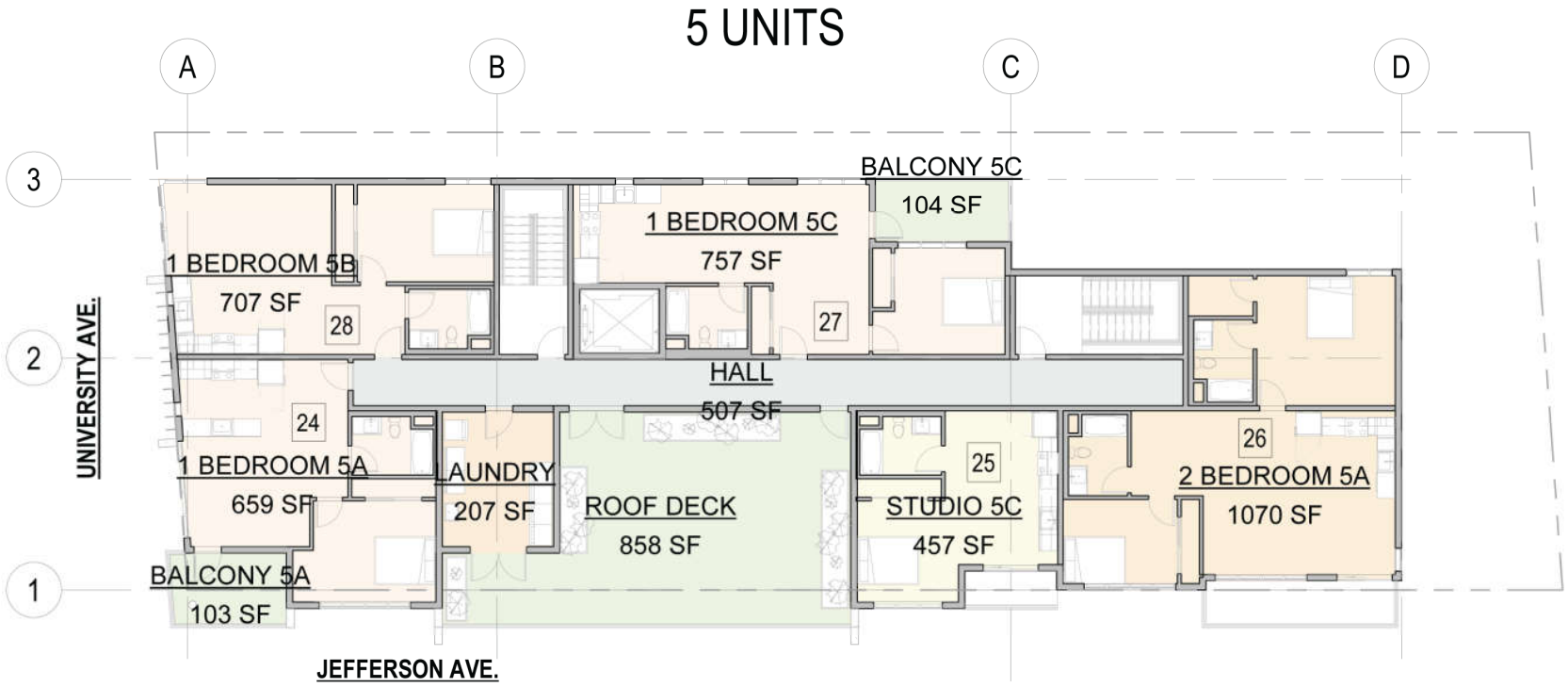
Source: Studio KDA, 10/5/2022.

Figure 7 Proposed Ground Level Plan



Source: Studio KDA, 10/5/2022.

Figure 8 Proposed Residential Floor Plan (Fifth Floor)



Source: Studio KDA, 10/5/2022.

The exterior of the building would be a cast in place concrete base with black accent tiles on the ground floor, while upper floors would be finished with cement panels, glazed porcelain wall tile, or satin metal finish. Windows for the units would either be transparent glass or frosted glass, and units with balconies would have black metal railings. The project applicant has proposed to include two Very Low-Income units, which makes the project eligible for requested waivers to zoning standards pursuant to the State Density Bonus Law. To accommodate the requested density bonus units, the applicant requested waivers to the development standards for the C-U zoning district outlined in the Berkeley Municipal Code (BMC). Specifically, the height limit, useable open space requirements, and Floor Area Ratio. Table 1 includes a summary of proposed project development characteristics compared to the required development standards under the C-U zoning district.

Table 1 Proposed Project Characteristics

Project Characteristic	Existing	Proposed[1]	Permitted/Required[2]
Dwelling Units	**0**	**28**	**0**
Studio	0	10	N/A
1-bedroom	0	12	N/A
2-bedroom	0	4	N/A
Live/Work	0	2	N/A
Area (sf)			
Lot Area	7,480		
Building Footprint	3,100	4,543	N/A
Gross Floor Area	6,232	24,732	N/A
Residential	N/A	21,587	N/A
Commercial	6,232	3,145	N/A
Useable Open Space	N/A	2,950	5,200
Ground Floor Open Space	0	1,471	N/A
Roof Deck	0	858	N/A
Balconies	0	6 (104 sf each)	N/A
Floor Area Ratio	0.8	3.3	3.0
Maximum Building Height	**24 feet, 8 inches (2 stories)**	**59 feet, 10 inches (5 stories)**	**48 feet (4 stories)**
Setbacks (feet)			
Front	0	2	2
East	8.7	5	0
West	0	2	2
Rear	71	15	10
Vehicle Parking	**6**	**0**	**N/A**
Bicycle Parking			
Bike Room Size (sf)	N/A	226	N/A
Parking Stalls	0	18	14

[1] Exceedances or reductions of permitted/required amounts would be allowable with density bonus waivers pursuant to the State Density Bonus Law

[2] Pursuant to BMC Chapter 23.204

sf: square feet

Source: Studio KDA

Access

Individuals residing in the dwelling units would access the building via the lobby located on the Jefferson Avenue frontage; the live/work units would also be accessed from the Jefferson Avenue frontage, and the main commercial space would be accessed from University Avenue. Bicyclists would have access to a ground floor bike room via a separate entrance adjacent to the lobby for bicycle parking. Bicyclists would be served by surrounding bicycle infrastructure, including the bike boulevard along California Street, one block west of the project site. Residents and commercial patrons of the building would access the project site via public transit, including AC Transit bus stops along University Avenue (lines 51B, 52, and 88) and Martin Luther King Jr. Way (line 12), Transbay bus stops along University Avenue (line FS) and at University Avenue and Sacramento Street (line J), as well as the North Berkeley Bay Area Rapid Transit (BART) station (0.5 miles northwest) and Downtown BART station (0.7 miles east). The proposed building would contain no surface or subterranean parking.

Landscaping and Open Space

The project includes a total of 1,270 square feet of landscaped area. This includes a 1,135 square-foot landscaped area in the southeastern corner of the project site that would accommodate a portion of the root zone and canopy of a mature coast live oak tree located on the neighboring property to the east. An 858 square-foot roof deck with planters is also proposed. Planters would also be placed at the entrance to the lobby on Jefferson Avenue and at the entrance to the commercial space on University Avenue. Landscaping would include planting three Western Redbuds in the southeastern corner of the project site, while the remaining plantings would be comprised of various shrubs, grasses, and perennial herbs. Approximately five percent of the canopy of the mature Coast Live Oak (*Quercus agrifolia*) would be pruned to accommodate the proposed building (see Section 4, *Biological Resources*). There would also be six private balconies of approximately 100 square feet each. The project would decrease impervious coverage on site by creating 1,740 square feet of pervious space.

Utilities

Water and wastewater treatment would be provided via existing municipal connections to the project site. Water and wastewater service would be provided by the East Bay Municipal Utilities District (EBMUD). The City would provide solid waste, compost, and recycling collection services. Other utilities, such as electricity and telecommunications, exist adjacent to the project site and would serve the proposed project. Electricity would be delivered by Pacific Gas & Electric (PG&E) and procured by East Bay Community Energy (EBCE). No natural gas hookups would be provided to the proposed building pursuant to BMC Chapter 12.80, which prohibits natural gas in newly constructed buildings.

Construction

Construction activities would occur over an approximately 18 month period. In compliance with the City's noise standards, construction would occur on weekdays between 7:00 a.m. and 6:00 p.m. and Saturdays between 9:00 a.m. and 4:00 p.m. (BMC 13.40.070). No construction activities shall occur on Sundays or federal holidays. Demolition would include demolition of the existing building and detached garage. Demolition is conservatively assumed to include removal of all soil up to five feet in depth in case of the need for remediation of contaminated soils (see Section 9, *Hazards and Hazardous Materials*). Approximately 1,390 cubic yards of soil (assuming the entire project site footprint of approximately 150 feet by 50 feet would be excavated at a five-foot depth) would be

excavated and exported and a similar amount would be imported. Imported and exported materials would be hauled via University Avenue; haul trucks would be prohibited from traveling south on Jefferson Avenue, pursuant to BMC sections 14.56.060 and 14.56.070. Pursuant to the City's Standard Conditions of Approval (COA) it is assumed that Bay Area Air Quality Management District (BAAQMD) recommended measures would be implemented during construction and Tier 2 or higher engines and the most effective Verified Diesel Emission Control Strategies (VDECS) available for the engine type (Tier 4 engines automatically meet this requirement) as certified by the California Air Resources Board (CARB) would be used in construction equipment (see Section 3, *Air Quality*). Construction of the project would not require the use of pile drivers. Finally, prior to construction the City's Toxic Management Division must verify with the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) that the applicant has applied for regulatory oversight and all SFBRWQCB requirements have been implemented (Wolfenden 2022).

Green Building Features

The proposed project would be required to comply with several City of Berkeley green building requirements, including the following:

- Pursuant to BMC Chapter 19.37, construction waste would be diverted, including 100% of asphalt, concrete, excavated soil and land-clearing debris and a minimum of 65% of other nonhazardous construction and demolition waste.
- Pursuant to the California Water Efficient Landscape Ordinance (WELO), outdoor landscaped areas would employ landscape irrigation and water efficiency best practices.
- Pursuant to BMC Chapter 12.80, the proposed new construction would be all-electric.

10. Permit Approvals Required

The project would require approval of several Use Permits and one administrative use permit, along with a State Density Bonus by the City of Berkeley Zoning Adjustments Board. Approvals would include:

- **Use Permit**: BMC Section 23.326.070(A) to demolish a non-residential building.
- **Use Permit:** BMC Section 23.204.020(A) to add a mixed-use development.
- **Use Permit**: BMC Section 23.204.020(A) to add a multi-family use.
- **Use Permit**: BMC Section 23.204.060(D)(3)(a) to modify the required useable open space for a mixed-use project.
- **Use Permit:** BMC Section 23.204.060(B)(3)(a) to add ground floor residential uses (lobby).
- **Use Permit:** BMC Section 23.204.030(A) to add more than 5,000 square-feet of new floor area.
- **Use Permit:** BMC Section 23.204.060(D)(6)(a) to allow 50 percent of the required commercial floor area to be used for retail sales, personal and household service, or food service.
- **Administrative Use Permit:** BMC Section 23.304.050(A) to add architectural elements that exceed the height limit.
- **Density Bonus** with waivers requested for height, stories, rear setback, useable open space, and parking space.
- Approval by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)

No additional discretionary public agency permits or approvals would be required for this project.

11. Have California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Requested Consultation Pursuant to Public Resources Code Section 21080.3.1?

The City of Berkeley prepare and mailed a formal notification letter to 12 Native American Tribal representatives based on a list provided from the Native American Heritage Commission (NAHC), in accordance with the provisions of AB 52. The notification was sent out on March 7, 2023 and March 8, 2023. On March 10, 2023, the Confederated Villages of Lisjan Nation requested a copy of the California Historical Resources Information System (CHRIS) and Sacred Lands File (SLF) records along with the completed Initial Study.

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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/Soils	☐	Greenhouse Gas Emissions	■	Hazards & Hazardous Materials
☐	Hydrology/Water Quality	☐	Land Use/Planning	☐	Mineral Resources
■	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☐	Transportation	■	Tribal Cultural Resources
☐	Utilities/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.

Allison Riemer
Signature

9/11/23
Date

Allison Riemer
Printed Name

Associate Planner
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. 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?	☐	☐	■	☐

Setting

The project site is in a developed neighborhood in central Berkeley. To the east of the project site is Fox Commons, which is designated as a Berkeley Landmark, to the north of the of the project site is a three-story commercial building, to the west of the project site is a single-story mixed-use building, and to the south are one- and two-story residences. The project site is 0.5 miles southeast of the North Berkeley BART Station, which is a major transit stop. The project site is within a transit priority area (TPA) as defined by the Association of Bay Area Governments (ABAG), as discussed below.

Regulatory Setting

Senate Bill 743 (California Public Resources Code [PRC] Section 21099) passed in 2013, made changes to the CEQA for projects located in transit-oriented development areas. Among these changes are that a project's aesthetics impacts are no longer considered significant impacts on the environment if the project is a residential, mixed-use residential, or employment center project and if the project is located on an infill site within a transit priority area. Pursuant to Section 21099 of

the PRC, a "transit priority area" is defined in as an area within 0.5 mile of an existing or planned major transit stop. A "major transit stop" is defined in Section 21064.3 of the PRC as a rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

Impact Analysis

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

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

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

According to the ABAG/Metropolitan Transportation Commission (MTC) TPA Map, the project site is within a TPA (ABAG/MTC 2021). Therefore, aesthetics impacts of the proposed project may not be considered significant impacts on the environment and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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 project is located on Urban and Built-Up Land, pursuant to the Department of Conservation's (DOC) Important Farmland Finder (DOC 2022). The project site is not identified as prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, or grazing land. The project site is not enrolled in a Williamson Act contract, nor does it support forest land or resources; the project site does not meet the definition of forest land, timberland, or timberland zoned Timberland Production in PRC 12220(g), 4526, and 51104(g). The project site is not located on or adjacent to agricultural land or forest land and the proposed project would not involve development that could result in the conversion of farmland to non-agricultural uses. The project site is currently developed with a commercial building and parking area. The project would have no impact with respect to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use; conflict with existing agricultural zoning or Williamson Act contracts; 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 state and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether or not the standards are met or exceeded, the Basin is classified as being in "attainment" or "nonattainment." 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 BAAQMD is in non-attainment for the state and federal ozone standards, the state and federal $PM_{2.5}$ (particulate matter up to 2.5 microns in size) standards and the state PM_{10} (particulate matter up to 10 microns in size) standards and is required to prepare a plan for improvement (BAAQMD 2017a)

The health effects associated with criteria pollutants for which the Basin is in non-attainment are described in Table 2.

Table 2 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.[a]

[1] More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: USEPA, Air Quality Criteria for Particulate Matter, 2004.
Source: USEPA 2021

Air Quality Management

The Bay Area 2017 Clean Air Plan provides a plan to improve Bay Area air quality and protect public health as well as the climate. Although steady progress has been made toward reducing ozone levels in the Bay Area, the region continues to be designated as non-attainment for both the one-hour and eight-hour state ozone standards as noted previously. 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 Clean Air Plan to include all feasible measures to reduce emissions of ozone precursors and reduce transport of ozone precursors to neighboring air basins (BAAQMD 2017b).

Air Emission Thresholds

This analysis uses the BAAQMD's May 2017 CEQA Air Quality Guidelines to evaluate air quality. The numeric thresholds in the BAAQMD CEQA Air Quality Guidelines are used for this analysis to determine whether the impacts of the project exceed the thresholds identified in Appendix G of the CEQA Guidelines.

The BAAQMD has 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 the screening criteria are met by a project, the lead agency or applicant would not need to perform a detailed air quality assessment of their project's air pollutant emissions and air quality impacts would be considered less than significant. These screening levels are generally representative of new development on greenfield sites without any form of mitigation measures taken into consideration. For infill projects, such as this one, emissions would be less than the greenfield-type project on which the screening criteria are based (BAAQMD 2017c). The BAAQMD's screening level sizes for mid-rise apartments is 494 dwelling units for operational criteria pollutant emissions and 240 dwelling units for construction-related emissions (BAAQMD 2017c).

The proposed project would involve demolition and, therefore, does not meet all of the screening criteria for construction emissions. For projects that do not meet the screening criteria, BAAQMD provides numeric significance thresholds. Table 3 presents the significance thresholds for construction and operational-related criteria air pollutant and precursor emissions used for the purposes of this analysis. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. For the purposes of this analysis, the proposed project would result in a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 3.[1]

Table 3 Air Quality Thresholds of Significance

	Construction-Related Thresholds	Operation-Related Thresholds	
Pollutant/ Precursor	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tpy)	Average Daily Emissions (lbs/day)
ROG	54	10	54
NO_X	54	10	54
PM_{10}	82 (exhaust)	15	82
$PM_{2.5}$	54 (exhaust)	10	54

Notes: tpy = tons per year; lbs/day = pounds per day; NOX = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year.
Source: Table 2-1, BAAQMD 2017c.

Impact Analysis

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

The California Clean Air Act requires that air districts create a Clean Air Plan that describes how the jurisdiction will meet air quality standards. The most recently adopted air quality plan is the BAAQMD 2017 Plan. To fulfill state ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors—ROG and NO_X—and reduce transport of ozone and its precursors to neighboring air basins. The CAP builds upon and enhances the BAAQMD's efforts to reduce emissions of fine particulate matter and TACs. The 2017 Plan does not include control measures that apply directly to individual development projects. Instead, the control strategy includes control measures related to stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants.

Under BAAQMD's methodology, a determination of consistency with the 2017 Plan should demonstrate that a project:

- Supports the primary goals of the air quality plan
- Includes applicable control measures from the air quality plan
- Does not disrupt or hinder implementation of any air quality plan control measures

[1] Note the thresholds for PM_{10} and $PM_{2.5}$ apply to construction exhaust emissions only.

A project that would not support the 2017 Plan's goals would not be considered consistent with the 2017 Plan. On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating support for the clean air plan's goals. As discussed under criterion (b) below, the project would not exceed BAAQMD significance thresholds related to air quality emission), the project would not result in exceedances of BAAQMD thresholds for criteria air pollutants and thus would not conflict with the 2017 Plan's goal to attain air quality standards. The 2017 Clean Air Plan includes goals and measures to achieve the following:

- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources
- Reduce emissions of super-GHG pollutants such as methane, decrease demand for fossil fuels by increasing efficiency of industrial processes, energy, buildings, and transportation sectors and reducing demand for vehicle travel, and high-carbon goods and services
- Decarbonize our energy system by making the electricity supply carbon-free and electrifying the transportation and building sectors

The project includes features that are consistent with these goals to reduce GHG emissions and criteria air pollutants and to decarbonize the energy system. Specifically the project would meet energy efficiency standards in the California Green Building Standards (2022 CalGreen) and California Energy Commission 2022 Energy Code, and would comply with the City's Natural Gas Prohibition (BMC Chapter 12.80). Therefore, the project would reduce criteria air pollutants and GHG emissions from energy use and decarbonize the energy system by reducing overall energy use through energy-efficient design. The proposed project would also reduce the use of fossil fuels by using electricity as an energy source rather than natural gas and by sourcing electricity from EBCE. EBCE's power mix is mostly sourced from renewable energy and large hydropower, not fossil fuels. Additionally, as discussed in Section 4.17, *Transportation*, the project is located in proximity to a multitude of transit options, is near Bicycle Boulevards on California Street (one block to the west), Milvia Street (four blocks to the east) and Channing Way (four blocks to the south). Furthermore, the project would not generate significant levels of VMT. The proposed project would discourage driving and decrease demand for vehicle travel by not including vehicle parking, providing 24 bicycle parking stalls, and being located near bus transit (AC Transit bus stops along University Avenue and Martin Luther King Jr. Way, Transbay bus stops along University Avenue and at University Avenue and Sacramento Street, as well as the North Berkeley BART station (0.5 miles northwest) and the Downtown Berkeley BART station (0.7 miles east)). This project feature would also be consistent with the goals to reduce emissions of criteria air pollutants and GHG emissions by reducing demand for vehicle travel. Therefore, the project would not conflict with or obstruct the implementation of an applicable air quality plan and the project would have a less than significant impact.

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?

Construction of the project would generate temporary construction emissions (direct emissions) and long-term operational emissions (indirect emissions). Temporary air pollutant emissions from construction are associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction vehicles, in addition to reactive organic gases (ROG) that would be released during the drying phase following application of architectural coatings. Long-term emissions associated with project operation would include emissions from vehicle trips (mobile sources); electricity use

(energy sources); and landscape maintenance equipment, consumer products and architectural coating associated with on-site development (area sources).

Construction and operational emissions associated with the project were quantified using the California Emissions Estimator Model (CalEEMod) version 2022.1. Complete CalEEMod results and assumptions are provided in Appendix A.

Construction Emissions

Construction would occur over approximately 18 months. Approximately 1,390 cubic yards of earth material would be exported off site and an equal amount would be imported for fill, requiring approximately 348 one-way hauling truck trips, assuming a standard load of 16 cubic yards per truck trip. Including hauling to remove demolition volume of the existing 6,232 square foot two-story building, truck trips for hauling would total approximately 355 one-way haul trips. The construction equipment used to model emissions is subject to change, but the analysis herein used conservative estimates both in terms of the amount of equipment used and duration of its use during construction hours.

Additionally, construction of the project would be required to comply with Standard COAs for use permits under the Zoning Ordinance. These are the following:

Standard COA: Diesel Particulate Matter Controls During Construction

All off-road construction equipment used for projects with construction lasting more than 2 months shall comply with one of the following measures:

A. The project applicant shall prepare a health risk assessment that demonstrates the project's on-site emissions of diesel particulate matter during construction will not exceed health risk screening criteria after a screening-level health risk assessment is conducted in accordance with current guidance from BAAQMD and OEHHA. The health risk assessment shall be submitted to the Public Works Department for review and approval prior to the issuance of building permits.

B. All construction equipment shall be equipped with Tier 2 or higher engines and the most effective Verified Diesel Emission Control Strategies (VDECS) available for the engine type (Tier 4 engines automatically meet this requirement) as certified by the California Air Resources Board (CARB). The equipment shall be properly maintained and tuned in accordance with manufacturer specifications.

In addition, a Construction Emissions Minimization Plan (Emissions Plan) shall be prepared that includes the following:

- An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date.
- A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract. The Emissions Plan shall be submitted to the Public Works Department for review and approval prior to the issuance of building permits.

Standard COA: Implement BAAQMD-Recommended Measures during Construction

For all proposed projects, BAAQMD recommends implementing all the Basic Construction Mitigation Measures, listed below to meet the best management practices threshold for fugitive dust:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- 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.
- 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 Title 13, Section 2485 of California Code of Regulations). 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 lead agency 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.

It is assumed in the quantification of construction emissions that all equipment would include Tier 2 or higher engines and the most effective VDECS available for the engine type (Tier 4 engines automatically meet this requirement) as certified by the CARB.

Table 4 summarizes the estimated average daily emissions of pollutants during construction on the project site. As shown in the table, the BAAQMD thresholds would not be exceeded. With implementation of these Standard COAs, construction impacts would be less than significant.

Table 4 Construction Emissions (pounds/day)

Pollutant	Average Daily Emissions	BAAQMD Significance Threshold	Significant Impact?
ROG	0.1	54	No
NO_x	0.4	54	No
CO	3.0	N/A	No
PM_{10}	<0.1	82	No
$PM_{2.5}$	<0.1	54	No

See Appendix A for CalEEMod worksheets.
N/A = not applicable; no BAAQMD threshold for CO or SO_X

Operational Emissions

As shown in Table 5 and Table 6, daily and annual operational emissions would not exceed BAAQMD criteria pollutant thresholds. The operational emissions account for the Natural Gas Prohibition and assumes no natural gas consumption. Operational impacts would be less than significant.

Table 5 Daily Operational Emissions (pounds/day)

Pollutant	Average Daily Emissions	BAAQMD Significance Threshold	Significant Impact?
ROG	1.0	54	No
NO_x	0.6	54	No
CO	6.0	N/A	No
PM_{10}	<0.1	82	No
$PM_{2.5}$	<0.1	54	No

See Appendix A for CalEEMod worksheets.
N/A = not applicable; no BAAQMD threshold for CO or SO_X,

Table 6 Annual Operational Emissions (tons/year)

Pollutant	Total Emissions	BAAQMD Significance Threshold	Significant Impact?
ROG	0.3	10	No
NO_x	0.1	10	No
CO	1.0	N/A	No
PM_{10}	<0.1	15	No
$PM_{2.5}$	<0.1	10	No

See Appendix A for CalEEMod worksheets.
N/A = not applicable; no BAAQMD threshold for CO or SO_X,

Carbon Monoxide Emissions

A CO hotspot is a localized concentration of CO that is above a CO ambient air quality standard. The entire Basin is in conformance with state and federal CO standards. There are no current exceedances of CO standards within the air district and have not had a CO exceedance in the Bay Area since before 1994.[2] Typical development projects, like the relatively small-scale proposed under this project, would not emit the levels of CO necessary to result in a localized hot spot. Therefore, impacts to CO hotspots would be less than significant.

LESS THAN SIGNIFICANT IMPACT

[2] BAAQMD only has records for annual air quality summaries dating back to 1994.

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

The nearest sensitive receiver is a single-family residence located directly south of the project site. CARB has identified diesel particulate matter ($PM_{2.5}$) as the primary airborne carcinogen in the state (CARB 2021). In addition, Toxic Air Contaminants (TAC) comprise 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 2017c). Since construction of the project would not require 100 daily heavy truck trips and would require implementation of the Standard COA listed under criterion (b) and Tier 2 or higher engines and the most effective VDECS available for the engine type (Tier 4 engines automatically meet this requirement) as certified by the CARB for construction equipment, a construction health risk assessment would not be required. The proposed project does not include construction of new gas stations, dry cleaners, highways, roadways, or other sources that could be considered a new permitted or non-permitted source of TAC or $PM_{2.5}$ in proximity to receivers. In addition, the proposed project would not introduce a stationary source of emissions, nor would it result in particulate matter emissions greater than the BAAQMD threshold. Therefore, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

Table 3-3 in the BAAQMD's 2017 *CEQA Air Quality Guidelines* provides odor-screening distances for land uses that have the potential to generate substantial odor complaints. The uses in the table include wastewater treatment plants, landfills or transfer stations, refineries, composting facilities, confined animal facilities, food manufacturing, smelting plants, and chemical plants (BAAQMD 2017c). Odors are typically associated with industrial projects involving the use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes, as well as sewage treatment facilities and landfills. The tenant of the commercial use may elect to use it as a restaurant, but odors emanating from restaurants are considered typical of the urban environment in which the building is proposed. The proposed residential and commercial development would not generate objectionable odors that would affect a substantial number of people. Therefore, impacts related to odor are less than significant.

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

LESS THAN SIGNIFICANT IMPACT

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?	☐	☐	☐	■

Existing Setting

The project site is located in an urbanized area in central Berkeley. There is currently a two-story building, detached garage, and paved parking lot on site, all of which would be demolished. There is consistent traffic, fencing around the perimeter of the project site, and human-made barriers in the area. There are no existing trees on the project site, however there is a mature Coast Live Oak on the property adjacent to the project site. The tree's canopy extends 12 feet over the existing parking lot on the project site, as shown in Figure 4. An Arborist's Report was completed by SBCA Consulting in October 2022 that evaluates the Coast Live Oak in relation to the proposed project (Appendix B). The Coast Live Oak is healthy but has poor structure; the tree displays a significant included bark attachment in the 23-inch diameter branch extending north, which prohibits the strong union of the two branches. The tree was pruned as recently as two years ago in anticipation of construction. The Arborist's Report designates a root protection zone (RPZ) 38 feet from the tree base and includes recommendations to protect the Coast Live Oak through all stages of construction and operation, as discussed under impacts a. and e. below.

Regulatory Setting

City of Berkeley Coast Live Oak Ordinance

Title 6.52 of the BMC restricts the removal or excessive pruning of coast live oak (Quercus agrifolia) in Berkeley. Excessive pruning is defined as removal of more than 25 percent of the functioning leaf, stem, or root system of a tree in any 24-month period. This applies to single stem trees with a circumference of 18 inches (5.7 inches diameter) or multi-stem trees with a combined circumference of 26 inches (8.3 inches combined diameter) measured at four feet from grade. Additionally, Section 12.44.020 of the BMC requires permits and inspection for any cutting, trimming, or removal of any tree, shrub or plant being or growing in or on any street, parking strip, public square, park or playground.

Impact Analysis

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?

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

The nearest critical habitat for the Alameda Whipsnake is located approximately 1.73 miles east of the project site. There are no trees on the project site. While construction of the proposed structure would not involve the removal of trees, the proposed project may result in an impact on the Coast Live Oak adjacent to the project site through grading in the root zone or pruning to accommodate construction. Specifically, the proposed project would include the pruning of approximately five percent of the tree canopy in the location of the proposed building. In order to protect the Coast Live Oak and comply with BMC Title 6.52 and Section 12.44.020, which specifically prohibits the removal of and restricts the pruning of Coast Live Oak trees, implementation of Mitigation Measures BIO-1 through BIO-3 is required.

BIO-1 Pre-Construction Activities

To minimize impacts to the Coast Live Oak adjacent to the project site, the City of Berkeley shall ensure that following actions shall be completed by the project applicant prior to the start of construction.

1. Construction documents to show protected trees and tree protection requirements including tree protection fencing layout, areas of encroachment, and list procedures for working around protected oak.
2. A root protection zone (RPZ) shall be designated 38 feet from the tree base. This can be modified by a qualified biologist based upon physical evidence of root presence or absence on site.
3. Existing fencing shall be utilized as protection fencing around the RPZ. Signs that read "TREE PROTECTION ZONE: DO NOT ENTER" shall be attached to tree protection fencing every 20 feet.
4. The project arborist shall certify that all tree protection measures have been properly installed on the project site.
5. The project arborist shall meet with supervisor and work crew to review requirements of tree protection. All personnel working on site must be provided an orientation to the tree preservation requirements. No construction activities may begin until this meeting has been conducted.

BIO-2 Work Activities that Encroach into the Designated RPZ

To minimize impacts to the Coast Live Oak adjacent to the project site during construction, the City of Berkeley shall ensure that the following measures shall be implemented by the project applicant during any work occurring within the RPZ:

1. All activities occurring within the designated RPZ must be under direct supervision of project arborist. Encroachment is not permitted until all additional protections are in place and have been approved.
2. When trenching is required, careful hand excavation or the use of the Air Spade or hydraulic water excavation are acceptable methods. Pressure must be low if water is to be used as the tool. Water or air streams must not be directed at roots. Project arborist must approve and supervise all such activity. No heavy equipment shall be allowed. Wherever possible, route utilities outside of the designated RPZ. Tunneling is the preferred method for utilities passing through the RPZ.
3. The effects of foot traffic shall be mitigated using six inches of wood chip mulch and ¾ inch plywood placed on top. Soil protections for equipment operating within the designated RPZ requiring 12 inches of mulch with either metal trenching plates or 1 1/8-inch plywood placed on top shall be implemented.
4. The use of mulch shall be limited to good quality organic mulch (fresh wood chips are best) on soil surface helps to reduce soil compaction and retain soil moisture. Recommended material is wood chips generated from tree trimming. Fresh redwood, incense cedar and walnut chips are not acceptable, nor is palm generated mulch. Mulch shall be from tree parts taken from a minimum of two meters above ground. Mulch shall not contain soil particles.
5. Whenever construction activity must occur inside the tree protection zone, exposed scaffold limbs must be armored by strapping 2x4 boards to the part exposed to potential injury and wrapping with orange plastic fencing material.

6. All exposed roots must be covered with two layers of damp burlap secured with jute staples. Burlap shall always remain damp and can remain in place when backfilled.
7. The project arborist shall conduct all the necessary root pruning preferably during late fall after the roots have been exposed without damage.

BIO-3 Post Construction Mitigation

The City of Berkeley shall ensure that the following measures shall be conducted by the project applicant after construction has been completed to ensure the ongoing health and safety of the Coast Live Oak:

1. The project arborist shall designate tree health mitigation activities based upon the level of root loss and adverse impacts that have occurred during construction. If the oak is adversely impacted by construction activities, it will be noted for regular visual inspection. The project arborist shall then direct further mitigation. Insects and fungal pathogens are a sign of poor tree health (low energy reserves) and indicate the need for health mitigation.
2. Moisture shall be monitored using a soil probe. When needed, the project arborist shall designate supplemental irrigation. When root loss occurs, supplemental irrigation may be required for several years.
3. The project arborist shall assess and mitigate, as necessary, the level and depth of soil compaction through use of the water jet or air spade.
4. All landscaping planning must take precautions when planting within the designated RPZ. All plant materials shall be selected for compatibility with the favored moisture regime (hydrazone) of the tree species and soil texture.
5. A regular program of mulch application shall be implemented on site to help retain soil moisture, provide a source of nutrients, help with weed control and reduce soil compaction.
6. The tree shall only be fertilized when nutritional limitations have been identified through laboratory analysis of soil or plant tissue in order to avoid sucking insects (aphid, scale, etc.) and fungal pathogens.
7. The project arborist shall monitor the tree for signs of pests. Pest management shall be prescribed when necessary.

With implementation of Mitigation Measures BIO-1 through BIO-3, the project would not significantly impact the Coast Live Oak or conflict with local policies or ordinances protecting biological resources, including the City's tree protection policies. No other local policies or ordinances related to environmental resources would conflict with the project.

Existing trees located around the project site, including the Coast Live Oak or street trees on University Avenue, could contain bird nests and birds that are protected under the Migratory Bird Treaty Act (MBTA). 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. General demolition and construction activity associated with the project may affect protected nesting birds in existing trees. The City's Standard COA, described below, would be required, which would reduce potential impacts to nesting birds.

Standard COA: Avoid Disturbance of Nesting Birds

Initial site disturbance activities, including vegetation and concrete removal, shall be prohibited during the general avian nesting season (February 1 to August 30), if feasible. If nesting season avoidance is not feasible, the applicant 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 project 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 MBTA and CFGC, nesting bird surveys shall be performed not more than 14 days prior to scheduled vegetation 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. Nesting bird surveys are not required for construction activities occurring between August 31 and January 31.

Compliance with Mitigation Measures BIO-1 through BIO-3 and the Standard COA above would ensure protection of nesting birds and the Live Coast Oak and impacts to special status species would be less than significant with mitigation.

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?

The project site does not contain riparian habitat. The project site is approximately one mile west of Strawberry Creek; neither construction nor operation would impact Strawberry Creek. Based on the developed nature of the area and lack of native or riparian habitat located on the project site, no federal-or state-listed endangered, threatened, rare, or otherwise sensitive flora or fauna are anticipated to be located within the project site. There would be no impact.

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 (NWI) was reviewed to determine if wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the project site (U.S. Fish and Wildlife Service [USFWS] 2023b). No such features occur on or adjacent to the project site. No impact would occur.

NO IMPACT

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 project site is not located within a known regional wildlife movement corridor or other sensitive biological area as indicated by the USFWS Critical Habitat portal or California Department of Fish and Wildlife (CDFW) BIOS (USFWS 2023a; CDFW 2023). Further, the project site is within an urbanized area of Berkeley, which already contains substantial impediments to wildlife movement. There would be no impact.

NO 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 within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan (CDFW 2019). 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 provides an analysis of the project's impacts on cultural resources, including historical and archaeological resources, as well as human remains. CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (PRC, Section 21084.1). A historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or any object, building, structure, site, area, place, record, or manuscript a lead agency determines to be historically significant (State CEQA Guidelines, Section 15064.5[a][1-3]).

In addition, if it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC, Section 21083.2[a], [b]).

PRC, Section 21083.2(g) defines a unique archaeological resource as 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:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In May 2022, Preservation Architecture prepared the *1652-1658 University Ave., Berkeley, City of Berkeley Historical Evaluation* for the project (Hulbert 2022, included as Appendix C). The historic evaluation was based on site visits, the acquisition and review of city permit records, U.S. census and telephone directory searches, along with general historical and architectural research. The Hulbert (2022) evaluation has informed this investigation and is discussed in further detail in Impact

Analysis Threshold A below. Additionally, pursuant to BMC Section 23.326.070(C) the proposed demolition of the existing structures was referred to the City's Landmarks Preservation Commission. The Landmarks Preservation Commission reviewed the demolition at the January 5, 2023 meeting and took no action to designate the property.

In February 2023, Rincon Consultants conducted a cultural resources records search review for the project, which included a cultural resources records search of CHRIS through the Northwest Information Center (NWIC) located at Sonoma State University and a Native American Heritage Commission (NAHC) SLF search.

The NWIC records search was performed to identify previously conducted cultural resources studies, as well as previously recorded cultural resources within the project site and a 0.5-mile radius surrounding it. The records search included a review of available records at the NWIC, as well as the National Register of Historic Places (NRHP), CRHR, the Office of Historic Preservation Historic Properties Directory, the California Inventory of Historic Resources, the Archaeological Determinations of Eligibility list, and historical maps.

The NWIC records search identified 22 cultural resources studies conducted within the project site, and 21 previously recorded cultural resources within a 0.5-mile radius of the project site. Rincon contacted the NAHC on January 30, 2023, to request a SLF search of the project site. A response from the NAHC dated February 18, 2023, stated the results were positive. Although the results were positive, no identification of specific archaeological resources is provided via the SLF search.

Impact Analysis

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

Preservation Architecture evaluated the building at 1652-1658 University Avenue in May 2022 for listing in the CRHR and as a Berkeley Landmark and Structure of Merit and found it ineligible for listing due to a lack of historical, architectural, or cultural significance. The building at 1652-1658 University Avenue does not, therefore, qualify as a historical resource as defined by CEQA. The proposed project, including the proposed demolition of the building, would result in no direct impact to the significance of a historical resource pursuant to CEQA.

The proposed project site is adjacent to one historical resource. Fox Commons at 1670–76 University Avenue was designated as Berkeley Landmark #211 in 1988, and is a historical resource as defined by CEQA. The proposed project does not include physical alterations to the landmark building and the project site is not within or adjacent to an existing historic district. Additionally, the surrounding setting has changed substantially since 1988 when Fox Commons was designated as a landmark. An example of this is the new construction at 2001 McGee Avenue, which is approximately 200 feet east of Fox Commons. As discussed in detail in Section 13, project construction including vibration-generating equipment may be used approximately 10 feet from the historical resource. Though no high impact activities such as blasting, pile-driving, or excavation are anticipated, minor cosmetic damage (i.e., non-structural) to nearby buildings may occur. Mitigation Measure NOI-1 and Standard COA *Damage Due to Construction Vibration* would apply (see Section 13, *Noise*). Indirect impacts to a historical resource would be less than significant with the mitigation identified in Section 13. Therefore, impacts to historical resources would be less than significant with mitigation.

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 cultural resources records search did not identify archaeological resources within the project site; however, five archaeological sites are recorded within 0.5 mile of the project site. Archaeological resources within the surrounding 0.5-mile radius include burials, a village site, and modified shell fragments. Additionally, the project site is approximately one mile from the Strawberry Creek corridor, which is highly sensitive for archaeological resources as a fresh-water source conducive to human habitation. Due to the proximity of the project site to Native American archaeological resources and to Strawberry Creek, the project site is archaeologically sensitive. Although the project site has been disturbed by construction of the existing building and parking lot, subsurface archaeological resources may be present, and project excavation is anticipated to be deeper than it was for construction of the existing building. Implementation of mitigation measures CUL-1 and CUL-2, as well as the City's Standard COA, would reduce potential impacts to previously unidentified archaeological resources to a less than significant level.

CUL-1 Worker's Environmental Awareness Program

A qualified archaeologist shall be retained to conduct a Worker's Environmental Awareness Program (WEAP) training on archaeological sensitivity for all construction personnel prior to the commencement of any ground-disturbing activities. The training shall be conducted by an archaeologist who meets or exceeds the Secretary of Interior's Professional Qualification Standards for archaeology (National Park Service 1983). Archaeological sensitivity training shall include a description of the types of cultural material that may be encountered, cultural sensitivity issues, regulatory issues, and the proper protocol for treatment of the materials in the event of a find.

CUL-2 Archaeological Monitoring

Prior to project initiation, a qualified archaeologist shall be retained to provide archaeological monitoring for the project. Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983). The archaeological monitor will have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work within 50 feet of the find must halt, and the find must be evaluated for listing in the CRHR and NRHP. Archaeological monitoring may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground-disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Furthermore, monitoring may be terminated in the event that it is determined that the soils within the project site do not have the potential to contain cultural resources.

Standard COA: Archaeological Resources (Ongoing throughout Demolition, Grading, and/or Construction)

Pursuant to CEQA Guidelines section 15064 .5(f), "provisions for historical or unique archaeological resources accidentally discovered during construction" should be instituted. Therefore:

a. In the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant and/or lead agency shall consult with a qualified archaeologist, historian or paleontologist to assess the significance of the find.
b. If any find is determined to be significant, representatives of the project proponent and/or lead agency and the qualified professional would meet to determine the appropriate avoidance measures or other appropriate measure, with the ultimate determination to be made by the City of Berkeley. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by the qualified professional according to current professional standards.
c. In considering any suggested measure proposed by the qualified professional, the project applicant shall determine whether avoidance is necessary or feasible in light of factors such as the uniqueness of the find, project design, costs, and other considerations.
d. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation measures for cultural resources is carried out.
e. If significant materials are recovered, the qualified professional shall prepare a report on the findings for submittal to the Northwest Information Center.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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

Although no human remains have been identified within the current project site, Native American human remains have been identified within a 0.5-mile radius of the project site and the project site is considered sensitive. 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 PRC 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 Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD would complete the inspection of the project 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.

In addition, the project would be subject to the following City of Berkeley Standard COA:

Standard COA: Human Remains (Ongoing throughout Demolition, Grading, and/or Construction)

In the event that human skeletal remains are uncovered at the project site during ground-disturbing activities, all work shall immediately halt and the Alameda County Coroner shall be contacted to evaluate the remains, and following the procedures and protocols pursuant to Section 15064.5 (e)(1) of the CEQA Guidelines. If the County Coroner determines that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, and all excavation and site preparation activities shall cease within a 50-foot radius of the find until appropriate arrangements are made. If the agencies determine that avoidance is not feasible, then an

alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance and avoidance measures (if applicable) shall be completed expeditiously.

LESS THAN SIGNIFICANT IMPACT

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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?	☐	☐	■	☐

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 of the proposed project would result in short-term consumption of energy from the use of construction equipment and processes. Energy use during construction would be primarily from fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators. Temporary grid power may also be needed for construction trailers or electric construction equipment. Energy use during construction would be temporary in nature, and construction equipment used would be typical of construction projects in the region. Similar to the manufacturers utilizing energy conservation methods to reduce costs, it is reasonable to assume contractors would avoid wasteful, inefficient, and unnecessary fuel consumption during construction to reduce construction costs. The project would comply with the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation, which imposes limits on idling and restricts the use of older vehicles. This would reduce fuel consumption and lead to the use of fuel-efficient vehicles on the construction site. Construction equipment would be maintained to applicable standards, and construction activity and associated fuel consumption and energy use would be temporary and typical for construction sites. The CALGreen Building Standards Code includes specific requirements related to recycling, construction materials, and energy efficiency standards that would apply to construction of the proposed project to minimize wasteful, inefficient, and unnecessary energy consumption.

Operational energy use would include use of transportation fuel. California requires that all motorists use California Reformulated Gasoline, a cleaner formulation of gasoline that results in lower emissions of ozone, CO and other air pollutants when burned. While the proposed project would result in additional daily vehicle trips as compared to existing conditions, the increase would be due to the introduction of residential units in central Berkeley. It does not reflect the efficiency of transportation energy use. Moreover, the introduction of mixed retail and residential land uses, close to one another, further promotes a higher-density mixed-use land use pattern that is intended to reduce vehicle trip lengths and subsequent transportation energy use. Bicycle Boulevards on California Street (one block to the west), Milvia Street (four blocks to the east) and Channing Way

(four blocks to the south) are all easily accessible from the site. In addition, the proposed project is within 0.5 miles of the North Berkeley BART station and is located within a TPA and therefore would have less than significant impacts on transportation energy.

In addition to transportation energy use, operation of the project would consume electricity for building heating and power, lighting, and water conveyance, among other operational requirements. The proposed project would increase the amount of electricity consumed compared to the existing uses on the project site. In compliance with the City's ordinance prohibiting natural gas infrastructure in new buildings, the project would not utilize natural gas. Project energy consumed would represent an incremental increase in energy usage compared to existing energy use in Berkeley, and the proposed project would implement energy-efficient components to reduce energy demand. Additionally, the project would meet CALGreen specific requirements for energy efficiency in new development and would incorporate WELO features. Therefore, construction and operation of the proposed project would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy and this impact 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 of Berkeley's Climate Action Plan (CAP) sets a year 2020 target to achieve a 33 percent absolute reduction below year 2000 community-wide emissions and identifies actions to achieve the target with the ultimate goal of 80 percent emission reductions. The CAP contains GHG-reduction policies for transportation and land use, building energy use, as well as waste reduction and recycling. The project would be designed to achieve CALGreen requirements and would include energy efficient appliances and lighting as well as water efficient fixtures and irrigation. Additionally, the project would place residences in a transit-accessible area near the North Berkeley BART station, and AC Transit and Transbay bus service, and near Bicycle Boulevards on California Street (one block to the west), Milvia Street (four blocks to the east) and Channing Way which would reduce necessary reliance on single-occupancy vehicles and vehicle miles traveled (VMT).The project would be all electric and electricity would be supplied by EBCE, which sources 100 percent GHG-free energy under their Renewable 100 plan. Overall, the project would be consistent with the CAP and the energy efficiency strategies contained therein. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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 18-1-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?	☐	☐	■	☐

Setting

The project area is situated in the Coast Ranges geomorphic province of California (California Geological Survey 2002). The Coast Ranges extend about 600 miles from the Oregon border to the Santa Ynez River in Santa Barbara County and are characterized by numerous north-south–trending peaks and valleys that range in elevation from approximately 500 feet above mean sea level to 7,581 feet above mean sea level (Norris and Webb 1976).

Berkeley is located in the United States 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 2002a).

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 24.6 miles west of the project site (DOC 2021). 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 Credible Earthquake of 8.0.
- **The Hayward Fault**, one of ten major faults that make up the San Andreas Fault Zone, runs 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 would likely cause extensive damage throughout Berkeley 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 1.3 miles west of the Hayward Fault (DOC 2021).

Liquefaction and Seismically Induced Settlement

Liquefaction is defined as the sudden loss of soil strength due to a rapid increase in soil pore water pressure resulting from seismic ground shaking. Liquefaction potential is dependent on such factors as soil type, depth to ground water, degree of seismic shaking, and the relative density of the soil. When liquefaction of the soil occurs, buildings and other objects on the ground surface may tilt or sink, and lightweight buried structures (such as pipelines) may float toward the ground surface. Liquefied soil may be unable to support its own weight or that of structures, which could result in loss of foundation bearing or differential settlement. Liquefaction may also result in cracks in the ground surface followed by the emergence of a sand-water mixture. Earthquake hazard maps

produced by MTC/ABAG indicate that a large Hayward Fault quake would trigger severe shaking throughout Berkeley and a moderate risk of liquefaction across the city (ABAG & MTC 2020).

Seismically induced settlement occurs in loose to medium dense unconsolidated soil above groundwater. These soils compress (settle) when subject to seismic shaking. The settlement can be exacerbated by increased loading, such as from the construction of buildings. Settlement can also result solely from human activities including improperly placed artificial fill, and structures built on soils or bedrock materials with differential settlement rates.

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. Landslide risk is low throughout the majority of Berkeley, including the area where the project site is located (ABAG & MTC 2020).

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 identifies the presence of expansive soils as a potential hazard at the project 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. The City enforces grading and erosion control ordinances to reduce these hazards.

Regulatory Setting

Berkeley General Plan

There are several emergency preparedness policies in the Disaster Preparedness and Safety Element of the City's General Plan that aim to protect life and property from seismic hazards. Those policies include:

- **Policy S-13 Hazards Identification:** Identify, avoid and minimize natural and human-caused hazards in the development of property and the regulation of land use.

Berkeley Municipal Code

The BMC contains multiple ordinances that are applicable to this project to minimize erosion impacts. Specifically, BMC Chapter 21.40 which requires that proposed projects comply with grading, erosion, and sediment control regulations on file in the Public Works Department, and BMC Chapter 17.20 which requires that federal, state, and local erosion and sediment control Best Management Practices (BMPs) be implemented to minimize erosion during construction would be applicable.

California Building Code

The City of Berkeley has adopted the 2022 California Building Code (CBC) Guidelines as part of their municipal code (Chapter 19.28.010) effective January 2023. These guidelines would be applicable to the proposed project as they contain specific requirements for structural design, including seismic loads and soil investigations.

Impact Analysis

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?

The project site is not located within an identified earthquake fault zone as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map (DOC 2021). No known fault lines are located on the project site. The closest active fault is the Hayward Fault, located approximately 1.3 miles east of the project site. Thus, the likelihood of surface rupture occurring from active faulting at the project site is remote. The project site would not likely be subject to ground rupture. Impacts would be less than significant.

LESS THAN SIGNIFICANT 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 San Francisco Bay Area region, the project site would be susceptible to strong seismic ground shaking in the event of a major earthquake. Nearby active faults include the Hayward Fault (1.3 miles east, and the San Andreas Fault (24.6 miles west), (DOC 2021). These faults are capable of producing strong seismic ground shaking at the project site.

The structure would be required to be constructed to meet current seismic standards in the 2022 CBC intended to ensure that buildings could withstand the adverse effects of strong ground shaking. The City of Berkeley has adopted the 2022 CBC Guidelines as part of the BMC (Chapter 19.28.010) effective January 2023. The CBC contains specific requirements for structural design, including seismic loads. The CBC requires that structures be designed and constructed to resist seismic hazards, including through foundation design and the completion of soil investigations prior to construction. The City of Berkeley would ensure that the project would be designed and constructed consistent with the current CBC, thereby ensuring that appropriate investigations and design measures have been employed to effectively minimize or avoid potential hazards associated with redevelopment and/or new building construction.

With required compliance with all applicable City building and fire code standards, as well as the CBC (CBC, Title 24 of the California Code of Regulations), regarding seismic safety, design and construction of the proposed project would be engineered to withstand the expected ground acceleration that may occur at the project site. Project construction would also be subject to review and approval by City building and safety officials prior to project approval. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Liquefaction is a condition that occurs when unconsolidated, saturated soils change to a near-liquid state during ground shaking. The project site is not located in an identified liquefaction zone. The nearest liquefaction zone is approximately 0.1 miles south of the project site (DOC 2021). The proposed building would be required to be constructed in compliance with the CBC, which requires structures to be designed and constructed to resist liquefaction potential from seismic-related ground failure. With compliance with CBC requirements, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

A landslide is the movement of surface material down a slope. Lateral spread and liquefaction are processes in which material flows in a fluid-like movement and lateral spread refers to this movement over a gentle slope during a landslide. Landslides are typically a hazard on or near slopes or hillside areas, rather than generally level areas such as the project site and vicinity. According to the California Earthquake Hazards Zone map, the project site is not located in an earthquake-induced landslide hazard zone (DOC 2021). The project site is generally flat and is not surrounded by hillsides. Therefore, the project has a low potential for slope instability occurring at the project site and 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 proposed project would include construction activities that could potentially result in soil erosion. The project would be required to follow applicable CBC requirements related to soil found in Chapter 18 of the BMC to reduce soil erosion. Compliance with State and City regulations would reduce impacts related to soil erosion and the loss of topsoil to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

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?

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Fluctuations in soil moisture can cause expansive soils to shrink and swell, thereby compromising the integrity of foundations or pavements. The project site is located on urban land that is underlain

by tierra soils which are classified as moderately well drained (NRCS 2021). Further, the project site is not within an area mapped as having landslides (DOC 2021). The project site was previously developed and the structure would not be constructed on expansive soils that would become unstable and result in landslide, lateral spreading, subsidence, liquefaction, collapse, or create a substantial risk to life or property. Impacts 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 proposed project would not include components that would require the use of septic tanks or alternative wastewater disposal systems. The proposed project would connect to the City of Berkeley's municipal sewer system. There would be no impact.

NO IMPACT

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

Construction of the project would involve excavation to remove potentially contaminated soils to a maximum depth of approximately five feet over a land area of approximately 150 feet by 50 feet. The project site may be underlain by geologic units assigned a high paleontological sensitivity and therefore, paleontological resources may be encountered during ground-disturbing activities associated with project construction (e.g., grading, excavation, or other ground disturbing construction activity). Because previous ground disturbance on the project site has been limited to excavation for building foundations, construction activities from the project may result in the destruction, damage, or loss of undiscovered scientifically important paleontological resources; this would be a potentially significant impact. However, the City would implement the following Standard COA to reduce impacts.

Standard COA: Paleontological Resources (Ongoing throughout Demolition, Grading, and/or Construction)

In the event of an unanticipated discovery of a paleontological resource during construction, excavations within 50 feet of the find shall be temporarily halted or diverted until the discovery is examined by a qualified paleontologist (per Society of Vertebrate Paleontology standards [SVP 1995,1996]). The qualified paleontologist shall document the discovery as needed, evaluate the potential resource, and assess the significance of the find. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the City determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important, and such plan shall be implemented. The plan shall be submitted to the City for review and approval.

By adhering to this Standard COA, the City would evaluate and protect significant paleontological resources if unexpectedly encountered during grading and excavation, resulting in a less than significant impact.

LESS THAN SIGNIFICANT IMPACT

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?	☐	☐	■	☐

Climate Change and Greenhouse Gas (GHG) Emissions

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. Climate change is the result of numerous, cumulative sources of greenhouse gases (GHG), gases that trap heat in the atmosphere, analogous to the way in which a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases, and ozone (O_3). GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Anthropogenic GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6) (National Aeronautics and Space Administration [NASA] 2018).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHGs, the average temperature of the Earth would be about 15° C cooler (NASA 1998). However, emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Thresholds

The vast majority of 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 that 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]).

To evaluate whether a project may generate a quantity of GHG emissions that may have a significant impact on the environment, state agencies have developed a number of operational bright-line significance thresholds. Significance thresholds identify the level at which additional analysis of project GHG emissions is necessary. Projects that attain the significance target, with or without mitigation, would result in less than significant GHG emissions.

In the 2022 BAAQMD *CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans*, the BAAQMD outlines an approach to determine the significance of projects. BAAQMD presents two options for projects to meet the significance thresholds: a) include minimum project design thresholds, or b) be consistent with a local GHG reduction strategy that meets the criteria under State *CEQA Guidelines* Section 15183.5(b). The minimum project design elements listed in the adopted BAAQMD thresholds are described below.

For building energy use, BAAQMD minimum design threshold prohibits the use of natural gas appliances and natural gas pipelines. The minimum threshold also requires that building construction not result in any wasteful, inefficient, or unnecessary electrical usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b). In addition, the design threshold requires projects to meet a locally adopted SB 743 VMT target or achieve the following reductions: a reduction in project-generated VMT per capita at least 15 percent below the regional average for residential and office projects; and no net increase in existing VMT for retail projects. The minimum design thresholds also require CALGreen Tier 2 electric vehicle parking; however, this threshold does not apply to the project since it excludes parking entirely.

City of Berkeley Climate Action Plan

The City of Berkeley adopted a CAP in 2009 with the goal of reducing communitywide GHG emissions by 80 percent below 2000 levels by 2050. The core recommendation strategies and actions of the CAP center around the following topics (City of Berkeley 2009):

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 guiding GHG emission reduction efforts. Since publication of the CAP, the City has outlined several additional climate commitments including:

- Net-Zero Carbon Emissions by 2045, in alignment with Governor Brown’s Executive OrderB-55-18. The City adopted a resolution committing to this goal in May 2021 (City of Berkeley 2023).
- Declared a Climate Emergency and resolved to become a Fossil Fuel Free City in June 2018 (City of Berkeley 2023)

Prohibition of Natural Gas Infrastructure in New Buildings

In 2019, the Berkeley City Council added Chapter 12.80 to the BMC via Ordinance No. 7,672-N.S., which prohibits the installation of natural gas infrastructure in newly constructed buildings. In limited circumstances, the Ordinance allows the entitling body to grant an exception or a public interest exemption.

Impact Analysis

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

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

The project would be consistent with the City's CAP, which outlines actions to implement in order to achieve a greenhouse gas reduction target of 80 percent below 2000 emission levels by the year 2050, consistent with the State's direction to local governments. In 2018, then-Governor Brown committed California to carbon neutrality by 2045, the Berkeley City Council resolved to become a "Fossil Fuel Free City," and the Council declared a Climate Emergency, all steps to signal the urgency of these ambitious goals and the need to act on climate threats in an equitable manner. The project would be consistent with Sustainable Transportation and Land Use Goal 1, which aims to increase density along transit corridors, by providing a five-story mixed-use building near transit. The modified project would be consistent with Sustainable Transportation and Land Use Goal 2, which aims to foster walking and cycling, by eliminating parking and promoting reliance on walking and cycling by placing housing near Bicycle Boulevards on California Street (one block to the west), Milvia Street (four blocks to the east) and Channing Way (four blocks to the south) . The project would be consistent with Building Energy Use Goals 1 and 4, which call for green building and renewable energy use, by complying with CALGreen and the City's Natural Gas Prohibition.

The project would eliminate natural gas usage on the site by excluding natural gas hookups at the planning stage pursuant to the City's Natural Gas Prohibition and would not include any natural gas infrastructure. The project would comply with the City's Standard COA, *Air Quality – Diesel Particulate Matter Controls During Construction* ((included under Section 3, *Air Quality,* which requires use of construction equipment equipped with Tier 2 or higher engines and the most effective VDECS available for the engine type (Tier 4 engines automatically meet this requirement) as certified by the CARB or preparation of a Construction health risk assessment to reduce GHG emissions during construction). In compliance with this COA, construction of the project would not result in wasteful, inefficient, or unnecessary electrical usage.

The project would meet the SB 743 target. As part of the City's implementation of SB 743 and in accordance with the Technical Advisory on Evaluating Transportation Impacts in CEQA, the City developed the VMT screening approach. The VMT screening criteria for projects in a TPA is applicable to the project because it:

- Has a Floor Area Ratio (FAR) of more than 0.75;
- Includes less than 200,000 square feet of office or commercial space;
- Includes less parking supply than the project's estimated demand;
- Is consistent with the City's General Plan, an applicable Specific Plan, or an applicable Sustainable Communities Strategy;

- Does not replace affordable residential units with market-rate residential units; and
- Does not have project-specific or location-specific information that indicates that the project will generate significant levels of VMT.

The project would have a FAR of 3.3, would include 3,145 square feet of commercial space, would include no automobile parking, and would add two housing units affordable to very-low income households. The project's proposed land uses and development program would be generally consistent with the City's General Plan, as discussed in Section 11, *Land Use and Planning*. Furthermore, as discussed in Section 4.17, *Transportation*, the project is located in proximity to a multitude of transit options, is near Bicycle Boulevards on California Street (one block to the west), Milvia Street (four blocks to the east) and Channing Way (four blocks to the south), and would not include parking. Additionally, there is no indication that the project would generate significant levels of VMT. Therefore, the project would satisfy the TPA criteria and is therefore presumed to meet the City's adopted SB 743 VMT target. In conclusion, the project would have a less-than-significant impact when evaluated using the BAAQMD-recommended GHG thresholds of significance. The project also would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions, and this impact would therefore be less than significant.

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?	☐	☐	☐	■

This section evaluates the proposed project's potential impacts relating to hazardous materials in soil and groundwater and other hazards. The information presented in this section is based on a Phase I Environmental Site Assessment (ESA) from January 2020 prepared by CAL INC Training LLC and a Phase II ESA from September 2020 prepared by Farallon Consulting. Copies of these reports are included in Appendix D.

Setting

A review of the California State Water Resources Control Board (SWRCB) GeoTracker database found that the project site is under review as of November 11, 2022. The project site is not listed in the Department of Toxic Substances Control (DTSC) EnviroStor database, or the United States Environmental Protection Agency's (USEPA) Superfund Enterprise Management System (SEMS)/Envirofacts database.

Phase I ESA

A Phase I ESA for 1652 University Avenue was completed in January 2020 by CAL INC Training LLC, which included the completion of a Tier 1 Vapor Encroachment Screen. CAL INC Training LLC obtained records which indicated the project site had dry cleaning equipment on site from the 1960s to as recently as 2000. The Phase I ESA concluded that a vapor encroachment condition exists at the project site based on historical Berkeley Fire Department (BFD) records, which indicated that the project site was used as "University Clean-O-Mat" from 1970 to 1992 and "University Laundromat" from 1996 to 2000, and a "Vic Model 34 Solvent Still" (a dry-cleaning machine) may have been present on the site. Additionally, the records review indicates the project site is in a USEPA Radon Zone 2. The Phase I ESA identified one recognized environmental condition (REC) in connection with the site: the location of the project site in an Environmental Management Area (EMA) as identified by the City of Berkeley. CAL INC Training LLC noted that the City requires preparation of a soils and groundwater management plan for properties located within an EMA.

Phase II ESA

Farallon Consulting competed a Phase II ESA at the project site in September 2020 to determine whether vapor intrusion is occurring in the ground-floor tenant space of the project site and to collect one soil gas sample within the footprint of the parking area where the proposed project would be developed. Soil vapor and indoor air samples were collected and analyzed for volatile organic compounds (VOCs), including tetrachloroethene (PCE), the contaminant of concern for the site. The soil vapor and indoor air results were compared to Environmental Screening Levels (ESLs) established by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) in 2019.

Farallon Consulting reported the following results from their soil vapor sample (collected in the parking lot of the project site):

- PCE was detected at a concentration of 23 micrograms per cubic meter ($\mu g/m^3$) in the parking lot soil vapor sample, which exceeds the residential ESL of 15 $\mu g/m^3$.
- Benzene was detected at a concentration of 5.2 µg/m3 in the parking lot soil vapor sample, which exceeds the residential ESL of 3.2 $\mu g/m^3$.

Farallon Consulting reported the following results from their subslab soil vapor samples (collected in the existing building):

- PCE was detected in all three subslab soil vapor samples, ranging from concentrations of 690 µg/m^3 to 27,000 µg/m^3, which exceed the residential ESL of 15 µg/m^3 and the commercial/industrial ESL of 67 µg/m^3.

Farallon Consulting reported the following results from their indoor air samples:

- PCE was detected in both indoor air samples at concentrations of 6.41 µg/m^3 and 8.20 µg/m^3, which exceed both the residential ESL of 0.046 µg/m^3 and the commercial/industrial ESL of 2.0 µg/m^3.
- Vinyl chloride was detected in one indoor air sample at a concentration of 0.0563 µg/m^3, which exceeds both the residential ESL of 0.0095 µg/m^3 and the commercial/industrial ESL of 0.16 µg/m^3.
- Chloroform was detected in both indoor air samples at concentrations of 0.145 µg/m^3, which exceed the residential ESL of 0.12 µg/m^3.
- 1,1,2,2-Tetrachloroethane was detected in one indoor air sample at a concentration of 0.438 µg/m^3, which exceeds both the residential ESL of 0.048 µg/m^3 and the commercial/industrial ESL of 0.21 µg/m^3. However, Farallon Consulting noted that 1,1,2,2-tetrachloroethane was detected at a concentration of 0.448 µg/m^3 in the outdoor air sample, which exceeds both the residential and commercial/industrial ESLs.
- Benzene was detected in both indoor air samples at concentrations of 0.709 µg/m^3, which exceed both the residential ESL of 0.097 µg/m^{3}and the commercial ESL of 0.42 µg/m^3. However, Farallon Consulting noted that benzene was detected at a concentration of 0.514 µg/m^3 in the outdoor air sample, which exceeds both the residential and commercial/industrial ESLs.
- Naphthalene was detected at concentrations of 0.634 µg/m^3 and1.02 µg/m^3 in both indoor air samples, which exceed both the residential ESL of 0.083 µg/m^3 and the commercial/industrial ESL of 0.36 µg/m^3. However, Farallon Consulting noted that naphthalene was detected at a concentration of 0.294 µg/m^3 in the outdoor air sample, which exceeds the residential ESL.

Other VOCs were detected in the soil vapor samples, indoor air samples, and outdoor air sample at concentrations below their respective residential ESLs.

Based on these results, Farallon Consulting concluded the following:

- The analytical results of the soil vapor and indoor air samples detected the presence of concentrations of subsurface PCE (and other VOCs) exceeding residential and/or commercial/industrial ESLs, which "indicates the likely presence of a subsurface residual contaminant source."
- The highest PCE concentration was detected in the subslab soil vapor samples collected in the project site building. The highest concentration of PCE detected (27,000 µg/m^3) was three orders of magnitude higher than the commercial/industrial ESL of 67 µg/m^3 for soil vapor.
- Chloroform and vinyl chloride were detected in both indoor air samples at concentrations exceeding the residential and commercial/industrial ESLs, but were not detected in any of the subslab soil vapor and soil vapor samples collected at the project site.
- 1,1,2,2-Tetrachloroethane, benzene, and naphthalene were detected in the indoor air samples at concentrations exceeding the residential and commercial/industrial ESLs. However, these analytes were detected in the outdoor air sample above the residential and/or commercial/industrial ESLs. Farallon Consulting noted that "these outdoor air detections may be attributed to active commercial and industrial facilities in the project site neighborhood."

Farallon Consulting recommended that further sampling of soil vapor, indoor air, and groundwater should be conducted at the project site to fully evaluate the type and level of mitigation needed to reduce health risks to future site users and determine the extent of contamination. Additionally, they noted that the specific mitigation strategy for vapor intrusion will need to be based upon site project design and use. Depending on the findings of future investigation, planned construction of a new residential building may require installation of a sub-slab vapor barrier and venting system.

Regulatory Setting

Department of Toxic Substances Control

As a department of the California Environmental Protection Agency (CalEPA), the DTSC is the primary agency in California that regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of Resource Conservation and Recovery Act and the California Health and Safety Code.

DTSC also administers the California Hazardous Waste Control Law to regulate hazardous wastes. While the California Hazardous Waste Control Law is generally more stringent than Resource Conservation and Recovery Act, until the USEPA approves the California program, both state and federal laws apply in California. The California Hazardous Waste Control Law lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

Government Code Section 65962.5 requires the DTSC, the State Department of Health Services, the SWRCB, and the California Department of Resources, Recycling, and Recovery (CalRecycle) to compile and annually update lists of hazardous waste sites and land designated as hazardous waste sites throughout the state. The Secretary for Environmental Protection consolidates the information submitted by these agencies and distributes it to each city and county where sites on the lists are located. Before the lead agency accepts an application for a development project as complete, the applicant must consult these lists to determine if the site at issue is included.

If soil is excavated from a site containing hazardous materials, it is considered a hazardous waste if it exceeds specific criteria in Title 22 of the CCR. Remediation of hazardous wastes found at a site may be required if excavation of these materials is performed, or if certain other soil disturbing activities would occur. Even if soil or groundwater at a contaminated site does not have the characteristics required to be defined as hazardous waste, remediation of the site may be required by regulatory agencies subject to jurisdictional authority. Cleanup requirements are determined on a case-by-case basis by the agency taking jurisdiction.

Government Code Section 65962.5 (Cortese List)

Section 65962.5 of the Government Code requires CalEPA to develop and update a list of hazardous waste and substances sites, known as the Cortese List. The Cortese List is used by the State, local agencies, and developers to comply with CEQA requirements. The Cortese List includes hazardous substance release sites identified by DTSC, SWRCB, and CalRecycle.

Berkeley General Plan

The Berkeley General Plan was adopted in April 2002, and provides the City with goals and policies that reflect shared community values, potential change areas, and compliance with state law and local ordinances. The General Plan includes key policies related to hazards and hazardous materials and applicable to the proposed project which include:

- **Policy EM-14 Hazardous Material Regulation:** Control and regulate the use, storage and transportation of toxic, explosive, and other hazardous and extremely hazardous material to prevent unauthorized and accidental discharges.
- **Policy EM-15 Environmental Investigation:** When reviewing applications for new development in areas historically used for industrial uses, require environmental investigation as necessary to ensure that soils, groundwater, and buildings affected by hazardous material releases from prior land uses would not have the potential to affect the environment or the health and safety of future property owners, users, or construction workers.

Impact Analysis

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

The proposed project would involve demolition of an existing vacant commercial structure on the project site. Construction activities may include the temporary transport, storage, use, or disposal of potentially hazardous materials including fuels, lubricating fluids, cleaners, or solvents. 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 (DOT) regulations (U.S. DOT 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 the Resources Conservation and Recovery Act (RCRA). 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 H&SC Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (Title 22, California Code of Regulations, Divisions 4 and 4.5). Compliance with existing regulations would reduce the risk of potential release of hazardous materials during construction.

The existing building to be demolished may contain asbestos and/or lead-based paint (LBP). Structures built before the 1970s were typically constructed with asbestos-containing materials (ACM). Because the building was constructed before the time of the federal ban on the manufacture

of PCBs, it is possible that light ballasts in the onsite building contain PCBs. Demolition of the existing 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 ACM for demolition, renovation, and manufacturing activities in the Bay Area, and California Occupational Safety and Health Administration (CalOSHA) regulations regarding lead-based materials. The California Code of Regulations, 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 ACM, LBP, and PCBs, impacts would be less than significant.

Operation

Residential uses typically do not use or store large quantities of hazardous materials other than those typically used for household cleaning, maintenance, and landscaping. Therefore, project operation would not involve the use, storage, transportation, or disposal of substantial quantities of hazardous materials and would not result in the release of such materials into the environment. Operational impacts would be less than significant.

Summary

Although construction and operation impacts are less than significant, the City's Standard COA, discussed below, would be required and would address potential impacts resulting from the routine transport, use, or disposal of hazardous materials and reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Standard COA: Toxics

The applicant shall contact the Toxics Management Division (TMD) at 1947 Center Street or (510) 981-7470 to determine which of the following documents are required and timing for their submittal:

Building Materials Survey

1) Prior to approving any permit for partial or complete demolition and renovation activities involving the removal of 20 square or lineal feet of interior or exterior walls, a building materials survey shall be conducted by a qualified professional. The survey shall include, but not be limited to, identification of any LBP, asbestos, PCB-containing equipment, hydraulic fluids in elevators or lifts, refrigeration systems, treated wood and mercury containing devices (including fluorescent light bulbs and mercury switches). The survey shall include plans on hazardous waste or hazardous materials removal, reuse, or disposal procedures to be implemented that fully comply state hazardous waste generator requirements (22 California Code of Regulations 66260 et seq). The survey becomes a condition of any building or demolition permit for the project. Documentation evidencing disposal of hazardous waste in compliance with the survey shall be submitted to TMD within 30 days of the completion of the demolition. If asbestos is identified, pursuant to BAAQMD Regulation 11-2-401.3 a notification must be made and the J number must be made available to the City of Berkeley Permit Service Center.

Hazardous Materials Business Plan

1) A Hazardous Materials Business Plan (HMBP) in compliance with BMC Section 15.12.040 shall be submitted electronically at http://cers.calepa.ca.gov/ within 30 days if on-site hazardous materials exceed BMC 15.20.040. HMBP requirement can be found at http://ci.berkeley.ca.us/hmr/

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 mile of The Little Elephant Too!, which is a Montessori preschool, and Shu Ren International School of Berkeley, which is a primary school. As discussed above, the project would have minimal hazardous materials on site due to its nature as a residential facility. Additionally, construction activities would be required to comply with RCRA and DOT regulations, as discussed above. This includes regulations related to the transport of hazardous materials during the construction process. Neither school is on University Avenue, which would be the designated trucking route for construction vehicles (see *Project Description).* Furthermore, with the implementation of the City's Standard COAs, applicable state and federal regulations, and policies included in the Berkeley General Plan related to hazards, impacts related to hazardous emissions, materials, substances, or waste 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?

The subject property is listed as a SWRCB non-case information site (as of November 11, 2022) on the GeoTracker website. This case is listed as 'pending review' (RWQCB case #01S0836), which indicates the agency is performing a review of the documents for this site to determine if a SWRCB regulatory case will be opened.

The Phase II ESA conducted at the site indicated VOC-impacted soil vapor and indoor air at concentrations exceeding the current (2019) ESLs for residential and/or commercial/industrial uses. Therefore, project construction/demolition and operation could potentially create a significant hazard to the public, construction workers, future project site residents, or the environment.

The City's Standard COA, discussed below, would be required and would address potential impacts resulting from the soil vapor contamination on site.

Standard COA: Toxics

The applicant shall contact the Toxics Management Division (TMD) at 1947 Center Street or (510) 981-7470 to determine which of the following documents are required and timing for their submittal:

A. Environmental Site Assessments

1) Phase I & Phase II Environmental Site Assessments (latest ASTM 1527-13). A recent Phase I ESA (less than 6 months old*) shall be submitted to TMD for developments for:

- All new commercial, industrial and mixed use developments and all large improvement projects.
- All new residential buildings with 5 or more dwelling units located in the Environmental Management Area (or EMA).
- EMA is available online at: http://www.cityofberkeley.info/uploadedFiles/IT/Level_3_-_General/ema.pdf

2) Phase II ESA is required to evaluate RECs identified in the Phase I ESA or other RECs identified by TMD staff. The TMD may require a third-party toxicologist to review human or ecological health risks that may be identified. The applicant may apply to the appropriate state, regional, or county cleanup agency to evaluate the risks.
3) If the Phase I ESA is over 6 months old, it will require a new site reconnaissance and interviews. If the facility was subject to regulation under Title 15 of the Berkeley Municipal Code since the last Phase I ESA was conducted, a new records review must be performed.

B. Soil and Groundwater Management Plan

1) A Soil and Groundwater Management Plan (SGMP) shall be submitted to TMD for all non-residential projects, and residential or mixed-use projects with five or more dwelling units, that: (1) are in the EMA and (2) propose any excavations deeper than 5 feet below grade. The SGMP shall be site specific and identify procedures for soil and groundwater management including identification of pollutants and disposal methods. The SGMP will identify permits required and comply with all applicable local, state, and regional requirements.
2) The SGMP shall require notification to TMD of any hazardous materials found in soils and groundwater during development. The SGMP will provide guidance on managing odors during excavation. The SGMP will provide the name and phone number of the individual responsible for implementing the SGMP and post the name and phone number for the person responding to community questions and complaints.
3) TMD may impose additional conditions as deemed necessary. All requirements of the approved SGMP shall be deemed conditions of approval of this Use Permit.

Under this COA, the TMD may require implementation of the recommendations made in the Phase II ESA, including the recommendations to perform additional sampling on site and to implement mitigation measures to address potential vapor intrusion. Additionally, the TMD requires that the project obtain approval from the SFBRWQCB before development occurs, as discussed under *Construction* in Section *9. Project Description,* of this Initial Study. The aforementioned General Plan policies related to hazards and hazardous materials as well as the COA discussed above would be applicable to the project. However, as discussed above, potentially significant impacts may result from project grading and construction. Implementation of mitigation measures HAZ-1 through HAZ-5 would reduce construction hazardous material impacts to a less-than-significant level.

Based on the unknown and known hazardous material site conditions, there is a potential for construction workers, maintenance workers, and future project site residents to be exposed to contaminants via soil vapor at the project site. Therefore, the following mitigation measures would be required to reduce onsite hazardous material impacts.

HAZ-1 TMD Regulatory Agency Submittal

Prior to commencement of demolition and construction/grading activities at the project site, the project applicant shall submit the following documents to TMD:

- Current development plan and any modifications to the development plan
- All environmental documents completed for the project, including this Initial Study document
- Following demolition and construction grading activities, all future environmental documents completed for the project

Upon submittal of the information above, TMD may require actions such as: development of subsurface investigation workplans; completion of soil, soil vapor, and/or groundwater subsurface investigations; installation of soil vapor or groundwater monitoring wells; soil excavation and offsite disposal; completion of human health risk assessments; and/or completion of remediation reports or case closure documents. Subsurface soil, soil vapor, and groundwater investigations, if required, shall be conducted in accordance with a sampling plan that shall be reviewed and approved by TMD.

The TMD closure and approval documents shall be submitted and reviewed by the project applicant prior to issuance of grading permits.

It should also be noted that TMD may determine that SFBRWQCB or DTSC may be best suited to perform the cleanup oversight agency duties for the assessment and/or remediation of the project. Should the cleanup oversight agency be transferred from TMD to SFBRWQCB or DTSC, this and other mitigation measures will still apply.

HAZ-2 Subsurface Investigation

Prior to commencement of demolition and construction/grading activities at the project site, the project applicant shall retain a qualified environmental consultant (Professional Geologist [PG] or Professional Engineer [PE]) to conduct a subsurface investigation, as required by the TMD. The subsurface investigations may include, but are not limited to, completion of:

- Geophysical surveys
- Soil, soil vapor, and/or groundwater sampling assessments
- Laboratory analysis for total petroleum hydrocarbons (full range), VOCs, semi-volatile organic compounds, and metals

The subsurface investigations shall provide recommendations to address identified hazards and indicate when to apply those recommended actions in relation to proposed project activities. As part of the subsurface investigation, analytical results shall be screened against the ESLs, which are risk-based screening levels for direct exposure of a construction worker and residential and commercial/industrial land use. The subsurface investigation report(s) shall include recommendations to address identified hazards and indicate when to apply those recommended actions in relation to project activities.

If contaminants are detected at the project site, appropriate steps shall be undertaken to protect site workers during project construction. This would include the preparation of a SGMP (see Mitigation Measure HAZ-4).

If contaminants are detected at concentrations exceeding hazardous waste screening thresholds for contaminants in soil (CCR Title 22, Section 66261.24), appropriate steps shall be undertaken to protect site workers during project construction and if necessary, the public during project operation (see Mitigation Measure HAZ-5).

HAZ-3 Remediation

Where soil is known to be impacted, or is identified during implementation of Mitigation Measure HAZ-2 (subsurface investigation) to be present, within the construction envelope at chemical concentrations exceeding ESLs and/or hazardous waste screening thresholds for contaminants in soil (CCR Title 22, Section 66261.24), the project applicant shall retain a qualified environmental consultant (PG or PE) to properly dispose of the contaminated soil. The qualified environmental consultant shall utilize the project site analytical results for waste characterization purposes prior to offsite transportation or disposal of potentially impacted soils or other impacted wastes. The qualified consultant shall provide disposal recommendations and arrange for proper disposal of the waste soils or other impacted wastes (as necessary), and/or provide recommendations for remedial engineering controls, if appropriate.

Remediation of impacted soils and/or implementation of remedial engineering controls may require additional delineation of sub-surface impacts; additional analytical testing per landfill or recycling facility requirements; soil excavation; and offsite disposal or recycling.

TMD shall review and approve the project site disposal recommendations prior to transportation of waste soils offsite and review and approve remedial engineering controls, prior to construction.

The project applicant shall review and implement the disposal recommendations prior to transportation of waste soils offsite and review and implement the remedial engineering controls prior to construction.

The City shall review the project site disposal recommendations and remedial engineering controls prior to issuing a grading permit.

HAZ-4 Soil and Groundwater Management Plan

Prior to commencement of demolition and construction/grading activities at the project site, the project applicant shall retain a qualified environmental consultant (PG or PE) to prepare a SGMP for the project site. Where groundwater impacts are identified during implementation of mitigation measures HAZ-1 and HAZ-2, a groundwater management section shall be added to the SGMP. The SGMP shall address:

1. On-site handling and management of impacted soils or other impacted wastes (e.g., stained soil, and soil or groundwater with solvent or chemical odors) if such soils or impacted wastes are encountered, and
2. Specific actions to reduce hazards to construction workers and offsite receptors during the construction phase.

The plan must establish remedial measures and soil management practices to ensure construction worker safety, the health of future workers and visitors, and the off-site migration of contaminants from the project. These measures and practices shall include, but are not limited to:

- Stockpile management including stormwater pollution prevention and the installation of BMPs
- Proper disposal procedures of contaminated materials

- Investigation procedures for encountering known and unexpected odorous or visually stained soils, other indications of hydrocarbon piping or equipment, and/or debris during ground-disturbing activities
- Monitoring and reporting
- A health and safety plan for contractors working at the project site that addresses the safety and health hazards of each phase of site construction activities with the requirements and procedures for employee protection
- The health and safety plan shall outline proper soil handling procedures and health and safety requirements to minimize worker and public exposure to hazardous materials during construction

TMD shall review and approve the SGMP prior to construction (demolition and grading) activities at the project site. The City shall review the SGMP prior to issuance of grading permits. The project applicant shall implement the SGMP during demolition, grading, and construction at the project site.

HAZ-5 Vapor Mitigation System

Where soil vapor is known (or is identified during implementation of Mitigation Measures HAZ-2, HAZ-3, or HAZ-4) to be present at chemical concentrations exceeding the ESLs for sub-slab/soil gas (vapor) intrusion, the project applicant shall retain a qualified environmental consultant (PG or PE) or other qualified person to prepare a vapor mitigation system design for the proposed project.

The plan shall include, but is not limited to:

- Design specifications
- Material specifications
- Installation requirements
- Monitoring requirements

The project applicant shall design and implement engineering measures or institutional controls (e.g., soil vapor barrier) to prevent potential soil vapor intrusion into new residences or businesses in accordance with the measures included in the DTSC's Vapor Intrusion Guidance Document – Final (October 2011) and Vapor Intrusion Mitigation Advisory, Revision 1 (October 2011).

TMD shall review and approve the Vapor Mitigation System Design prior to construction. Engineering measures or institutional controls shall be submitted to the City's Planning and Development Department prior to the issuance of any grading or building permits. The project applicant and/or contractor shall incorporate a sub-slab vapor barrier during construction, the implementation of which would prevent the potential for soil gas VOCs from migrating to indoor air.

The project applicant shall retain a qualified professional to certify that the accepted measures and controls are properly constructed and functioning at the project site. The efficacy of the measures and controls shall be confirmed and certified by a qualified professional pursuant to the construction quality assurance/quality control testing guidance of the DTSC's Vapor Intrusion Guidance Document – Final (October 2011). Written verification shall be submitted to TMD and the City.

TMD may require the creation of an Operations and Maintenance Plan to ensure that future operational activities (e.g., underground utility repairs), do not alter the effectiveness of the selected vapor mitigation system.

TMD shall review and approve the Operations and Maintenance Plan (if required) prior to occupancy. The City shall review the Operations and Maintenance Plan (if required) prior to issuing an occupancy permit. The project applicant shall implement the Operations and Maintenance Plan during occupancy at the project site.

Implementation of the City's Standard COA and mitigation measures HAZ-1 through HAZ-5 during demolition, construction, and operation of the project would reduce potential hazardous material impacts at the project site below applicable thresholds of significance by ensuring additional investigation and remedial measures, transportation of impacted materials, and/or site management practices ensure construction worker safety and the health of future workers and visitors.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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 proposed project is not within two miles of a public use airport. The closest airport to the project site is Oakland International Airport, which is approximately 13.7 miles from the project site. Therefore, there would be no impact.

NO IMPACT

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

The City of Berkeley has established emergency preparedness procedures and programs for the preparation and response to a variety of natural and manmade disasters that could affect the City. The City's Emergency Operations Plan (EOP) establishes policy direction for emergency planning, mitigation, response, and short-term recovery activities in Berkeley. The EOP outlines the authorities, structures, and responsibilities of the Policy Level, departments, and the Emergency Operations Center and describes the City's coordination with County, regional, State, and federal entities (City of Berkeley 2017a). The following Standard COA would be applicable to the proposed project to ensure that potential temporary road closures during construction would not impair or otherwise interference with emergency response or evacuation:

Standard COA: Transportation Construction Plan

The applicant and all persons associated with the project are hereby notified that a Transportation Construction Plan (TCP) is required for all phases of construction, particularly for the following activities:

- Alterations, closures, or blockages to sidewalks, pedestrian paths, or vehicle travel lanes (including bicycle lanes);
- Storage of building materials, dumpsters, debris anywhere in the public ROW;
- Provision of exclusive contractor parking on-street; or
- Significant truck activity.

The applicant shall secure the City Traffic Engineer's approval of a TCP. Please contact the Office of Transportation at 981-7010, or 1947 Center Street, and ask to speak to a traffic engineer. In addition to other requirements of the Traffic Engineer, this plan shall include the locations of material and equipment storage, trailers, worker parking, a schedule of site operations that may block traffic, and provisions for traffic control. The TCP shall be consistent with any other requirements of the construction phase.

Contact the Permit Service Center (PSC) at 1947 Center Street or 981-7500 for details on obtaining Construction/No Parking Permits (and associated signs and accompanying dashboard permits). Please note that the Zoning Officer and/or Traffic Engineer may limit off-site parking of construction-related vehicles if necessary to protect the health, safety or convenience of the surrounding neighborhood. A current copy of this Plan shall be available at all times at the construction site for review by City Staff.

The proposed project would be required to adhere to the aforementioned Standard COA and current and future requirements by the City of Berkeley's EOP once operational. Accordingly, impacts related to interference with an adopted emergency response plan or emergency evacuation plan during operations would be less than significant.

LESS THAN SIGNIFICANT 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*, the project site is in a developed urban area and is not within or adjacent to a designated very high wildland fire hazard area. Therefore, the project would not expose people or structures to a significant risk involving wildland fires. There would be no impact.

NO IMPACT

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10 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant 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?	☐	☐	■	☐

Setting

The project site is under the jurisdiction of the SFBRWQCB. The project site is located in the San Francisco Bay hydrologic region that extends from southern Santa Clara County north to San Pablo Bay in Sonoma County, and inland to the confluence of the Sacramento and San Joaquin rivers. The water in the region flows to the San Francisco Bay estuary or directly to the Pacific Ocean. Strawberry Creek is one mile east of the project site.

Flood Hazards

The Federal Emergency Management Agency (FEMA) establishes base flood elevations for 100-year and 500-year flood zones and establishes Special Flood Hazard Areas (SFHA). SFHAs are those areas within 100-year flood zones or areas that will be inundated by a flood event having a one percent chance of being equaled or exceeded in any given year. The 500-year flood zone is defined as the area that could be inundated by the flood which has a 0.2 percent probability of occurring in any given year, or once in 500 years, and is not considered an SFHA. Development in flood zones is regulated through BMC Chapter 17.12 Flood Development. The project site is not located in an SFHA or 100-year flood zone.

Groundwater Resources

The city of Berkeley is within the East Bay Plain Subbasin. This Subbasin covers approximately 71,000 acres (EBMUD 2022). EBMUD's Groundwater Sustainability Agency oversees the groundwater sustainability plan for this subbasin for the City of Berkeley. The most recent groundwater sustainability plan, released in 2022, found that the Intermediate and Deep Aquifer Zones (depth intervals greater than 200 feet bgs) are generally not impacted by contaminants attributed to environmental sites (EBMUD 2022).

Regulatory Setting

Numerous federal, state, and local laws, regulations, and policies define the framework for regulating hydrology and water quality in the project area. Water quality in California is regulated through the federal Clean Water Act, which is managed by the USEPA, with implementation largely delegated to the SWRCB and nine RWQCBs. Water quality at the project site is regulated primarily by the SFBRWQCB.

Berkeley Municipal Code

The BMC contains multiple ordinances that are applicable to this project to minimize erosion impacts. Specifically, BMC Chapter 21.40, which requires that proposed projects comply with grading, erosion, and sediment control regulations on file in the Public Works Department would be applicable.

Impact Analysis

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

Construction activities for proposed project 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, site preparation,

grading, and paving, including for improvements to landscaped areas. However, construction activities would be required to comply with State and local water quality regulations designed to control erosion and protect water quality during construction. This includes compliance with BMC Chapter 21.40, which requires that proposed projects comply with grading, erosion, and sediment control regulations on file in the Public Works Department, and BMC Chapter 17.20, which requires that BMPs, including those adopted by the State Water Resources Control Board be implemented to minimize non-stormwater discharges during construction. Construction BMPs would include scheduling inlet protection, silt fencing, fiber rolls, stabilized construction entrances, stockpile management, solid waste management, and concrete waste management. In the event that groundwater is encountered during construction activities, the Public Works Department would require that discharge be pumped through a pipe system that is connected to the fully piped storm drain in order to avoid discharge at street crossings and other hazards. Dewatering activities would be required to comply with BMC Chapter 17.20 which regulates non-stormwater drainage into the City's storm drain system. Dewatering discharge can enter the City sanitary sewer system with permits from both EBMUD and the City of Berkeley. With compliance with these city requirements and BMC ordinances, dewatering would not result in a violation of water quality standards or otherwise substantially degrade surface or ground water quality (the potential for discovery of and mitigation for contaminated groundwater is discussed in Section 9, *Hazards and Hazardous Materials*). Post-construction stormwater performance standards are also required to specifically address water quality and channel protection events. Implementation of these BMPs would prevent or minimize environmental impacts and ensure that discharges during construction of the proposed project would not cause or contribute to the degradation of water quality in receiving waters. The proposed project therefore would not result in the degradation of water quality in receiving waters; construction-related water quality impacts would be less than significant.

Compliance with local and State regulatory requirements and implementation of construction BMPs would minimize discharges during the construction phase of the proposed project. The project would also be required to comply with the following Standard COA:

Standard COA: Stormwater Requirements

The applicant shall demonstrate compliance with the requirements of the City's National Pollution Discharge Elimination System (NPDES) permit as described in BMC Section 17.20. The following requirements apply:

A. The project plans shall identify and show site-specific Best Management Practices (BMPs) appropriate to activities conducted on-site to limit to the maximum extent practicable the discharge of pollutants to the City's storm drainage system, regardless of season or weather conditions.

B. Trash enclosures and/or recycling area(s) shall be covered; no other area shall drain onto this area. Drains in any wash or process area shall not discharge to the storm drain system; these drains should connect to the sanitary sewer. Applicant shall contact the City of Berkeley and EBMUD for specific connection and discharge requirements. Discharges to the sanitary sewer are subject to the review, approval and conditions of the City of Berkeley and EBMUD.

C. Landscaping shall be designed with efficient irrigation to reduce runoff, promote surface infiltration and minimize the use of fertilizers and pesticides that contribute to stormwater pollution. Where feasible, landscaping should be designed and operated to treat runoff. When and where possible, xeriscape and drought tolerant plants shall be incorporated into new development plans.

D. Design, location and maintenance requirements and schedules for any stormwater quality treatment structural controls shall be submitted to the Department of Public Works for review with respect to reasonable adequacy of the controls. The review does not relieve the property owner of the responsibility for complying with BMC Chapter 17.20 and future revisions to the City's overall stormwater quality ordinances. This review shall be conducted prior to the issuance of a Building Permit.

E. All paved outdoor storage areas must be designed to reduce/limit the potential for runoff to contact pollutants.

F. All on-site storm drain inlets/catch basins must be cleaned at least once a year immediately prior to the rainy season. The property owner shall be responsible for all costs associated with proper operation and maintenance of all storm drainage facilities (pipelines, inlets, catch basins, outlets, etc.) associated with the project, unless the City accepts such facilities by Council action. Additional cleaning may be required by City of Berkeley Public Works Engineering Dept.

H. All on-site storm drain inlets must be labeled "No Dumping – Drains to Bay" or equivalent using methods approved by the City.

I. Most washing and/or steam cleaning must be done at an appropriately equipped facility that drains to the sanitary sewer. Any outdoor washing or pressure washing must be managed in such a way that there is no discharge or soaps or other pollutants to the storm drain. Sanitary connections are subject to the review, approval and conditions of the sanitary district with jurisdiction for receiving the discharge.

J. All loading areas must be designated to minimize "run-on" or runoff from the area. Accumulated waste water that may contribute to the pollution of stormwater must be drained to the sanitary sewer or intercepted and pretreated prior to discharge to the storm drain system. The property owner shall ensure that BMPs are implemented to prevent potential stormwater pollution. These BMPs shall include, but are not limited to, a regular program of sweeping, litter control and spill cleanup.

L. Sidewalks and parking lots shall be swept regularly to prevent the accumulation of litter and debris. If pressure washed, debris must be trapped and collected to prevent entry to the storm drain system. If any cleaning agent or degreaser is used, wash water shall not discharge to the storm drains; wash waters should be collected and discharged to the sanitary sewer. Discharges to the sanitary sewer are subject to the review, approval and conditions of the sanitary district with jurisdiction for receiving the discharge.

M. The applicant is responsible for ensuring that all contractors and sub-contractors are aware of and implement all stormwater quality control measures. Failure to comply with the approved construction BMPs shall result in the issuance of correction notices, citations, or a project stop work order.

With adherence to requirements listed above, the project would not violate water quality standards, waste discharge requirements, degrade water quality, or substantially decrease groundwater supplies. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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 implementation of the proposed project would not increase impervious surface since the project site is already completely paved. The project would decrease impervious coverage on site by creating 1,740 square feet of pervious space. This addition of pervious space would increase absorption of stormwater runoff and the potential for groundwater recharge compared to existing conditions. 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?

Strawberry Creek is approximately one mile east of the project site and does not flow through or adjacent to the site. The project site is currently developed, and construction of the proposed project would not alter the course of this creek or other stream or river (no other surface water features are in the project vicinity).

Existing impervious surfaces cover the project site (0.17 acres). Under the proposed project impervious surface would be reduced by 1,720 square feet. The project site is generally level and the project would involve demolition of the current building on site and construction of a five-story building in its place. The project would not substantially increase runoff from the project site such that new or increased erosion, siltation, or flooding would occur on- or off-site. Stormwater leaving the project site would enter the City's existing stormwater conveyance system, as it does under existing conditions, and would not directly affect a stream or river. The proposed project would not substantially alter the existing drainage pattern of the site or area, create or contribute runoff that

would exceed the capacity of the existing stormwater conveyance infrastructure, add new sources of polluted runoff, or otherwise result in flooding on or near the project site. Therefore, a less than significant impact would occur.

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 in Flood Zone X (Federal Emergency Management Agency [FEMA]2009), Zone X includes areas of 0.2 percent annual chance flood; areas of one percent annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from one-percent annual chance flood. Therefore, the project is not located within a Special Flood Hazard Area and would not place housing in a flood zone. In addition, the project would not impede or redirect flood flows in a 100-year flood hazard area. The project site is located on relatively flat topography, and there is little likelihood of a mudflow occurring as a result of project construction and operation. In addition, the DOC's tsunami inundation map shows that the project site is not located in a tsunami inundation zone (DOC 2023). The project site is not adjacent to a large body of water that could create a seiche. No impacts related to seiche, tsunami, or mudflow would occur.

NO IMPACT

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

Groundwater

The project site overlies the East Bay Plain Subbasin (EBMUD 2022). The East Bay Plain Subbasin extends from Richmond to the north to Hayward in the south covering 61,000 acres that EBMUD manages.

The East Bay Plain subbasin is considered a medium prioritization basin under the Sustainable Groundwater Management Act (SGMA) (Department of Water Resources [DWR] 2023). Under SGMA, the Local Groundwater Sustainability Agency (GSA) must prepare a Groundwater Sustainability Plan (GSP) or an alternative for any medium or high priority basin. EBMUD and the City of Hayward are the GSAs for the East Bay Plain Subbasin. EBMUD is the GSA for the area of the subbasin that underlies the project site. EBMUD and the City of Hayward submitted the Groundwater Management Plan for the East Bay Plains Subbasin in January 2022. The proposed project would not use considerable water resources, and as discussed in impact a., the East Bay Plain Subbasin is considered stable and sustainable by EBMUD. Therefore, the project would not conflict with a GSP.

Water Quality

The SFBRWQCB has designated water quality objectives in the county in the *Water Quality Control Plan for the San Francisco Bay Region* (Basin Plan) (San Francisco Bay RWQCB 2017). As discussed under impacts a. and b. the project would be required to comply with NPDES requirements and the City's Standard COAs. As discussed under impacts a. and b. above, the project would not use substantial groundwater, violate water quality standards, or degrade water quality during construction or operation.

The proposed project would not interfere with water quality control plans or sustainable groundwater management plans. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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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?	☐	☐	■	☐

Setting

As stated in the *Project Description*, the project site has a land use designation of Avenue Commercial in the City's General Plan and is in the C-U zoning district. The Avenue Commercial designation allows for local-serving and regional-serving commercial, residential, office, community service, and institutional uses. The project site is also identified as within a University Avenue Node Area in the University Avenue Strategic Plan, which requires new residential space to be integrated with non-residential uses in a mixed-use development.

Regulatory Setting

Berkeley General Plan

The General Plan provides a guide for future land use decisions in the city. Key policies related to land use and applicable to the proposed project include:

- **Policy LU-1 Community Character:** Maintain the character of Berkeley as a special, diverse, unique place to live and work.
- **Policy LU-3 Infill Development:** Encourage infill development that is architecturally and environmentally sensitive, embodies principles of sustainable planning and construction, and is compatible with neighboring land uses and architectural design and scale.
- **Policy LU-11 Pedestrian- and Bicycle-Friendly Neighborhoods:** Ensure that neighborhoods are pedestrian- and bicycle-friendly with well-maintained streets, street trees, sidewalks, and pathways.
- **Policy LU-24 Car-Free Housing in the Downtown:** Encourage development of transit-oriented, low-cost housing in the Downtown.
- **Policy LU-27 Avenue Commercial Areas**: Maintain and improve Avenue Commercial areas, such as University, San Pablo, Telegraph, and South Shattuck, as pedestrian-friendly, visually attractive areas of pedestrian scale and ensure that Avenue areas fully serve neighborhood needs as well as a broader spectrum of needs.

- **Policy LU-29 University Avenue Strategic Plan:** Implement the University Avenue Strategic Plan and take actions to achieve the six goals of the Plan:
  1. Increase public safety for residents, merchants, and customers.
  2. Revitalize the University Avenue corridor through appropriate economic development and housing.
  3. Protect and improve neighborhood quality of life.
  4. Encourage more pedestrian-oriented development and an appropriate mix of uses to improve neighborhood identity.
  5. Enhance University Avenue as a gateway to the city, a series of neighborhoods, and the Downtown.
  6. Coordinate and enhance public transit systems, pedestrian access, and bicycle circulation.

Impact Analysis

a. Would the project physically divide an established community?

The project would involve the construction of a multi-family residential building on an existing parcel in a fully urbanized area of Berkeley. 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?

Consistency with the General Plan

The proposed mixed-use project is consistent with the Avenue Commercial General Plan Designation, which allows commercial and residential development. A discussion of consistency with applicable General Plan policies is provided in Table 7.

Table 7 General Plan Consistency

General Plan Goal or Policy	Proposed Project Consistency
LU-3 Infill Development. Encourage infill development that is architecturally and environmentally sensitive, embodies principles of sustainable planning and construction, and is compatible with neighboring land uses and architectural design and scale.	**Consistent.** The proposed project would be an infill development that would replace an underutilized commercial property with a mixed-use building built to current environmental standards. The mix of residential and commercial uses and building height and scale would be consistent with the recent development pattern in the neighborhood which consists of 1-4 story mixed use and residential buildings. The project would generally be within the range of development intensity of the surrounding area, which includes multi-story residential and commercial development. The proposed mixed use is similar to other properties near the project site and consistent with the project site's land use designation. Therefore, it would be generally compatible in use.

General Plan Goal or Policy	Proposed Project Consistency
LU-11 Pedestrian- and Bicycle-Friendly Neighborhoods Ensure that neighborhoods are pedestrian- and bicycle-friendly with well-maintained streets, street trees, sidewalks, and pathways**.**	**Consistent.** The project site is located in a TPA. It would not include vehicle parking spaces. The project would include 28 long term bike parking spaces and 4 short term bike parking spaces. The project would not remove trees nor would it change or obstruct the sidewalks in the area.
Policy H-30 Energy Efficiency and Waste Reduction. Implement provisions of Berkeley's Climate Action Plan to improve building comfort and safety, reduce energy costs, provide quality housing, and reduce Greenhouse Gas Emissions.	**Consistent.** As described in Section 7, *Greenhouse Gas Emissions,* the proposed project would be consistent with the City's CAP as well as regional and state goals to reduce GHG Emissions. The proposed project would be required to be constructed in accordance with the latest iteration of CALGreen and the California Building Energy Efficiency Standards, which include green building practices. In addition, the proposed project involves the development of a new building, which would be required to be fully electric pursuant to the requirements of BMC Section 12.80, which would reduce GHG emissions associated with energy usage. As described in the *Description of Project* Section, the project would also adhere to additional green building requirements, including waste diversion for construction materials and demolition waste and water efficient landscape irrigation practices.
LU-23 Transit-Oriented Development Encourage and maintain zoning that allows greater commercial and residential density and reduced residential parking requirements in areas with above-average transit service such as Downtown Berkeley**.**	**Consistent.** The project site is located in a TPA. It would not include vehicle parking spaces. The project would include 28 long term bike parking spaces and 4 short term bike parking spaces**.**
LU-27 Avenue Commercial Areas Maintain and improve Avenue Commercial areas, such as University, San Pablo, Telegraph, and South Shattuck, as pedestrian-friendly, visually attractive areas of pedestrian scale and ensure that Avenue areas fully serve neighborhood needs as well as a broader spectrum of needs.	**Consistent.** The proposed project would include the construction of new commercial space along University Avenue, within an Avenue Commercial area, as well as cultivating a pedestrian-friendly area due to its lack of vehicle parking spaces and new curb cuts.
LU-29 University Avenue Strategic Plan Implement the University Avenue Strategic Plan and take actions to achieve the six goals of the Plan: 1. Increase public safety for residents, merchants, and customers. 2. Revitalize the University Avenue corridor through appropriate economic development and housing. 3. Protect and improve neighborhood quality of life. 4. Encourage more pedestrian-oriented development and an appropriate mix of uses to improve neighborhood identity. 5. Enhance University Avenue as a gateway to the city, a series of neighborhoods, and the Downtown. 6. Coordinate and enhance public transit systems, pedestrian access, and bicycle circulation.	**Consistent.** The project site is located on University Avenue. As a mixed-use project with both commercial and residential space, it would bring new economic and housing development to the area and foster a pedestrian-oriented neighborhood due to its lack of vehicle parking and new curb cuts.
H-19 Regional Housing Needs. Encourage adequate housing production to meet City needs and the City's share of regional housing needs.	**Consistent.** The project would increase the housing supply in the City of Berkeley by 28 units.

The proposed project would be consistent with the General Plan policies listed above as well as the site's General Plan land use designation. Impacts related to General Plan consistency would be less than significant.

Consistency with the Zoning Ordinance

The project site is within a UASP Node Area of the C-U Zoning District. The C-U District allows for residential and commercial uses.

The project would require approval of several Use Permits as well as a State Density Bonus by the City of Berkeley Zoning Adjustments Board (ZAB). No additional discretionary approvals by the City of Berkeley would be required.

In order to approve such permits, the ZAB must make specific findings, including that the project is consistent with applicable zoning and General Plan regulations. The ZAB would also be required to find that the project would "not be detrimental to the health, safety, peace, morals, comfort or general welfare of persons residing or working in the area or neighborhood of such proposed use or be detrimental or injurious to property and improvements of the adjacent properties, the surrounding area or neighborhood or to the general welfare of the City" (BMC Section 23B.32,040.B).

In addition, the project applicant is requesting a State Density Bonus, subject to California Government Code Sections 65915-65918 and BMC Chapter 23C.14. By providing two Very Low Income (VLI) Below Market Rate (BMR) units on site (5 percent of the 24-unit base density), the project is eligible for a 20 percent density bonus, or 5 additional units. To accommodate the additional units, the project would employ waivers to exceed maximum height and FAR, and reduce useable open space. Consistent with the Node Area designation, the project would include non-residential uses in a mixed-use development.

The proposed project characteristics and the development standards are summarized in Table 1. The project would be allowed modifications of the FAR, height, and open space, assuming approval of the requested density bonus waivers. The project would comply with other development requirements of the C-U zone, including setbacks. With approval of the above use permits, the proposed project would be consistent with applicable zoning regulations in the BMC. Therefore, the project would not conflict with the City's zoning ordinance.

Other Land Use Conflicts

The project would increase the massing and intensity of development on the project site and change its use. However, the project would generally be within the range of development intensity of the surrounding area, which includes multi-story residential and commercial development. Therefore, the change in intensity on the project site would not substantially affect the land use and development patterns in the area; the land use pattern would be generally maintained. The proposed mixed use is similar to other properties near the project site and consistent with the project site's land use designation. Therefore, it would be generally compatible in use. The project would not conflict with surrounding land uses, and this impact would be less than significant.

LESS THAN SIGNIFICANT 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?	☐	☐	☐	■

Impact Analysis

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 mining operations. According to the Environmental Management Element of the City's General Plan, Berkeley does not contain mineral deposits of regional significance (City of Berkeley 2002a). Therefore, no mineral resource activities would be altered or displaced by the proposed project and there would be no impacts.

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?	☐	☐	☐	■

Overview of Noise and Vibration

Noise

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. 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 (California Department of Transportation [Caltrans] 2013).

Human Perception of Sound

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Caltrans 2013).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources 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 (i.e., twice the sound energy); 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).

SOUND PROPAGATION AND SHIELDING

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in the noise level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line), the path the sound will travel, site conditions, and obstructions.

Sound levels are described as either a "sound power level" or a "sound pressure level," which are two distinct characteristics of sound. Both share the same unit of measurement, the dB. However, sound power (expressed as L_{pw}) is the energy converted into sound by the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers, such as an eardrum or microphone, which is the sound pressure level. Sound measurement instruments only measure sound pressure, and noise level limits are typically expressed as sound pressure levels.

Noise levels from a point source (e.g., construction, industrial machinery, air conditioning units) typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance. Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain features, such as hills and dense woods, and man-made features, such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to noise as well. The FHWA's guidance indicates that modern building construction generally provides an exterior-to-interior noise level reduction of 10 dBA with open windows and an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows (FHWA 2011).

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 factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. The noise descriptors used for this study are the equivalent noise level (L_{eq}), Day-Night Average Level (DNL; may also be symbolized as L_{dn}), and the community noise equivalent level (CNEL; may also be symbolized as L_{den}).

L_{eq} is one of the most frequently used noise metrics; it considers both duration and sound power level. The L_{eq} is defined as the single steady-state A-weighted sound level equal to the average sound energy over a time period. When no time period is specified, a 1-hour period is assumed. The L_{max} is the highest noise level within the sampling period, and the L_{min} is the lowest noise level within the measuring period. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (DNL or L_{DN}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.). Community noise can also be measured using Community Noise Equivalent Level (CNEL or L_{DEN}), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013).[3] The relationship between the peak-hour L_{eq} value and the L_{DN}/CNEL depends on the distribution of noise during the day, evening, and night; however noise levels described by L_{DN} and CNEL usually differ by 1 dBA or less. Quiet suburban areas typically have CNEL noise levels in the range of 40 to 50 CNEL, while areas near arterial streets are in the 50 to 60+ CNEL range (FTA 2018).

Groundborne Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent buildings or structures and vibration energy may propagate through the buildings or structures. Vibration may be felt, may manifest as an audible low-frequency rumbling noise (referred to as groundborne noise), and may cause windows, items on shelves, and pictures on walls to rattle. Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors.

Typically, ground-borne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. Vibration amplitudes are usually expressed in peak particle velocity (PPV). The PPV is normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used as it corresponds to the stresses that are experienced by buildings (Caltrans 2020).

High levels of groundborne vibration may cause damage to nearby building or structures; at lower levels, groundborne vibration may cause minor cosmetic (i.e., non-structural damage) such as cracks. These vibration levels are nearly exclusively associated with high impact activities such as blasting, pile-driving, vibratory compaction, demolition, drilling, or excavation. Table 8 summarizes the vibration damage criteria recommended by the FTA for evaluating the potential for architectural damage to buildings.

Table 8 Criteria for Vibration Damage Potential

Building Category		PPV (in/sec)
I.	Reinforced concrete, steel, or timber (no plaster)	0.5
II.	Engineered concrete and masonry (no plaster)	0.3
III.	Nonengineered timber and masonry buildings	0.2
IV.	Buildings extremely susceptible to vibration damage	0.12

in/sec = inches per second; PPV = peak particle velocity

Source: FTA 2018

[3] Because DNL and CNEL are typically used to assess human exposure to noise, the use of A-weighted sound pressure level (dBA) is implicit. Therefore, when expressing noise levels in terms of DNL or CNEL, the dBA unit is not included.

Regulatory Setting

Berkeley Municipal Code

Section 13.40, Community Noise, of the BMC sets the City's standards for on-site operational noise and construction noise. As shown in Table 9, 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 9 City of Berkeley Exterior Noise Limits

Zone	Time Period	L_{50}[1] Noise Level, dBA
R-1, R-2	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: BMC Section 13.40.050

Section 13.40.070 of the BMC sets standards for construction noise. This section prohibits construction activity between the hours of 7:00 PM and 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.

Impact Analysis

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?

The proposed project would generate temporary noise increases during construction and long-term increases during operation.

Construction

Construction activity would result in temporary noise in the project site vicinity, exposing nearby receivers to increased noise levels. Project construction noise would be generated by heavy-duty diesel construction equipment used for demolition of existing structures, earthworks, loading, unloading, and placing materials and paving. Typical heavy construction equipment during project grading could include dozers, loaders, graders, and dump trucks. It is assumed that diesel engines would power all construction equipment. 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. Construction noise would typically be higher during the more equipment-

intensive phases of initial construction (i.e., site preparation and grading) and would be lower during the later construction phases (i.e., building construction and paving).

During construction, equipment goes through varying load cycles and is operated intermittently to allow for non-equipment tasks such as measurement. 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).

The nearest sensitive noise receivers in the project vicinity are the residences directly south of the project site. Construction equipment such as bulldozers, graders, and loaders and excavators would operate as close as five feet to adjacent residences; however, over the course of a typical construction day, the equipment would move around the project site. For example, during a typical construction day, the equipment may operate at an average distance of 75 feet north of the residences. A likely construction scenario includes simultaneous operation of a backhoe and excavator during demolition to remove debris from the project site.

As described above in the *Regulatory Setting* section, the BMC limits the hours of construction to the less sensitive hours of the day (7:00 a.m. – 7:00 p.m. weekdays, 9:00 a.m. – 8:00 p.m. weekends and holidays). Therefore, construction would not occur during normal sleeping hours for residents, which are the most sensitive time for exposure to noise. Construction would employ standard techniques and equipment typical of new housing projects in urban settings; no unusually loud equipment such as pile drivers or concrete crushers would be used.

In addition, implementation of the following Berkeley Standard COAs would apply to construction activities to reduce construction noise impacts:

Standard COA: 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 maximum extent feasible, subject to review and approval of the Zoning Officer. The noise reduction program shall include the time limits for construction listed above, as measures needed to ensure that construction complies with BMC Section 13.40.070. 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 should be well maintained and used judiciously to be as quiet as practical.
- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment.
- Utilize “quiet” models of air compressors and other stationary noise sources where technology exists. Select hydraulically or electrically powered equipment and avoid pneumatically powered equipment where feasible.
- Locate stationary noise-generating equipment as far as possible from sensitive receptors when adjoining construction sites. Construct temporary noise barriers or partial enclosures to acoustically shield such equipment where feasible.
- Prohibit unnecessary idling of internal combustion engines.
- If impact pile driving is required, pre-drill foundation pile holes to minimize the number of impacts required to seat the pile.

- Construct solid plywood fences around construction sites adjacent to operational business, residences or other noise-sensitive land uses where the noise control plan analysis determines that a barrier would be effective at reducing noise.
- Erect temporary noise control blanket barriers, if necessary, along building facades facing construction sites. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling. Noise control blanket barriers can be rented and quickly erected.
- Route construction related traffic along major roadways and away from sensitive receptors where feasible.

Standard COA: Construction Noise Management – Public Notice Required

At least two weeks prior to initiating any construction activities at the project site, the applicant shall provide notice to businesses and residents within 500 feet of the project site. This notice shall at a minimum provide the following: (1) project description, (2) description of construction activities, (3) daily construction schedule (i.e., time of day) and expected duration (number of months), (4) the name and phone number of the Project Liaison for the project that is responsible for responding to any local complaints, (5) commitment to notify neighbors at least four days in advance of authorized extended work hours and the reason for extended hours, and (6) that construction work is about to commence. The liaison would determine the cause of all construction-related complaints (e.g., starting too early, bad muffler, worker parking, etc.) and institute reasonable measures to correct the problem. A copy of such notice and methodology for distributing the notice shall be provided in advance to the City for review and approval.

Standard COA: Construction Phases

The applicant shall provide the Zoning Officer with a schedule of major construction phases with start dates and expected duration, a description of the activities and anticipated noise levels of each phase, and the name(s) and phone number(s) of the individual(s) directly supervising each phase. The Zoning Officer or his/her designee shall have the authority to require an on-site meeting with these individuals as necessary to ensure compliance with these conditions. The applicant shall notify the Zoning Officer of any changes to this schedule as soon as possible.

Standard COA: Project Construction Website

The applicant shall establish a project construction website with the following information clearly accessible and updated monthly or more frequently as changes warrant:

- Contact information (i.e., “hotline” phone number, and email address) for the project construction manager
- Calendar and schedule of daily/weekly/monthly construction activities
- The final Conditions of Approval, Mitigation Monitoring and Reporting Program, Transportation Construction Plan, Construction Noise Reduction Program, and any other reports or programs related to construction noise, air quality, and traffic.

Adherence to the above Standard COAs would ensure that construction noise occurs within more reduced hours than specified in the BMC and that noise levels would be reduced to the maximum extent feasible, as required by BMC Section 13.40.070. 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; no unusually loud demolition or construction equipment, such as pile drivers, would be used. Therefore, the project would have a less than significant impact from temporary construction noise.

Operation

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of a mixed commercial-residential building, such as vehicles arriving and leaving, children at play, landscape maintenance machinery, and heating, ventilation, and air conditioning (HVAC) units. Noise sources such as vehicles arriving and leaving, children at play, and landscape maintenance equipment would be consistent with the existing noise environment and would be required to comply with BMC Chapter 13.40, which sets standards for interior and exterior noise.

Specifications for the future HVAC systems are not available at this stage of project design; however, based on manufacturer's specifications, a Carrier 38HDR060 split-system with a sound power level of 72 dBA would generate a noise level of approximately 40 dBA at a distance of 70 feet, the approximate distance to the closest residential uses to a possible HVAC location on the southern edge of the rooftop of the project site, accounting for the rear setback, rooftop height, and additional 5 dBA sound reduction due to shielding from the rooftop parapet wall. This would be below the allowable noise level for stationary equipment of 55 dBA during the day and 45 dBA at night for residential R-2 zoning.

Traffic noise from the project is assumed to be minimal given scale of the project and lack of vehicle parking. In order to create a distinctly perceptible increase in noise (3 dBA) traffic would need to be doubled, which requires an increase in existing traffic beyond 100 percent. Such an increase would not occur for a moderately-sized transit-oriented housing development with local-serving commercial space like the proposed project. Traffic noise would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

Project construction would intermittently generate vibration on and adjacent to the project site. Vibration-generating equipment may include bulldozers and loaded trucks to move materials and debris. Pile drivers, which generate strong ground borne vibration, would not be used during construction. In addition, vibratory rollers, which are used for paving asphalt, are not anticipated since no asphalt parking lot proposed. Vibration-generating equipment on the project site would be used as close as approximately five feet from the nearest sensitive receivers to the south. Additionally, vibration-generating equipment may as close as ten feet from the historic building adjacent to the east (see Section 5, *Cultural Resources*).

Unlike construction noise, vibration levels are not averaged over time to determine their impact. For potential architectural damage, the most important factor is the maximum vibration level. Therefore, it is appropriate to estimate vibration levels at the nearest distance to sensitive receptors that equipment could be used, even though this equipment would typically be located farther from residential receptors and the historic building. This analysis assumes that vibration-generating equipment could be located as close as five feet from sensitive receptors adjacent to construction at the project site.

Table 10 Typical Vibration Levels for Construction Equipment

Equipment	Reference PPV (inches/second) at 25 Feet	PPV at 5 feet (Residences to the South)	PPV at 10 feet (Historic Use to the East)
Hoe Ram	0.089	0.995	0.352
Large Bulldozer	0.089	0.995	0.352
Loaded Truck	0.076	0.85	0.3
Jackhammer	0.035	0.391	0.138
Small Bulldozer	0.003	0.034	0.012

Source: FTA 2018.

As shown in Table 10, construction activity would generate vibration levels reaching an estimated 0.995 PPV at a distance of five feet and 0.352 at 10 feet if large bulldozers or hoe rams are used. These maximum vibration levels during construction could exceed the significance thresholds of 0.2 in/sec PPV for residential structures and 0.12 in/sec PPV for the historical structure to the east. Mitigation Measure NOI-1 would be required to reduce vibration impacts to the sensitive receptors south and east of the project site. Additionally, implementation of Standard COA *Damage Due to Construction Vibration*, would minimize impacts to the adjacent historic building.

NOI-1 Construction Vibration Monitoring Program

Prior to any project-related excavation, demolition or construction activity, the project applicant shall prepare a construction vibration monitoring program. The program shall be prepared and implemented by a qualified acoustical consultant or structural engineer. The program shall be prepared or reviewed by a structural engineer with a minimum of five years of experience in the rehabilitation and restoration of historic buildings and a historic preservation architect meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualifications Standards. The program shall include the following:

- Grading and earthwork activities within 15 feet of adjacent residential structures to the south and 20 feet of the historical structure to the east shall be conducted with off-road equipment that is limited to 100 horsepower or less.
- Prepare an existing conditions study to establish the baseline condition of the vibration sensitive resources in the form of written descriptions with a photo survey, elevation survey, and crack-monitoring survey for the vibration-sensitive building or structure. The photo survey shall include internal and external crack monitoring in the structure, settlement, and distress, and document the condition of the foundation, walls and other structural elements in the interior and exterior of the building or structure. Surveys will be performed prior to, in regular intervals during, and after completion of all vibration-generating activity. Where receptors are historic resources, the study shall describe the physical characteristics of the resources that convey their historic significance.
- Determine the number, type, and location of vibration sensors and establish a vibration velocity limit (as determined based on a detailed review of the proposed building), method (including locations and instrumentation) for monitoring vibrations during construction, and method for alerting responsible persons who have the authority to halt construction should limits be exceeded or damaged observed and until construction methods and techniques are altered to demonstrate that construction activity can continue with vibration levels under the applicable criteria.

- Perform monitoring surveys prior to, in regular intervals during, and after completion of all vibration-generating activity and report any changes to existing conditions, including, but not limited to, expansion of existing cracks, new spalls, other exterior deterioration, or any problems with character-defining features of a historic resource are discovered. The City shall establish the frequency of monitoring and reporting, based upon the recommendations of the qualified acoustical consultant, historic architect, or structural engineer. Monitoring reports shall be submitted to the City's designated representative responsible for construction activities.
- Report substantial adverse impacts to vibration sensitive buildings including historic resources related to construction activities that are found during construction to the City's designated representative responsible for construction activities. The City's designated representative shall adhere to the monitoring team's recommendations for corrective measures, including halting construction or using different methods, in situations where demolition, excavation/construction activities would imminently endanger historic resources. The City's designated representative would respond to any claims of damage by inspecting the affected property promptly, but in no case more than five working days after the claim was filed and received by the City's designated representative. Any new cracks or other damage to any of the identified properties will be compared to pre-construction conditions and a determination made as to whether the proposed project could have caused such damage. In the event that the project is demonstrated to have caused any damage, such damage would be repaired to the pre-existing condition. Site visit reports and documents associated with claims processing would be provided to the relevant government body with jurisdiction over the neighboring historic resource, as necessary.
- Conduct a post-survey on the structure where either monitoring has indicated high levels or complaints of damage and make appropriate repairs where damage has occurred as a result of construction activities.
- Prepare a construction vibration monitoring report that summarizes the results of all vibration monitoring and submit the report after the completion of each phase identified in the project construction schedule. The vibration monitoring report shall include a description of measurement methods, equipment used, calibration certificates, and graphics as required to clearly identify vibration-monitoring locations. An explanation of all events that exceeded vibration limits shall be included together with proper documentation supporting any such claims. The construction vibration monitoring report shall be submitted to the City with two weeks upon completion of each phase identified in the vibration monitoring program.
- Designate a person responsible for registering and investigating claims of excessive vibration. The contact information of such person shall be clearly posted in one or more locations at the construction site.

Standard COA: Damage Due to Construction Vibration

The project applicant shall submit screening level analysis prior to, or concurrent with demolition building permit. If a screening level analysis shows that the project has the potential to result in damage to structures, a structural engineer or other appropriate professional shall be retained to prepare a vibration impact assessment (assessment). The assessment shall take into account project specific information such as the composition of the structures, location of the various types of equipment used during each phase of the project, as well as the soil characteristics in the project area, in order to determine whether project construction may cause damage to any of the structures identified as potentially impacted in the screening level analysis. If the assessment finds

that the project may cause damage to nearby structures, the structural engineer or other appropriate professional shall recommend design means and methods of construction that to avoid the potential damage, if feasible. The assessment and its recommendations shall be reviewed and approved by the Building and Safety Division and the Zoning Officer. If there are no feasible design means or methods to eliminate the potential for damage, the structural engineer or other appropriate professional shall undertake an existing conditions study (study) of any structures (or, in case of large buildings, of the portions of the structures) that may experience damage. This study shall:

- Establish the baseline condition of these structures, including, but not limited to, the location and extent of any visible cracks or spalls; and
- Include written descriptions and photographs.

The study shall be reviewed and approved by the Building and Safety Division and the Zoning Officer prior to issuance of a grading permit. Upon completion of the project, the structures (or, in case of large buildings, of the portions of the structures) previously inspected will be resurveyed, and any new cracks or other changes shall be compared to pre-construction conditions and a determination shall be made as to whether the proposed project caused the damage. The findings shall be submitted to the Building and Safety Division and the Zoning Officer for review. If it is determined that project construction has resulted in damage to the structure, the damage shall be repaired to the pre-existing condition by the project sponsor, provided that the property owner approves of the repair.

With implementation of Mitigation Measure NOI-1, equipment such as a small bulldozer would be used instead of a large bulldozer within 15 feet of the adjacent residential structure and 20 feet of the historical structure to the east. In addition, implementation of Mitigation Measure NOI-1 would instate a plan to monitor demolition and construction vibration levels and, if necessary, ensure vibration-generating activities are suspended until vibration levels can be reduced to acceptable levels. This impact would, therefore, be reduced to less than significant for construction impacts.

As a residential development, the proposed project would not generate significant stationary sources of vibration after construction, such as manufacturing or heavy equipment operations. Operational vibration in the project vicinity would be generated by additional vehicular travel on local roadways; however, any increase in traffic-related vibration levels would not be perceptible because, as described in Section 17, *Transportation*, operation of the proposed project would not substantially increase existing traffic volumes in the area. 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?

As discussed in Section 8, *Hazards and Hazardous Materials*, the nearest airport to the project site is the Oakland International Airport, located approximately 11 miles south of the project site. The project site is located entirely outside the noise contours associated with the airport (County of Alameda 2010). The proposed project would not subject people at the project site to excessive noise and there would be no impact.

NO IMPACT

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?	☐	☐	☐	■

Setting

According to the most recent (2022) estimates from the California Department of Finance (DOF), the current population of Berkeley is approximately 124,563. The city has approximately 52,921 housing units and the average persons per household is approximately 2.17 (DOF 2022).

Impact Analysis

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 proposed project would involve the construction of 28 new housing units. There would be 10 studio, 12 one-bedrooms, and 4 two bedrooms. Additionally, there would be two live-work units. This analysis assumes that units would be occupied by an average of 2.17 people, the average household size in the city, and that the project could therefore accommodate approximately 61 new residents. This increase would not result in an increase in population outside of the planned growth under the 2023-2031 Housing Element, which is 8,934 residents (City of Berkeley, 2022). Further, it is reasonable to assume that many of the residents of the project would be relocating locally or from elsewhere within the ABAG region. Additionally, while the project would require construction workers on site, this would be temporary, and it is likely that these individuals would be employed primarily from the local workforce and the project would not require new workers to move to the area permanently. No new roads and infrastructure are proposed under the project. While the proposed project includes new commercial space, employees would likely be from the local workforce and not necessitate relocation due to the relatively small size of the space and the presence of two live-work units in the proposed project. Therefore, the project would not induce substantial unplanned 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 site currently contains a two-story commercial building (vacant on the ground-floor, occupied on the second floor), detached garage, and surface parking lot. There are no existing housing units on the project site or people residing on the project site in temporary housing. The existing site provides jobs, but the proposed project would also provide jobs through commercial uses on the ground floor. Therefore, the project would not displace existing housing units or people. No impact would occur.

NO IMPACT

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?	☐	☐	■	☐

Setting

Fire Protection

The BFD provides fire protection and emergency medical services to the project site, as well as for the entire city. BFD provides fire suppression, paramedic ambulance service, search and rescue, fire prevention inspections/permits, public fire education programs, emergency preparedness planning and other services based on community needs. BFD also reviews development projects and building permit applications for compliance with CBC Requirements and other regulations intended to prevent or reduce fire hazards. The proposed project would be required to adhere to the Standard COAs set forth by the BFD based on their review of the project plans. The fire station closest to the project site is Berkeley Fire Station No. 2 at 2029 Berkeley Way, approximately 0.6 miles east of the project site.

Police Protection

The Berkeley Police Department (BPD) provides police protection services to the project site. The police station closest to the project site is at 2100 Martin Luther King Jr. Way, approximately 0.4 mile southeast of the project site.

Public Schools

The Berkeley Unified School District (BUSD) operates three preschools, 11 elementary schools (grades K-5), three middle schools (grades 6-8), one large comprehensive high school (grades 9-12), a continuation high school (grades 9-12), and an adult school (BUSD 2021). BUSD's cumulative enrollment for the 2020-2021 school year was 9,559 students. Enrollment for the 2021-2022 school year on census day was 9,177 students. (Ed-Data.org 2022).

Impact Analysis

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 project site is within the existing service area of the BFD. The project would not create excessive demand for emergency services or introduce development to areas outside of normal service range that would necessitate new fire protection facilities, as the existing commercial building on the project site is served by BFD. Berkeley currently has a population of 123,562 residents. The 2023-2031 Housing Element Update for the City projects that the population will grow by approximately 47,443 residents compared to the existing population by 2031. While the project would increase the population served by BFD by approximately 61 residents, this increase would not exceed the planned 2023-2031 Housing Element population predictions upon which fire facilities are planned.

On-site construction of the proposed project would be required to comply with applicable California Fire Code requirements, adopted by reference in BMC Chapter 19.48) including the requirement to include sprinkler systems, fire alarm systems, and carbon monoxide detection systems in new building construction. The proposed project would also be required to adhere to the Standard COAs set forth by the BFD based on its review of the project plans. With the continued implementation of existing practices, including compliance with the California Fire Code, the proposed project would not significantly affect community fire protection services and would not result in the need for construction of fire protection facilities. 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 would increase BPD's service population by approximately 61 new residents, but 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, considering that the added population would not exceed the planned 2030 General Plan population predictions upon which police facilities are planned. The existing commercial building is served by BPD in this location, and the proposed project would 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?

The BUSD has not established student generation rates to estimate the number of students anticipated with new development. Additionally, pursuant to Senate Bill 50 (Section 65995(h)), payment of mandatory fees to the affected school district would reduce potential school impacts to less than significant level under CEQA. If approved, this project would be subject to the BUSD School Impact Fees, which are assessed based on proposed land use and floor area. Therefore, the project would not have a significant impact with respect to schools.

LESS THAN SIGNIFICANT IMPACT

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, public facilities, 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?

Refer to Section 16, *Recreation*.

LESS THAN SIGNIFICANT 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 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 proposed project would conservatively add 61 residents that would use the library and other public facilities, but it is likely that some residents already reside within the city or surrounding region. Construction of new library facilities would not be required. 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?	☐	☐	■	☐
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?	☐	☐	■	☐

Setting

The City of Berkeley's Parks, Recreation and Waterfront Department administers recreation centers and maintains the parks, waterfront, and urban forest within the city limits. In this department, the Parks Division maintains 52 parks that include 48 play areas; 21 turf medians, triangles, and dividers; 44 parking and vacant lots; 75 paths, walks and steps; 40 undeveloped paths; and the Berkeley Marina (City of Berkeley 2002b). According to the General Plan, there are 230 acres of parkland within city limits, which is a ratio of approximately two park acres per 1,000 residents. In addition to the public open space managed by the City's Parks Divisions, the city contains parts of the Bay Trail and the 1,854-acre McLaughlin Eastshore State Park, and residents are adjacent to the East Bay Regional Park District's 2,079-acre Tilden Regional Park and 208-acre Claremont Canyon Regional Preserve. Including these additional parklands, Berkeley's park acres-to-persons ratio increases to approximately 12 acres per 1,000 residents (City of Berkeley 2002b).

Preservation Park (0.3 miles south of the project site), Ohlone Park Playground (0.2 miles north of the project site), and Provo Park (0.6 miles southeast of the project site) are near the project site.

The University of California Berkeley is located approximately 0.8 miles east of the project site. In addition to the local parks serving the project site, several recreational facilities within the University campus may also serve as parks and recreational uses for residents. The University has a general philosophy of keeping the campus open for the public to utilize open spaces (City of Berkeley 2002b).

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?

Residents of the proposed project would use neighborhood or regional parks and recreational facilities in the city. However, this use would not result in substantially increased demand or significant deterioration of recreation facilities, given the maximum increase in population of 61 residents, some of whom could already be using local recreational facilities. Further, residents

would have access to parks and recreation near the project site. Additionally, the project includes six private balconies, each of which are 104 square feet (624 square feet total) and 2,329 square feet of communal open space on the ground floor and roof deck. Therefore, the project would not substantially alter citywide demand for parks or accelerate deterioration.

LESS THAN SIGNIFICANT IMPACT

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 proposed project would include 2,950 square feet of private open space on the ground floor, balconies, and roof deck. The construction of these private facilities as part of the proposed project would not have an adverse physical effect on the environment due to the relatively small portion of the parcel that would be dedicated to these facilities. Further, these facilities, as a part of the proposed project, are considered in the analysis throughout this document, which found no significant impact related to the inclusion of private open space. Additionally, the project would not involve off-site improvements or construction that would directly affect nearby parks. Impacts to parks and recreational facilities would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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?	☐	☐	■	☐

Setting

Roadway, Bicycle, Transit and Pedestrian Facilities

Regional access to Berkeley is provided through several freeways and state highways, including Interstate 80/580, SR 24, and SR 13 (Ashby Avenue) and SR 123 (San Pablo Avenue).

There are a number of major streets providing vehicle access around the city such as San Pablo Avenue, Ashby Avenue, Adeline Street, Shattuck Avenue, Martin Luther King Jr. Way, Dwight Way, Sacramento Street, and University Avenue. The project site is located on University Avenue.

Berkeley is also served by public transportation primarily through AC Transit, Transbay and BART. The project site is served by AC Transit bus stops along University Avenue (lines 51B, 52, and 88) and Martin Luther King Jr. Way (line 12) and Transbay bus stops along University Avenue (line FS) and at University Avenue and Sacramento Street (line J). The closest BART station to the project site is the North Berkeley BART Station, which is 0.5 miles northwest of the project site.

Pedestrian facilities include crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities. A continuous sidewalk network is provided in Berkeley connecting to nearby residential, commercial, and retail facilities. Crosswalks and pedestrian signals are provided at major intersections. The project site is located in central Berkeley and is served by existing pedestrian facilities, including sidewalks on both sides of nearby roads and crosswalks.

Based on the City of Berkeley Bicycle Plan (City of Berkeley 2017b), bicycle facilities are classified into several types, including:

- Class 1 Multi-Use Paths – provide a completely separated, exclusive right-of-way for bicycling, walking, and other non-motorized uses.
- Class 2 Bicycle Lanes – are striped, preferential lanes for one-way bicycle travel on roadways. Some Class 2 bicycle lanes include striped buffers that add a few feet of separation between the bicycle lane and traffic lane or parking aisle.
- Class 3 Bicycle Routes – are signed bicycle routes where riders share a travel lane with motorists. Bicycle boulevards (Class 3E) are a special type of Class 3 bicycle route where the shared travel way has low motor vehicle volumes and low speed that prioritize convenient and safe bicycle travel through traffic calming strategies, wayfinding signage, and traffic control adjustments.
- Class 4 Cycletrack – is an on-street bicycle lane that is physically separated from motor vehicle traffic by a vertical element or barrier, such as a curb, bollards, or parking aisle.

According to the City of Berkeley Bicycle Plan, Berkeley had the fourth highest bicycle commute mode share (8.5 percent) of any city in the United States in 2017. Total, there is an estimated 51 miles of bikeways throughout Berkeley (City of Berkeley 2017b). There is no designated bicycle infrastructure along Jefferson Avenue or University Avenue near the project site.

Regulatory Setting

Senate Bill 743 and Vehicle Miles Traveled

Senate Bill (SB) 743 was signed into law by Governor Brown in 2013 and tasked the State Office of Planning and Research (OPR) with establishing new criteria for determining the significance of transportation impacts under the CEQA. SB 743 requires the new criteria to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." It also states that alternative measures of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated."

On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started a process that changes transportation impact analysis as part of CEQA compliance. SB 743 requires the Governor's OPR to identify new metrics for identifying and mitigating transportation impacts within CEQA. In January 2018, OPR transmitted its proposed CEQA Guidelines implementing SB 743 to the California Natural Resources Agency for adoption, and in January 2019 the Natural Resources Agency finalized updates to the CEQA Guidelines, which incorporated SB 743 modifications, and are now in effect. SB 743 changed the way that public agencies evaluate the transportation impacts of projects under CEQA, recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact (Public Resource Code, Section 21099 (b)(2)). In addition to new exemptions for projects consistent with specific plans, the CEQA Guidelines replaced congestion-based metrics, such as auto delay and level of service, with VMT as the basis for determining significant impacts, unless the Guidelines provide specific exceptions.

OPR recommends that residential development that would generate vehicle travel that is 15 or more percent below the existing residential VMT per capita, measured against the region or city, may indicate a less than significant transportation impact (OPR 2018).

City of Berkeley Screening Criteria

CEQA Guidelines Section 15064.3(b) indicates that land use projects would have a significant impact if the project resulted in VMT exceeding an applicable threshold of significance. In June 2020, the City of Berkeley developed VMT Criteria and Thresholds for VMT analysis according the guidance from OPR:

- A residential project's VMT impact is considered less-than-significant if its household VMT per capita is at least 15% below the regional average Household VMT per capita.
- An employment-generating project's VMT impact is considered less-than-significant if its home-work VMT per worker is at least 15% below the regional average home-work VMT per worker.

In addition, the City of Berkeley has developed screening criteria to provide project applicants with a conservative indication of whether a project could result in potentially significant VMT impacts. If the screening criteria are met by a project, the applicant would not need to perform a detailed VMT assessment for their project. The City's screening criteria are the following:

- Projects within TPAs
- Low-income housing projects
- Small Projects: Projects defined as generating 836 daily VMT or less
- Locally Serving Public Facility: Projects that generally encompass government, civic, cultural, health, and infrastructure uses which contribute to and support community needs and mostly generate trips within the local area
- Projects in Low VMT Areas: Projects that are located in low-VMT areas and that have characteristics similar to other uses already located in those areas can be presumed to generate VMT at similar rates. The low-VMT areas in Berkeley are defined based on the results of the Alameda CTC model, and maps of these areas are attached to this report
- Residential projects will be screened out if located in an area that has household VMT per capita that is 15% lower than the baseline regional average
    - Office and industrial projects will be screened out if located in an area that has homework VMT per worker that is 15% lower than the baseline regional average

As described in Section 1, *Aesthetics,* and Section 7, *Greenhouse Gas Emissions*, the project site is in a TPA.

Berkeley General Plan

The Transportation Element of the Berkeley General Plan includes the following policies applicable to the proposed project:

- **Policy T-16 Access by Proximity:** Improve access by increasing proximity of residents to services, goods, and employment centers.
- **Policy T-18 Transportation Impact Analysis and Vehicle Miles Traveled:** When considering transportation impacts under the California Environmental Quality Act, the City shall consider how a plan or project affects all modes of transportation, including transit riders, bicyclists, pedestrians, and motorists, to determine the transportation impacts of a plan or project. Plans and projects shall be designed to deliver significant benefits to travel by pedestrians, bicycle, or transit, and/or reduced impacts on air quality, greenhouse gas emissions, and safety. For the

purposes of CEQA, Vehicle Miles Traveled (VMT) shall be the metric used to analyze the transportation impacts of a plan or project.

Impact Analysis

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

Roadway Facilities

The proposed project does not include on-site parking, and it includes both commercial and residential space, including two live-work units. Given the lack of parking and proximity to transit, goods, services, and jobs, the project would not generate a significant number of vehicle trips. The project would not substantially affect operations of roadways or intersections near the project site.

Pedestrian and Bicycle Facilities

The project would introduce 26 residential units and 3,145 square feet of ground floor commercial space (inclusive of the live-work unit square footage) to the project site. Bicycle Boulevards on California Street (one block to the west), Milvia Street (four blocks to the east) and Channing Way (four blocks to the south) are all easily accessible from the site. While the project may increase pedestrian and bicycle activity near the project site, it is not anticipated that the proposed project would add a significant amount of pedestrian or bicycle traffic to the area such that effects on pedestrian or bicycle facilities would be substantially adverse. Impacts would be less than significant.

Transit Facilities

The proposed project would not interfere with existing bus routes and would not remove or relocate existing bus stops. The project also would not conflict with transit plans or goals of the City of Berkeley. Based on its size, the project is not anticipated to generate a significant number of transit trips such that service or overall capacity would be adversely affected. 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)?

The proposed project would not include any changes to the current roadways and sidewalks that currently serve the project site. Additionally, the project would be required to comply with the City's Emergency Operation Plan (EOP).

As discussed in the Setting section above, the City has developed screening criteria to determine whether a project could result in potentially significant VMT impacts. If the screening criteria are met by a project, the applicant would not need to perform a detailed VMT assessment for their project. The proposed project meets the first screening criteria because it is within a TPA , as discussed in Section 1, *Aesthetics*. The project site meets this criterion due to its proximity to the North Berkley BART Station. The project is also near several City of Berkeley Bicycle Boulevards and a range of public transit options such as AC Transit bus stops along University Avenue (lines 51B, 52, and 88) and Martin Luther King Jr. Way (line 12) and Transbay bus stops along University Avenue (line FS) and at University Avenue and Sacramento Street (line J). The proposed project would not

include on-site vehicle parking. For these reasons, and inn compliance with the City of Berkeley's Screening Criteria, a detailed VMT assessment is not required for this project. The project's VMT impact would be less than significant considering the transit screening criteria.

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)?

There would be no vehicle entryways or parking on site and no new driveways or roads are proposed. Operation would not involve the use of incompatible vehicles or equipment. There would be no impact related to hazards from geometric design feature or incompatible use.

NO IMPACT

d. Would the project result in inadequate emergency access?

The project would have ample emergency access, as it is located on University Avenue and would not include features that would change or impede access to or around the property. Emergency vehicles would access the project site directly from University Avenue and Jefferson Avenue. Adherence to existing state and federal regulations and City of Berkeley requirements would further ensure adequate access. Additionally, the project would be required to comply with the City's Standard COA, Transportation Construction Plan, as detailed below:

Standard COA: Transportation Construction Plan

The applicant and all persons associated with the project are hereby notified that a Transportation Construction Plan (TCP) is required for all phases of construction, particularly for the following activities:

- Alterations, closures, or blockages to sidewalks, pedestrian paths, or vehicle travel lanes (including bicycle lanes);
- Storage of building materials, dumpsters, debris anywhere in the public ROW;
- Provision of exclusive contractor parking on-street; or
- Significant truck activity.

The applicant shall secure the City Traffic Engineer's approval of a TCP. Please contact the Office of Transportation at 981-7010, or 1947 Center Street, and ask to speak to a traffic engineer. In addition to other requirements of the Traffic Engineer, this plan shall include the locations of material and equipment storage, trailers, worker parking, a schedule of site operations that may block traffic, and provisions for traffic control. The TCP shall be consistent with any other requirements of the construction phase.

Contact the Permit Service Center (PSC) at 1947 Center Street or 981-7500 for details on obtaining Construction/No Parking Permits (and associated signs and accompanying dashboard permits). Please note that the Zoning Officer and/or Traffic Engineer may limit off-site parking of construction-related vehicles if necessary to protect the health, safety or convenience of the surrounding neighborhood. A current copy of this Plan shall be available at all times at the construction site for review by City Staff.

The proposed project would be required to adhere to the aforementioned Standard COA and current and future requirements by the City of Berkeley's EOP once operational. Accordingly, impacts related to interference with an adopted emergency response plan or emergency evacuation plan during operations would be less than significant.

With compliance with the City's Standard COA and state and federal regulations, 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)?	☐	■	☐	☐
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.	☐	■	☐	☐

As of July 1, 2015, California Assembly Bill 52 of 2014 (AB 52) was enacted and 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 California Register of Historical Resources, 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.

Rincon contacted the NAHC on January 30, 2023, to request an SLF search of the project site. A response from the NAHC dated February 18, 2023, stated the results were positive indicating a recorded Sacred Land is present in the vicinity of the project site. Pursuant to AB 52, the City mailed letters to 12 Tribal contacts that are traditionally and culturally affiliated with the geographic area of the project site on March 7, 2023 and March 8, 2023. The Tribes included: Amah Mutsun Tribal Band of Mission San Juan Bautista, Costanoan Rumsen Carmel Tribe, Guidiville Indian Rancheria, Indian Canyon Mutsun Band of Costanoan, Muwekma Ohlone Indian Tribe of the SF Bay Area, North Valley Yokuts Tribe, The Ohlone Indian Tribe, Wuksache Indian Tribe/Eshom Valley Band, and The Confederated Villages of Lisjan. Under AB 52, tribes have 30 days to respond and request consultation. The 30-day window for requesting consultation on the project ended on April 7, 2023.

Impact Analysis

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 Section 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?*

On March 10, the Confederated Villages of Lisjan Nation requested a copy of the CHRIS and SLF records along with the completed Initial Study. Five Native American archaeological resources are recorded within 0.5 mile of the project site, containing Native American burials, a potential village site, and shell fragments. The project site is considered sensitive for archaeological resources and there is potential to uncover buried deposits within the project site that may be identified as tribal cultural resources. Should project construction activities encounter and damage or destroy a tribal cultural resource or resources, impacts would be potentially significant. Mitigation Measure TCR-1 would ensure that potential tribal cultural resources are preserved in the event they are uncovered during construction and would reduce impacts regarding disturbing tribal cultural resources to a less than significant level. The project is also subject to the City's Standard COA, presented below.

TCR-1 Native American Monitoring

Prior to project initiation, a Native American monitor from a locally affiliated tribal member(s) shall be retained. Native American monitor(s) will have the authority to halt and redirect work should any archaeological or tribal cultural resources be identified during monitoring. If archaeological or Tribal cultural resources are encountered during ground-disturbing activities, work in 50 feet of the find must halt and the find evaluated for listing in the CRHR and NRHP. Native American monitoring may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground-disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the

project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Furthermore, monitoring may be terminated in the event that it is determined that the soils within the project site do not have the potential to contain cultural resources.

Standard COA: Halt Work/Unanticipated Discovery of Tribal Cultural Resources

In the event that cultural resources of Native American origin are identified during construction, all work within 50 feet of the discovery shall be redirected. The project applicant and project construction contractor shall notify the City Planning Department within 24 hours. The City will again contact any tribes who have requested consultation under AB 52, as well as contact a qualified archaeologist, to evaluate the resources and situation and provide recommendations. If it is determined that 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. If the resource cannot be avoided, additional measures to avoid or reduce impacts to the resource and to address tribal concerns may be required.

With implementation of Mitigation Measure TCR-1 and the above Standard COA, impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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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?	☐	☐	■	☐

Existing Setting

Water Service

Water supply to the project site and surrounding area is provided by the EBMUD. Approximately 90 percent of the water used by EBMUD comes from the Mokelumne River watershed, and EBMUD transports it through pipe aqueducts to temporary storage reservoirs in the East Bay hills. EBMUD has water rights that allow for delivery of up to a maximum of 325 million gallons per day (mgd) from this source, subject to the availability of runoff and to the senior water rights of other users, downstream fishery flow requirements, and other Mokelumne River water uses. EBMUD is obligated to meet multiple operating objectives, including providing municipal water supply

benefits, stream flow regulation, fishery/public trust interests, flood control, temperature management and obligations to downstream diverters. Among these factors, EBMUD's Mokelumne River flow commitments are generally tied to the variability in the Mokelumne River watershed rainfall and runoff patterns which govern the release requirements for the year.

Northern California's water resources, including EBMUD's supplies, have been stressed by periodic drought cycles. Historical multi-year droughts have significantly diminished the supplies of water available to EBMUD's customers. During the early stages of a drought and throughout a drought period, EBMUD imposes drought management programs to reduce customer demands, thereby saving water for the following year in case drought conditions continue. EBMUD has established a goal of reducing water use by 20 percent district-wide.

EBMUD completed development of a revised Water Supply Management Program (WSMP) 2040 in April of 2012, which is the District's plan for providing water to its customers through 2040. According to the WSMP, EBMUD's water supplies are estimated to be sufficient during the planning period (2010-2040) in normal and single dry years. The WSMP 2040 emphasizes maximum conservation and recycling, with a total of 50 mgd of future supply to be provided from those two strategies. However, looking toward 2040, EBMUD's current supply is insufficient to meet customer needs during multi-year droughts despite EBMUD's aggressive water conservation and recycled water programs. Supplemental supply will also be needed to reduce the degree of rationing and to meet the need for water in drought years.

The Urban Water Management Planning Act of 1983 amended California Water Code to require all urban water suppliers in California to prepare and adopt an Urban Water Management Plan (UWMP) and update it every five years. This requirement applies to all suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre-feet per year of water. EBMUD adopted its first UWMP in 1985 and has been updating the plan every five years since then, adjusting for current and projected water usage, water supply programs, and conservation and recycling programs. Water demand projections described in the UWMP account for anticipated future water demands within the EBMUD service territory, and changes in land uses including but not limited to densification and associated increases in water usage. EBMUD's 2020 UWMP estimated the average daily water demand in its service area to be approximately 150 million gpd (EBMUD 2020).

Wastewater

EBMUD also provides wastewater treatment services to the project site and the rest of Berkeley. EBMUD operates the large diameter interceptor sewer generally running along the shoreline of the San Francisco Bay, and the Main Wastewater Treatment Plant (MWWTP) in Oakland. Each property owner in the City is responsible for delivering their sewage to the City's wastewater collection system. The City's wastewater collection system includes the lower lateral and the sewer mainlines in the street or in easements on private property. The City has approximately 254 miles of sanitary sewer mains, seven sewage pump stations, and approximately 31,600 service laterals(City of Berkeley 2019). The City operates and maintains its sewage collection system in accordance with the NPDES Permit No. CA0038466 issued by the SFBRWQCB that expires on March 31, 2025.

Wastewater from the project site enters the City's wastewater collection system which is then conveyed to EBMUD's WWTP. The WWTP provides primary treatment for up to 320mgd) and secondary treatment for up to 168 mgd, and storage basins provide plant capacity for a short-term hydraulic peak of 415 mgd. On average, about 63 million gallons of wastewater is treated every day at the WWTP (EBMUD n.d.).

Solid Waste, Recycling, and Compost

Berkeley is one of the few cities in Northern California to operate its own Transfer Station and provide curbside refuse, dual stream recycling, and compost collection.. The City also supports a material recovery/drop-off and buy back facility operated by Community Conservation Centers. The City and it's contracted hauler provide curbside dual-stream recycling, compost, and refuse collection services . Refuse, compost, and recyclable materials collected by the City and its contracted companies are transported to the Berkeley Transfer Station and/or the Recycling Center, located at 1201 Second Street and 669 Gilman Street, respectively, for sorting or transfer. The Berkeley Transfer Station currently has a permitted capacity of 620 tons per day (City of Berkeley 2020). One permitted landfill in Alameda County has the capacity to accommodate solid waste generated in Berkeley, the Altamont Landfill. The remaining capacity for solid waste at this landfill is approximately 65.4 million cubic yards (City of Berkeley 2016). Currently, the City sends all solid waste for disposal to the Altamont Landfill, which is located near the Altamont Pass, northeast of the City of Livermore. Recyclables are sorted and baled at Community Conservation Centers (Berkeley Recycling), and compostable/organic materials are currently processed at Recology Blossom Valley Organics in Vernalis, CA.

Regulatory Setting

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned telecommunication, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. General Order 121-d gives the CPUC permitting authority over construction of new and expanded power plants, electric transmission lines, and substations. Pursuant to CEQA, an environmental analysis must be conducted before issuance of construction permits by CPUC. CPUC Decision 95-08- 038 contains the rules for the planning and construction of new transmission facilities, distribution facilities, and substations.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Section 10610–10656). The Act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 AF annually, should make every effort to ensure the appropriate level of reliability in its water service to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act requires that urban water suppliers adopt an UWMP at least once every 5 years and submit it to the Department of Water Resources. Noncompliant urban water suppliers are ineligible to receive funding pursuant to Division 24 or Division 26 of the California Water Code, or receive drought assistance from the state, until the UWMP is submitted and deemed complete pursuant to the Urban Water Management Planning Act.

Assembly Bill 939 and Senate Bill 1016

The California Integrated Waste Management Act of 1989, or AB 939, established the Integrated Waste Management Board, required the implementation of integrated waste management plans, and mandated that local jurisdictions divert at least 50 percent of all solid waste generated (from 1990 levels), beginning January 1, 2000, and divert at least 75 percent by 2010. In 2006, SB 1016 updated the requirements. The new per capita disposal and goal measurement system moves the emphasis from an estimated diversion measurement number to using an actual disposal

measurement number as a factor, along with evaluating program implementation efforts. These two factors will help determine each jurisdiction's progress toward achieving its AB 939 diversion goals. The 50 percent diversion requirement is measured now in terms of per-capita disposal expressed as pounds per person per day.

Berkeley General Plan

The project would be required to comply with general plan policies related to utilities such as:

- **Policy EM-5 "Green Buildings":** Promote and encourage compliance with "green" building standards.
  - *Action B.* Encourage landscaping for water and energy efficiency.
  - *Action C.* Encourage buildings to incorporate renewable energy and energy- and water-efficient technologies.
  - *Action D.* Encourage use of recycled-content construction materials.
  - *Action F.* Encourage reduction of construction and demolition waste.
- **Policy EM-7 Reduced Wastes:** Continue to reduce solid and hazardous wastes.
- **Policy EM-35 Energy-Efficient Design:** Promote high-efficiency design and technologies that provide cost-effective methods to conserve energy and use renewable energy sources.

Impact Analysis

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?

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?

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?

Water

The project site would be serviced by EBMUD, as discussed above. The project site is currently served by existing water infrastructure and would therefore not require relocation or construction of expanded water facilities.

The total water demand associated with the project would be approximately 0.0032 MGD as shown in Table 11.

Table 11 Estimated Water Demand

Land Use	Size	Water Demand (gpd)	Total (gpy)	Total (mgd)
Residential (Multi-family)	28 units	2,794	1,019,730	0.002794
Commercial	2,264 sf	460	167,700	0.00046

Notes: gpd = gallons per day
gpy=gallons per year
Source: Appendix A

The additional project demand would not impact the City's ability to meet total system demand.

EBMUD's 2020 Urban Water Management Plan (UWMP) projected that the City would be able to meet current and future water needs during normal years, single dry, and second dry years through 2050 but would experience supply shortfalls in third dry years under base conditions starting in 2040. In high demand scenarios, the City would experience supply shortfalls in third dry years as early as 2030, and in extreme drought scenarios as early as 2035. These shortfalls would remain even with mandatory 15 percent rationing (EBMUD 2020). As indicated by the City's Water Supply Management Program, supplemental supply will also be needed to reduce the degree of rationing and to meet the need for water in drought years.

The proposed project would have an estimated total water demand of 0.0032 MGD which would be approximately 0.001 percent of projected water demand and projected water supply for 2030 according to the EBMUD's UWMP. As the project would make up a small amount of future water demand, the City would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Wastewater

As discussed in the wastewater setting, wastewater from the project site enters the City's wastewater collection system which is then conveyed to EBMUD's WWTP. The WWTP provides primary treatment for up to 320 MGD and secondary treatment for up to 168 MGD, and storage basins provide plant capacity for a short-term hydraulic peak of 415 MGD. On average, about 63 million gallons of wastewater is treated every day at the WWTP (EBMUD n.d.).

The project's estimated wastewater generation would be approximately 3,905 gallons per day or 0.0039 MGD as shown in Table 12.

Table 12 Estimated Wastewater Generation

Land Use	Size	Sewer Flow (gpd)	Total (gpy)
Residential (Multi-family)	28 units	3,353	1,223,772
Commercial	2,264 sf	552	201,480

The project would generate approximately 0.0033 MGD of wastewater per day which is 0.005 percent of the current daily average. The project would not exceed the City's wastewater capacity, and no new wastewater treatment facilities would need to be built or expanded. Impacts would be less than significant.

Stormwater

The project would decrease the amount of impervious surface area on the project site as the site is currently completely paved (see Section 10, *Hydrology and Water Quality*). The drainage pattern on

the project site would not be significantly changed. The project would not necessitate the construction or expansion of stormwater drainage infrastructure as existing infrastructure would be sufficient.

Electricity and Natural Gas

The project would not have natural gas hookups on the project site and would therefore not require the relocation or construction of new or expanded natural gas facilities. Additionally, the project would be required to implement green building features as required by 2022 CBC Title 24 standards to conserve energy. The project site is currently served by PG&E and would not necessitate the construction of new or expanded electrical infrastructure.

Other Utilities

Telecommunication services in Berkeley are provided by private companies, including AT&T, Comcast Cable, and Sonic which provides internet, phone, and are available throughout the city. Connections for new telecommunications services are implemented on an as needed basis, and the service provider used is generally at the discretion of the customer. There are no anticipated limitations to the availability of telecommunications service.

Therefore, impacts would be less than significant.

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 refuse is brought to the Altamont Landfill which has a total estimated remaining capacity of 65.4 million cubic yards and a remaining estimated capacity of approximately 16.2 million cubic yards. The landfill has a maximum disposal threshold of 11,150 tons of garbage per day (CalRecycle 2016).

The project would produce approximately 0.026 tons per day, or approximately 0.0002 percent of the Altamont Landfill's maximum daily disposal amount as shown below in Table 13.

Table 13 Estimated Solid Waste Generation

Land Use	Size	Estimated Solid Waste Generated per Day (tons)	Landfill Daily Capacity (tons)
Residential (Multi-Family)	28 units	0.02	11,150
Commercial	2,264 sf	0.006	11,150

Therefore, as the project would not generate waste which would lead to the exceedance of the Altamont Landfill's daily capacity and would be required to comply with relevant solid waste statutes and regulations, the project would have less than significant impacts.

LESS THAN SIGNIFICANT IMPACT

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?	☐	☐	☐	■

Setting

Berkeley is not located within a fire hazard severity zone (CAL FIRE 2022[4]). The nearest very high fire hazard severity zone is located 2 miles east of the project site. The project site is located within an urbanized area of the City and is surrounded by existing commercial and residential development.

Impact Analysis

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?*

[4] 2022 CalFire maps have not yet been adopted. However, the 2007 CalFire maps show that the project site is not within a fire hazard severity zone.

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?

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?

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?

Since the project site is not in or near a CAL FIRE designated very high fire hazard severity zone, implementation of the proposed project would not impair an adopted emergency response plan or emergency evacuation plan; exacerbate wildfire risks; require the installation or maintenance of associated infrastructure that may exacerbate fire risk; or 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 in or near state responsibility areas or lands classified as very high fire hazard severity zones. No impact would occur.

NO 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 discussed in Section 4, *Biological Resources*, the project would not substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife species population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or reduce the number or restrict the range of a rare or endangered plant or animal. The proposed project is adjacent to a site which includes a Coast Live Oak, which is a tree species protected under the BMC. The proposed project would be required to comply with mitigation measures BIO-1 through BIO-3, which are informed by the Arborist's Report completed for the project. These mitigation measures would reduce impacts to the Coast Live Oak to less than significant levels.

As discussed in Section 5, *Cultural Resources*, and Section 7, *Geology and Soils,* no historical, archaeological, or paleontological resources were identified on site. Undiscovered resources would be protected through the City's Standard COAs and mitigation measures CUL-1 and CUL-2 which would require a WEAP, archaeological monitoring, and avoidance of archeological resources in the event they are uncovered on the project site. These measures would reduce impacts to be less than significant. As discussed in Section 18, *Tribal Cultural Resources,* the potential to discover unanticipated resources during development is a possibility. Standard COAs would require Native American monitor(s) to have the authority to halt and redirect work should any archaeological or tribal cultural resources be identified during monitoring. Therefore, impacts to important examples of California history or prehistory would be less than significant.

As noted throughout the Initial Study, most other potential environmental impacts related to the quality of 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)?

Pursuant to CEQA Guidelines Section 15064(h)(3), cumulative impacts associated with some of the resource areas have been addressed in the individual resource sections above including: Section 3, Air Quality, Section 8, Greenhouse Gas Emissions, Section 10, Hydrology and Water Supply, and Section 19, Utilities and Service Systems.

Specifically, cumulative impacts were addressed in Section 3, *Air Quality*, because air pollution is largely a cumulative issue, and according to BAAQMD, if a project is inconsistent with the 2017 Clean Air Plan, it would be considered to result in a cumulatively adverse air quality impact. As described above in Section 3, *Air Quality*, the project would be consistent with the 2017 Clean Air Plan and the proposed project's daily emissions during construction and operation would not exceed the BAAQMD regional thresholds. Therefore, the project's contribution to cumulative air quality impacts would not be cumulatively considerable.

Additionally, GHG impacts are assessed in a cumulative context since no single project can cause a discernible change to the climate. Therefore, cumulative significance is based on the same thresholds as the proposed project. In the absence of an adopted numeric threshold by the BAAQMD or the City of Berkeley, the significance of the project's GHG emissions is evaluated on the consistency with applicable plans, policies, regulations, and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. As discussed in Section 8, *Greenhouse Gas Emissions*, the project would be consistent with Berkeley's CAP and other climate goals the city has in place.

The analysis included in Section 10, *Hydrology and Water Quality* is cumulative in nature due to the scope of the analysis including the entire water basin serving the city. As discussed therein, the project would have less than significant impacts related to groundwater, flooding, and stormwater management.

Lastly, the analysis included in Section 19, *Utilities and Service Systems*, is cumulative in nature due to the fact that it analyzes the utility infrastructure available throughout the city and the remaining

capacity of the utility systems accounting for all current development in the city and projected growth within the city. As discussed in Section 19, utilities and Service Systems, the project would not result in demand for water, wastewater, electricity, or stormwater infrastructure that would exceed the remaining capacity of these systems in the City. Additionally, the project would not result in solid waste in excess of the remaining capacity of the Altamont Landfill.

Other resource areas were determined to have no impact in comparison to existing conditions and therefore would not contribute to cumulative impacts, such as mineral resources and agriculture and forestry resources. As such, cumulative impacts in these issue areas would also be less than significant (not cumulatively considerable). Other issues (e.g., aesthetics, hazards and hazardous materials) are site-specific by nature, and impacts at one location do not add to impacts at other locations or create additive impacts. The project's impacts would not result in a considerable contribution to a significant cumulative impact.

LESS THAN SIGNIFICANT IMPACT

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

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. As discussed in Section 3, *Air Quality,* the project would not generate significant impacts related to a cumulatively considerable net increase in criteria pollutants, expose sensitive receivers to substantial pollutants, or result in adverse odors. As discussed in Section 9, *Hazards and Hazardous Materials*, impacts related to groundwater, vapor, or soil contamination would not be significant as a result of project implementation of mitigation measures HAZ-1 through HAZ-5, which would reduce impacts resulting from the elevated soil and soil vapor contaminants on the project site. Therefore, implementation of the project would not have a cumulatively considerable contribution to significant cumulative hazards impacts. As discussed in Section 13, *Noise*, the project would not generate significant impacts related to ambient noise or ground-borne vibration with implementation of Mitigation Measure NOI-1 and the City's Standard COAs. Therefore, the project would not cause substantial adverse effects on human beings.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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Appendix A

Air Quality and Greenhouse Gas CalEEMod Outputs

1652 University Avenue Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	1652 University Avenue
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	2.80
Location	1652 University Ave, Berkeley, CA 94703, USA
County	Alameda
City	Berkeley
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1530
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	28.0	Dwelling Unit	0.74	26,880	1,471	—	79.0	—
Strip Mall	2.26	1000sqft	0.05	2,264	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Energy	E-15	Require All-Electric Development

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Unmit.	0.65	32.0	18.7	0.48	0.48
Daily, Winter (Max)	—	—	—	—	—
Unmit.	16.8	0.90	9.08	0.03	0.03
Average Daily (Max)	—	—	—	—	—
Unmit.	1.12	0.37	2.67	0.01	0.01
Annual (Max)	—	—	—	—	—
Unmit.	0.20	0.07	0.49	< 0.005	< 0.005
Exceeds (Daily Max)	—	—	—	—	—
Threshold	54.0	54.0	—	82.0	54.0
Unmit.	No	No	—	No	No
Exceeds (Average Daily)	—	—	—	—	—
Threshold	54.0	54.0	—	82.0	54.0
Unmit.	No	No	—	No	No
Exceeds (Annual)	—	—	—	—	—
Threshold	—	—	—	—	—
Unmit.	Yes	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	PM10E	PM2.5E
Daily - Summer (Max)	—	—	—	—	—
2023	0.65	32.0	18.7	0.48	0.48
Daily - Winter (Max)	—	—	—	—	—
2023	0.20	0.84	9.08	0.03	0.03
2024	16.8	0.90	9.01	0.03	0.03
Average Daily	—	—	—	—	—
2023	0.06	0.37	2.67	0.01	0.01
2024	1.12	0.11	0.68	< 0.005	< 0.005
Annual	—	—	—	—	—
2023	0.01	0.07	0.49	< 0.005	< 0.005
2024	0.20	0.02	0.12	< 0.005	< 0.005

2.3. Construction Emissions by Year, Mitigated

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

Year	ROG	NOx	CO	PM10E	PM2.5E
Daily - Summer (Max)	—	—	—	—	—
2023	0.65	32.0	18.7	0.48	0.48
Daily - Winter (Max)	—	—	—	—	—
2023	0.20	0.84	9.08	0.03	0.03
2024	16.8	0.90	9.01	0.03	0.03
Average Daily	—	—	—	—	—
2023	0.06	0.37	2.67	0.01	0.01
2024	1.12	0.11	0.68	< 0.005	< 0.005

Annual	—	—	—	—	—
2023	0.01	0.07	0.49	< 0.005	< 0.005
2024	0.20	0.02	0.12	< 0.005	< 0.005

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Unmit.	1.68	0.66	7.29	0.01	0.01
Mit.	1.68	0.60	7.26	0.01	0.01
% Reduced	< 0.5%	9%	< 0.5%	34%	35%
Daily, Winter (Max)	—	—	—	—	—
Unmit.	1.48	0.75	5.59	0.01	0.01
Mit.	1.48	0.68	5.56	0.01	0.01
% Reduced	< 0.5%	8%	< 0.5%	36%	37%
Average Daily (Max)	—	—	—	—	—
Unmit.	1.50	0.67	5.78	0.01	0.01
Mit.	1.50	0.61	5.76	0.01	0.01
% Reduced	< 0.5%	9%	< 0.5%	36%	37%
Annual (Max)	—	—	—	—	—
Unmit.	0.27	0.12	1.06	< 0.005	< 0.005
Mit.	0.27	0.11	1.05	< 0.005	< 0.005
% Reduced	< 0.5%	9%	< 0.5%	36%	37%
Exceeds (Daily Max)	—	—	—	—	—
Threshold	54.0	54.0	—	15.0	10.0
Unmit.	No	No	—	No	No
Mit.	No	No	—	No	No

Exceeds (Average Daily)	—	—	—	—	—
Threshold	54.0	54.0	—	15.0	10.0
Unmit.	No	No	—	No	No
Mit.	No	No	—	No	No
Exceeds (Annual)	—	—	—	—	—
Threshold	10.0	10.0	—	82.0	54.0
Unmit.	No	No	—	No	No
Mit.	No	No	—	No	No

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Mobile	0.83	0.58	5.57	0.01	0.01
Area	0.84	0.02	1.68	< 0.005	< 0.005
Energy	< 0.005	0.07	0.03	0.01	0.01
Water	—	—	—	—	—
Waste	—	—	—	—	—
Refrig.	—	—	—	—	—
Total	1.68	0.66	7.29	0.01	0.01
Daily, Winter (Max)	—	—	—	—	—
Mobile	0.80	0.68	5.56	0.01	0.01
Area	0.68	0.00	0.00	0.00	0.00
Energy	< 0.005	0.07	0.03	0.01	0.01
Water	—	—	—	—	—
Waste	—	—	—	—	—
Refrig.	—	—	—	—	—

Total	1.48	0.75	5.59	0.01	0.01
Average Daily	—	—	—	—	—
Mobile	0.73	0.60	4.92	0.01	0.01
Area	0.76	0.01	0.83	< 0.005	< 0.005
Energy	< 0.005	0.07	0.03	0.01	0.01
Water	—	—	—	—	—
Waste	—	—	—	—	—
Refrig.	—	—	—	—	—
Total	1.50	0.67	5.78	0.01	0.01
Annual	—	—	—	—	—
Mobile	0.13	0.11	0.90	< 0.005	< 0.005
Area	0.14	< 0.005	0.15	< 0.005	< 0.005
Energy	< 0.005	0.01	0.01	< 0.005	< 0.005
Water	—	—	—	—	—
Waste	—	—	—	—	—
Refrig.	—	—	—	—	—
Total	0.27	0.12	1.06	< 0.005	< 0.005

2.6. Operations Emissions by Sector, Mitigated

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

Sector	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Mobile	0.83	0.58	5.57	0.01	0.01
Area	0.84	0.02	1.68	< 0.005	< 0.005
Energy	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Water	—	—	—	—	—
Waste	—	—	—	—	—

Refrig.	—	—	—	—	—
Total	1.68	0.60	7.26	0.01	0.01
Daily, Winter (Max)	—	—	—	—	—
Mobile	0.80	0.68	5.56	0.01	0.01
Area	0.68	0.00	0.00	0.00	0.00
Energy	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Water	—	—	—	—	—
Waste	—	—	—	—	—
Refrig.	—	—	—	—	—
Total	1.48	0.68	5.56	0.01	0.01
Average Daily	—	—	—	—	—
Mobile	0.73	0.60	4.92	0.01	0.01
Area	0.76	0.01	0.83	< 0.005	< 0.005
Energy	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Water	—	—	—	—	—
Waste	—	—	—	—	—
Refrig.	—	—	—	—	—
Total	1.50	0.61	5.76	0.01	0.01
Annual	—	—	—	—	—
Mobile	0.13	0.11	0.90	< 0.005	< 0.005
Area	0.14	< 0.005	0.15	< 0.005	< 0.005
Energy	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Water	—	—	—	—	—
Waste	—	—	—	—	—
Refrig.	—	—	—	—	—
Total	0.27	0.11	1.05	< 0.005	< 0.005

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Off-Road Equipment	0.10	1.47	5.63	0.02	0.02
Demolition	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.15	< 0.005	< 0.005
Demolition	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.03	< 0.005	< 0.005
Demolition	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Worker	0.04	0.03	0.51	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.65	0.26	0.01	0.01
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

3.2. Demolition (2023) - Mitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Off-Road Equipment	0.10	1.47	5.63	0.02	0.02
Demolition	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.15	< 0.005	< 0.005
Demolition	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.03	< 0.005	< 0.005
Demolition	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Worker	0.04	0.03	0.51	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.65	0.26	0.01	0.01
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

3.3. Site Preparation (2023) - Unmitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Off-Road Equipment	0.08	0.42	5.99	0.02	0.02
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	< 0.005	< 0.005
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.55	31.5	12.4	0.46	0.46
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.09	0.03	< 0.005	< 0.005
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005

3.4. Site Preparation (2023) - Mitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Off-Road Equipment	0.08	0.42	5.99	0.02	0.02
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.02	< 0.005	< 0.005
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.55	31.5	12.4	0.46	0.46
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.09	0.03	< 0.005	< 0.005
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005

3.5. Grading (2023) - Unmitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—

Off-Road Equipment	0.16	0.84	9.79	0.03	0.03
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Off-Road Equipment	0.01	0.03	0.38	< 0.005	< 0.005
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.07	< 0.005	< 0.005
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Worker	0.03	0.02	0.38	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00

3.6. Grading (2023) - Mitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Off-Road Equipment	0.16	0.84	9.79	0.03	0.03
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Off-Road Equipment	0.01	0.03	0.38	< 0.005	< 0.005
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.07	< 0.005	< 0.005
Dust From Material Movement	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Worker	0.03	0.02	0.38	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2023) - Unmitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Off-Road Equipment	0.12	0.64	8.10	0.02	0.02
Onsite truck	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Off-Road Equipment	0.12	0.64	8.10	0.02	0.02
Onsite truck	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Off-Road Equipment	0.03	0.15	1.84	0.01	0.01
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	0.01	0.03	0.34	< 0.005	< 0.005
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Worker	0.08	0.07	1.07	0.00	0.00
Vendor	< 0.005	0.11	0.05	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—

Worker	0.08	0.09	0.92	0.00	0.00
Vendor	< 0.005	0.11	0.05	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Worker	0.02	0.02	0.20	0.00	0.00
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2023) - Mitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Off-Road Equipment	0.12	0.64	8.10	0.02	0.02
Onsite truck	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Off-Road Equipment	0.12	0.64	8.10	0.02	0.02
Onsite truck	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Off-Road Equipment	0.03	0.15	1.84	0.01	0.01
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	0.01	0.03	0.34	< 0.005	< 0.005

Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Worker	0.08	0.07	1.07	0.00	0.00
Vendor	< 0.005	0.11	0.05	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—
Worker	0.08	0.09	0.92	0.00	0.00
Vendor	< 0.005	0.11	0.05	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Worker	0.02	0.02	0.20	0.00	0.00
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2024) - Unmitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Off-Road Equipment	0.12	0.64	8.10	0.02	0.02
Onsite truck	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—
Off-Road Equipment	0.01	0.03	0.38	< 0.005	< 0.005
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.07	< 0.005	< 0.005
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Worker	0.07	0.07	0.86	0.00	0.00
Vendor	< 0.005	0.11	0.05	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2024) - Mitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—

Off-Road Equipment	0.12	0.64	8.10	0.02	0.02
Onsite truck	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Off-Road Equipment	0.01	0.03	0.38	< 0.005	< 0.005
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.07	< 0.005	< 0.005
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Worker	0.07	0.07	0.86	0.00	0.00
Vendor	< 0.005	0.11	0.05	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2024) - Unmitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Off-Road Equipment	0.07	0.84	4.58	0.01	0.01
Paving	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.16	< 0.005	< 0.005
Paving	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.03	< 0.005	< 0.005
Paving	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Worker	0.06	0.06	0.72	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00

3.12. Paving (2024) - Mitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Off-Road Equipment	0.07	0.84	4.58	0.01	0.01
Paving	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.16	< 0.005	< 0.005
Paving	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.03	< 0.005	< 0.005
Paving	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Worker	0.06	0.06	0.72	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2024) - Unmitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Off-Road Equipment	0.02	0.65	0.96	< 0.005	< 0.005
Architectural Coatings	16.8	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.06	< 0.005	< 0.005
Architectural Coatings	1.10	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005
Architectural Coatings	0.20	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00

3.14. Architectural Coating (2024) - Mitigated

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

Location	ROG	NOx	CO	PM10E	PM2.5E
Onsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Off-Road Equipment	0.02	0.65	0.96	< 0.005	< 0.005
Architectural Coatings	16.8	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.06	< 0.005	< 0.005
Architectural Coatings	1.10	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005
Architectural Coatings	0.20	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	0.49	0.32	2.98	< 0.005	< 0.005
Strip Mall	0.34	0.26	2.59	< 0.005	< 0.005
Total	0.83	0.58	5.57	0.01	0.01
Daily, Winter (Max)	—	—	—	—	—

Apartments Mid Rise	0.47	0.37	3.04	< 0.005	< 0.005
Strip Mall	0.33	0.31	2.52	< 0.005	< 0.005
Total	0.80	0.68	5.56	0.01	0.01
Annual	—	—	—	—	—
Apartments Mid Rise	0.08	0.06	0.50	< 0.005	< 0.005
Strip Mall	0.05	0.05	0.40	< 0.005	< 0.005
Total	0.13	0.11	0.90	< 0.005	< 0.005

4.1.2. Mitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	0.49	0.32	2.98	< 0.005	< 0.005
Strip Mall	0.34	0.26	2.59	< 0.005	< 0.005
Total	0.83	0.58	5.57	0.01	0.01
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	0.47	0.37	3.04	< 0.005	< 0.005
Strip Mall	0.33	0.31	2.52	< 0.005	< 0.005
Total	0.80	0.68	5.56	0.01	0.01
Annual	—	—	—	—	—
Apartments Mid Rise	0.08	0.06	0.50	< 0.005	< 0.005
Strip Mall	0.05	0.05	0.40	< 0.005	< 0.005
Total	0.13	0.11	0.90	< 0.005	< 0.005

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—

4.2.2. Electricity Emissions By Land Use - Mitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	< 0.005	0.06	0.03	0.01	0.01
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total	< 0.005	0.07	0.03	0.01	0.01
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	< 0.005	0.06	0.03	0.01	0.01
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total	< 0.005	0.07	0.03	0.01	0.01
Annual	—	—	—	—	—
Apartments Mid Rise	< 0.005	0.01	< 0.005	< 0.005	< 0.005
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total	< 0.005	0.01	0.01	< 0.005	< 0.005

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Annual	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.62	—	—	—	—
Architectural Coatings	0.06	—	—	—	—
Landscape Equipment	0.16	0.02	1.68	< 0.005	< 0.005
Total	0.84	0.02	1.68	< 0.005	< 0.005
Daily, Winter (Max)	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.62	—	—	—	—
Architectural Coatings	0.06	—	—	—	—
Total	0.68	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00

Consumer Products	0.11	—	—	—	—
Architectural Coatings	0.01	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.15	< 0.005	< 0.005
Total	0.14	< 0.005	0.15	< 0.005	< 0.005

4.3.1. Mitigated

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

Source	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.62	—	—	—	—
Architectural Coatings	0.06	—	—	—	—
Landscape Equipment	0.16	0.02	1.68	< 0.005	< 0.005
Total	0.84	0.02	1.68	< 0.005	< 0.005
Daily, Winter (Max)	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.62	—	—	—	—
Architectural Coatings	0.06	—	—	—	—
Total	0.68	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.11	—	—	—	—
Architectural Coatings	0.01	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.15	< 0.005	< 0.005
Total	0.14	< 0.005	0.15	< 0.005	< 0.005

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—

4.4.1. Mitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—

Annual	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—

4.5.1. Mitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—

Strip Mall	—	—	—	—	—
Total	—	—	—	—	—

4.6.2. Mitigated

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—
Strip Mall	—	—	—	—	—
Total	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—

Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

4.7.2. Mitigated

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

Equipment Type	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

4.8.2. Mitigated

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

Equipment Type	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

4.9.2. Mitigated

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

Equipment Type	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—

Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

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

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Avoided	—	—	—	—	—
Subtotal	—	—	—	—	—
Sequestered	—	—	—	—	—
Subtotal	—	—	—	—	—
Removed	—	—	—	—	—
Subtotal	—	—	—	—	—
—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Avoided	—	—	—	—	—
Subtotal	—	—	—	—	—
Sequestered	—	—	—	—	—
Subtotal	—	—	—	—	—
Removed	—	—	—	—	—
Subtotal	—	—	—	—	—
—	—	—	—	—	—
Annual	—	—	—	—	—
Avoided	—	—	—	—	—
Subtotal	—	—	—	—	—
Sequestered	—	—	—	—	—
Subtotal	—	—	—	—	—
Removed	—	—	—	—	—
Subtotal	—	—	—	—	—
—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

Vegetation	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

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

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

Land Use	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Total	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Total	—	—	—	—	—
Annual	—	—	—	—	—
Total	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	ROG	NOx	CO	PM10E	PM2.5E
Daily, Summer (Max)	—	—	—	—	—
Avoided	—	—	—	—	—
Subtotal	—	—	—	—	—

Sequestered	—	—	—	—	—
Subtotal	—	—	—	—	—
Removed	—	—	—	—	—
Subtotal	—	—	—	—	—
—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—
Avoided	—	—	—	—	—
Subtotal	—	—	—	—	—
Sequestered	—	—	—	—	—
Subtotal	—	—	—	—	—
Removed	—	—	—	—	—
Subtotal	—	—	—	—	—
—	—	—	—	—	—
Annual	—	—	—	—	—
Avoided	—	—	—	—	—
Subtotal	—	—	—	—	—
Sequestered	—	—	—	—	—
Subtotal	—	—	—	—	—
Removed	—	—	—	—	—
Subtotal	—	—	—	—	—
—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	8/1/2023	8/15/2023	5.00	10.0	—

Site Preparation	Site Preparation	8/16/2023	8/17/2023	5.00	1.00	—
Grading	Grading	8/18/2023	9/6/2023	5.00	14.0	—
Building Construction	Building Construction	9/7/2023	1/24/2024	5.00	100	—
Paving	Paving	1/25/2024	2/12/2024	5.00	13.0	—
Architectural Coating	Architectural Coating	2/13/2024	3/15/2024	5.00	24.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Final	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Tier 4 Final	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Final	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Tier 4 Final	1.00	7.00	36.0	0.38

Paving	Tractors/Loaders/Backh	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Final	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Tier 4 Final	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Final	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Tier 4 Final	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	13.8	LDA,LDT1,LDT2
Demolition	Vendor	—	7.30	HHDT,MHDT
Demolition	Hauling	7.20	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	13.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.30	HHDT,MHDT
Site Preparation	Hauling	348	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	13.8	LDA,LDT1,LDT2
Grading	Vendor	—	7.30	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	20.9	13.8	LDA,LDT1,LDT2
Building Construction	Vendor	3.36	7.30	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	13.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.30	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.18	13.8	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.30	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	13.8	LDA,LDT1,LDT2
Demolition	Vendor	—	7.30	HHDT,MHDT
Demolition	Hauling	7.20	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	13.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.30	HHDT,MHDT
Site Preparation	Hauling	348	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	13.8	LDA,LDT1,LDT2
Grading	Vendor	—	7.30	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	20.9	13.8	LDA,LDT1,LDT2

Building Construction	Vendor	3.36	7.30	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	13.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.30	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.18	13.8	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.30	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	54,432	18,144	3,396	1,132	0.00

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)

Demolition	0.00	0.00	0.00	6,232	—
Site Preparation	1,390	1,390	0.50	0.00	—
Grading	0.00	0.00	10.5	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Strip Mall	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	204	0.03	< 0.005
2024	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	152	137	115	52,852	821	741	618	285,039
Strip Mall	100	95.2	46.3	33,535	786	745	362	262,585

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	152	137	115	52,852	821	741	618	285,039
Strip Mall	100	95.2	46.3	33,535	786	745	362	262,585

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	28
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0

Electric Fireplaces	0
No Fireplaces	28
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
54432	18,144	3,396	1,132	—

5.10.3. Landscape Equipment

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

5.10.4. Landscape Equipment - Mitigated

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

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

Apartments Mid Rise	95,521	204	0.0330	0.0040	246,514
Strip Mall	19,346	204	0.0330	0.0040	12,902

5.11.2. Mitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	97,189	204	0.0330	0.0040	0.00
Strip Mall	19,346	204	0.0330	0.0040	12,902

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	994,304	20,426
Strip Mall	167,700	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	994,304	20,426
Strip Mall	167,700	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	7.34	0.00
Strip Mall	2.38	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	7.34	0.00
Strip Mall	2.38	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.15.2. Mitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

5.18.2.2. Mitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	7.10	annual days of extreme heat
Extreme Precipitation	7.50	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

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

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract

Exposure Indicators	—
AQ-Ozone	3.12
AQ-PM	40.2
AQ-DPM	55.1
Drinking Water	4.21
Lead Risk Housing	64.1
Pesticides	0.00
Toxic Releases	59.0
Traffic	46.8
Effect Indicators	—
CleanUp Sites	25.6
Groundwater	77.5
Haz Waste Facilities/Generators	90.9
Impaired Water Bodies	83.0
Solid Waste	0.00
Sensitive Population	—
Asthma	75.7
Cardio-vascular	40.4
Low Birth Weights	65.4
Socioeconomic Factor Indicators	—
Education	0.84
Housing	81.8
Linguistic	23.8
Poverty	38.1
Unemployment	7.14

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	78.15988708
Employed	97.20261773
Median HI	65.84113948
Education	—
Bachelor's or higher	97.8570512
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	5.710252791
Active commuting	98.89644553
Social	—
2-parent households	96.72783267
Voting	73.60451687
Neighborhood	—
Alcohol availability	41.84524573
Park access	81.35506224
Retail density	79.63557038
Supermarket access	85.33299115
Tree canopy	74.74656743
Housing	—
Homeownership	36.03233671
Housing habitability	46.55460028
Low-inc homeowner severe housing cost burden	83.72898755
Low-inc renter severe housing cost burden	38.17528551
Uncrowded housing	52.91928654

Health Outcomes	—
Insured adults	79.19928141
Arthritis	67.1
Asthma ER Admissions	19.7
High Blood Pressure	82.7
Cancer (excluding skin)	34.5
Asthma	58.2
Coronary Heart Disease	81.5
Chronic Obstructive Pulmonary Disease	84.0
Diagnosed Diabetes	89.0
Life Expectancy at Birth	64.5
Cognitively Disabled	13.7
Physically Disabled	71.5
Heart Attack ER Admissions	90.8
Mental Health Not Good	82.3
Chronic Kidney Disease	85.5
Obesity	84.3
Pedestrian Injuries	19.6
Physical Health Not Good	88.1
Stroke	80.6
Health Risk Behaviors	—
Binge Drinking	30.9
Current Smoker	85.8
No Leisure Time for Physical Activity	89.8
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	73.7
Elderly	28.7
English Speaking	81.5
Foreign-born	35.9
Outdoor Workers	74.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	37.5
Traffic Density	45.6
Traffic Access	87.4
Other Indices	—
Hardship	10.9
Other Decision Support	—
2016 Voting	73.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	46.0
Healthy Places Index Score for Project Location (b)	97.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Grading assumed two weeks due to need for soil remediation
Construction: Off-Road Equipment	Assume Tier 4 Final in accordance with the City's Standard COA
Operations: Hearths	No fireplaces or woodstoves
Operations: Architectural Coatings	Compliance with BAAQMD Reg 8 Rule 3
Operations: Water and Waste Water	no septic or lagoons

Appendix B

Arborist's Report

SBCA TREE CONSULTING

1534 Rose Street, Crockett, CA 94525
Phone: (510) 787-3075
Fax: (510) 787-3065
Website: www.sbcatree.com

Steve Batchelder, Consulting Arborist
WC ISA Certified Arborist #228
CUFC Certified Urban Forester #134
CA Contractor License #(C-27) 53367
E-mail: steve@sbcatree.com

Molly Batchelder, Consulting Arborist
WC ISA Certified Arborist #9613A
ISA Tree Risk Assessment Qualified
E-mail: molly@sbcatree.com

Date: October 28, 2022

To: Erik Waterman
Studio KDA
1810 6th Street
Berkeley, CA 94710

Subject: 1652 University

Species: Coast Live Oak *(Quercus agrifolia)*

Assignment: *Submit Tree Protection Guidelines including pruning specifications.*

Summary

The new design has minimized necessary scaffold pruning to accommodate the proposed building. An estimated 5% of the oak canopy will now require pruning in the location of the proposed balcony. All pruning is to be carried out at the time of construction when building clearances are clearly understood.

Pre-construction activities include exploratory potholing to understand if roots are present under the pavement. If roots are encountered, trenching during the late fall/early winter at the limits of the building footprint can be carried out. Preliminary root pruning can be conducted if project arborist deems appropriate. Larger roots can also be left, and foundation designed around them. It is quite possible no roots will be present.

Tree and Site Observations

The Coast Live Oak tree has a DBH measured at 36" and 23" or a diameter of 38.5" at 2' below where the stem bifurcates. Tree height is estimated to be 40'. Canopy spread is 69' north-south and 42' east-west. Health is good, structure is poor; the tree displays a significant included bark attachment in the 23" diameter branch extending north. Soil is a heavily compacted clay loam. The understory is oak leaf mulch and loose brick walkways. Foliage extends 12' into the parking lot from the concrete wall.

The tree underwent reduction pruning two years ago on the west side in anticipation of proposed construction. Since that time, the foliage has filled out nicely, indicating good health and vigor.

Tree Protection Scenario

Pre-construction activities

Tree protection fencing – Existing fencing can be left in place and serve as tree protection fencing.

Potholing – Exploratory potholing can be conducted in three locations 2' from the wall. Potholes shall be dug 30' deep by 18" wide.

Root investigation – If potholing determines roots are present, pavement is saw cut and a 1' wide x 2' deep trench is dug at the limits of the proposed foundation within the RPZ. All work is to be accomplished by hand. All exposed roots must be covered with 2 layers of damp burlap and always kept moist. Arborist is called on site after root exposure to assess root presence.

Root pruning – If roots are present, preliminary root pruning can be carried out by arborist. Larger roots can be girdled to allow more time for the tree to adjust to root loss. A sugar solution is applied to freshly severed root ends. Best if root pruning is carried out in the late fall/early winter.

Backfill – Trench can be backfilled with sand to be excavated again when construction commences.

Foundation accommodation – If large roots are encountered, it maybe possible to design foundation to allow for roots to pass through.

Supplemental irrigation – Any root loss can be mitigated with supplemental irrigation on adjacent property. A system to monitor the actual amount of water should be established and include regular soil moisture monitoring.

During construction

Root pruning – Roots are exposed again in the previously dug trench and cut cleanly under arborist direction. A sugar solution is applied to freshly severed root ends.

Soil protection – Best to leave existing hardscape within the RPZ in place as long as possible. Once removed, all open soil areas within the RPZ are to be protected with mulch and plywood or trenching plates.

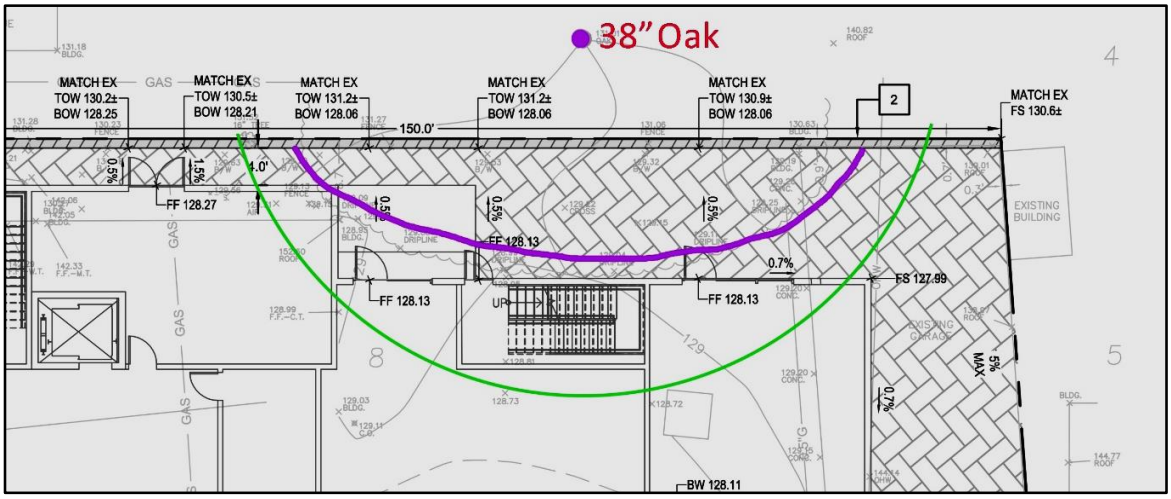
Canopy pruning – All pruning shall be carried out by certified arborists or certified tree workers. All pruning must be in accordance with ANSI A300 Pruning Guidelines and will be carried out necessary clearances are understood. It is estimated that one 5" branch will be removed; all other pruning will be minimal.

Protection from paint – Some type of covering, such as shade cloth or plastic, must be utilized to protect the tree if a paint sprayer is used.

TREE PROTECTION SPECIFICATIONS

These protection guidelines apply to one Coast Live Oak tree located in the adjacent property. The project proposes demolition of an existing building and construction of a new five story condo. The tree protection specifications are expected to remain in place for the duration of the project. It is recommended that the following be printed on construction plans. Contractor will inform arborist of all work occurring within the RPZ at least 2 weeks prior.

Image 1 – Image below shows estimated canopy spread indicated by the pink line. Green line is the estimated RPZ at 38' from the tree base.



Purpose

The goal of tree protection and preservation is to provide for a successful transition to a modified site. To be most effective, health mitigation measures must begin before the time of disturbance.

Project construction documents shall provide clear and concise tree protection requirements. Documents shall also provide procedures to be used for all activities occurring within the designated tree protection area.

Definitions

Protected tree – Any tree that has been designated to be retained and is located within the scope of a construction project.

Project arborist – A certified arborist appointed to oversee tree protection. Project arborist shall have the authority to halt all construction activities if tree protection guidelines are not being adhered to.

DBH –Diameter at Breast Height: Tree diameter measured at 54 inches above average soil grade.

Root Protection Zone (RPZ) – A radial distance from the base of the tree designated by project arborist. Sometimes equal the crown spread but is generally a distance of one-foot from the base of the tree for every one-inch in tree (DBH). No heavy machinery is allowed within the RPZ.

Soil compaction – Soil compaction is excessive when planting soil is compacted (generally) over 80% ASTM from a standard Proctor compaction test. Soil compaction must be avoided and mitigated when identified within the designated RPZ.

Mechanical damage – Damage to tree trunk, branches, or roots that causes loss of bark and cambial damage.

Crown pruning – Shortening or removal of branches in accordance with guidelines presented in ANSI A300 PRUNING STANDARDS. All pruning must be approved of and conducted by qualified personnel.

Root pruning – Pruning of tree roots must be approved of and conducted by project arborist.

Water Jet/Air Spade – Soil aeration tools used to mitigate soil compaction using water and air, respectively.

Rootable Soil – Rootable soil is a soil medium that is compacted less than 80% ASTM, has oxygen levels between 6-16% and has sufficient available moisture and nutrients with no toxic substances.

Site analysis and early tree health mitigation

Prior tree survey and site analysis will designate trees to be retained and all procedures and treatments to be used to assure the trees survive the site modifications.

Root investigation – Preliminary excavation to determine the size, depth, and amount of roots present in the impacted area.

Pre-construction activities

These activities should be undertaken prior to initiation of construction activity.

Mulching – Use of good quality organic mulch (fresh wood chips are best) on soil surface helps to reduce soil compaction and retain soil moisture. Recommended material is wood chips generated from tree trimming. Fresh redwood, incense cedar and walnut chips are not acceptable, nor is palm generated mulch. Mulch shall be from tree parts taken from a minimum of 2 meters above ground. Mulch shall not contain soil particles.

Construction documents to show protected trees and tree protection requirements – Project plans to show tree protection fencing layout, areas of encroachment, and list procedures for working around protected oak.

Designation of tree Root Protection Zone (RPZ)–The tree Root Protection Zone designates an area surrounding a tree or grouping of trees that is to be controlled by project arborist. The RPZ is commonly defined as a distance of one (1) foot radial distance from the base of the tree for every one (1) inch in tree diameter (DBH). In this case, the oak has a 38-inch diameter; the RPZ is equal to 38 feet out from the tree base. Project arborist can modify the RPZ distance based upon physical evidence of root presence or absence.

Tree Root Protection Zone fencing – Existing fencing shall be utilized as protection fencing. Signs shall be attached to tree protection fencing every 20' which read "TREE PROTECTION ZONE: DO NOT ENTER".

Arborist review and approval of tree protection measures – Project arborist to review tree protection guidelines and modify as deemed necessary.

Tree protections installation and inspected – Project arborist must certify that all tree protection measures have been properly installed.

Pre-construction meeting – Project arborist shall meet with supervisor and work crew to review requirements of the tree protection. All personnel working on site must be provided an orientation to the tree preservation requirements. There will be no excuses for transgressions.

No construction activities may begin until this meeting has been conducted.

Project arborist can direct that all work activities stop if tree protection guidelines are not being followed. All work activities cease until such time as the problem has been corrected.

Work activities that encroach into the designated RPZ

Arborist supervision – All activities occurring within the designated RPZ must be under direct supervision of project arborist. Encroachment is not permitted until all additional protections are in place and have been approved.

Required method of excavation within critical root zone – When trenching is required, carefully **hand** excavation or the use of the Air Spade or hydraulic water excavation are acceptable methods. **Pressure must be low if water is to be used as the tool.** Water or air streams must not be directed at roots. Project arborist must approve and supervise all such activity. No heavy equipment is allowed.

Wherever possible, route utilities outside of the designated RPZ. Tunneling is the preferred method for utilities passing through the RPZ.

Soil protection –The effects of foot traffic can be mitigated using six (6) inches of wood chip mulch and ¾ inch plywood placed on top.

Soil protections for equipment operating within the designated RPZ requires 12 inches of mulch with either metal trenching plates or 1 1/8-inch plywood placed on top.

Trunk and scaffold protection – Whenever construction activity must occur inside the tree protection zone, **exposed scaffold limbs** must be armored. Protection is generally provided by strapping 2x4 boards to the part exposed to potential injury and wrapping with orange plastic fencing material.

Root protection – All exposed roots must be covered with 2 layers of damp burlap secured with jute staples. Burlap shall always remain damp and can remain in place when backfilled.

Necessary root pruning – Late fall season is the best time for root pruning and spring can be the most harmful. All necessary root pruning and shaving is conducted by project arborist after the roots have been exposed without damage.

Post construction mitigation

Arborist Designation of Health Mitigation Activities – Project arborist will designate tree health mitigation activities based upon the level of root loss and adverse impacts that have occurred.

Monitoring Tree Health – If the oak is adversely impacted by construction activities, it will be noted for regular visual inspection. Project arborist will direct further mitigation. Insects and fungal pathogens are a sign of poor tree health (low energy reserves) and indicate the need for health mitigation.

Monitoring of Soil Moisture –Moisture should be monitored using a soil probe. Project arborist will designate supplemental irrigation. When root loss occurs, supplemental irrigation may be required for several years.

Mitigation of Soil Compaction – The level and depth of soil compaction must be assessed and mitigated, as necessary. Tools that are most suitable for mitigation of compacted soil are the water jet or air spade.

Landscaping – All landscaping planning must take precautions when planting within the designated RPZ. All plant materials should be selected for compatibility with the favored moisture regime (hydrazone) of the tree species and soil texture.

Continued Mulching – Mulch is extremely beneficial in creating a healthy root environment. A regular program of mulch application is recommended to help retain soil moisture, provide a source of nutrients, help with control weed control and reduce soil compaction.

Fertilization –Trees should be fertilized only when the nutritional limitations have been identified through laboratory analysis of soil or plant tissue. Excessive nitrogen fertilization is known to draw sucking insects (aphid, scale, etc.) to the plants and provide nutrition to fungal pathogens in the soil.

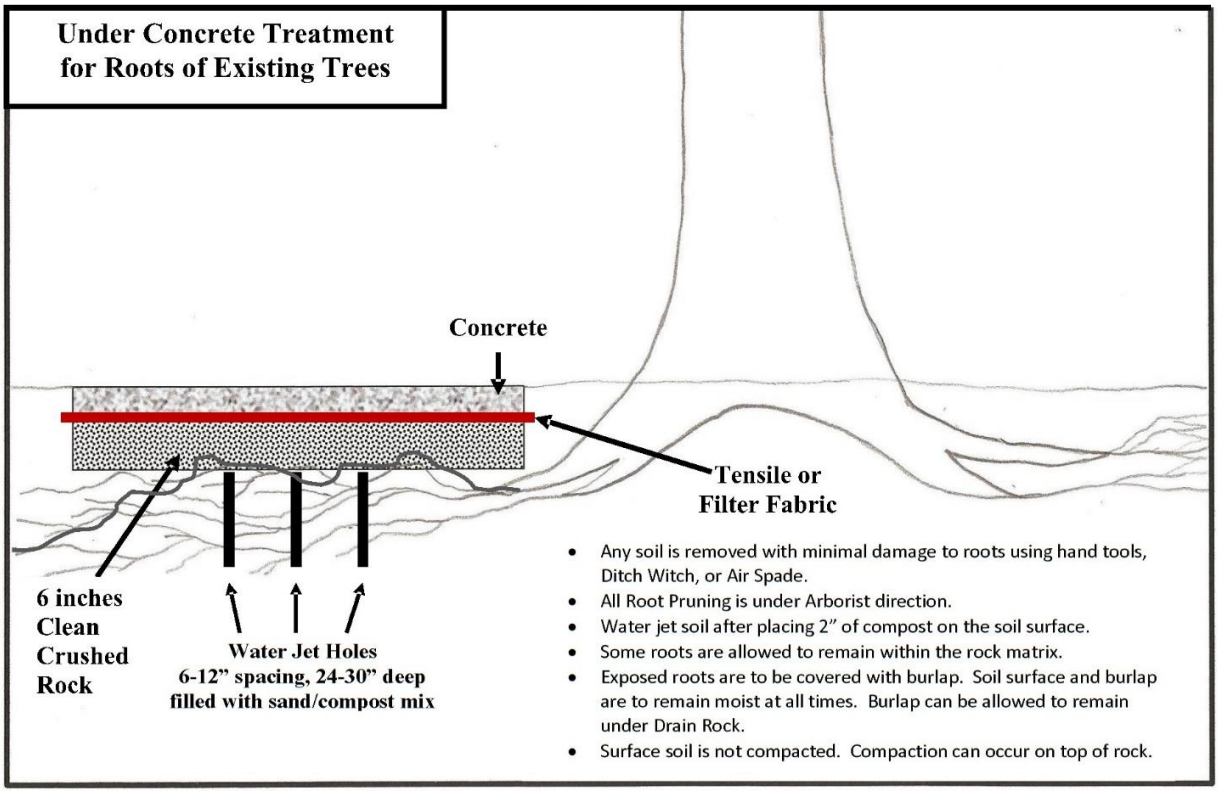
Pest Management Program – Healthy trees do not generally have serious pest problems. Stressed trees are attractive hosts to pathogens, which can contribute to further decline. Pest management is prescribed when monitoring indicates a need.

Below pavement treatments adjacent to existing trees or newly planted trees

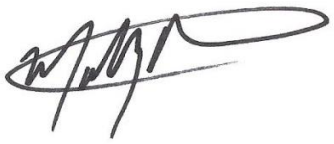
Damage to pavement near trees can be reduced and long-term health and vigor in the tree can be improved through treatments that promote good soil gas exchange and allow for deeper root development.

Use of clean crushed rock below pavement – This treatment is easiest to implement during original landscape installation. The treatment excavates the area below pavement to 6” to 12” deeper and place a clean crushed rock. Compaction can occur only from the surface of the rock after it is a minimum 6” deep. The rock is then covered with tensile and or filter fabric. Aggregate base can be placed on the fabric and compaction can occur again prior to installing the pavement. Purpose of such treatment is to reduce potential for hardscape displacement by roots.

Image 2 – Graphic on following page provides under concrete treatment for hardscape within the RPZ.



End Report



Molly Batchelder, Consulting Arborist
WC ISA Certified Arborist #9613A
Tree Risk Assessment Qualified (TRAQ)

Photo Supplement

Photo 1. *The area between the red lines in photo above is the estimated location of the balcony. Only foliage in this area will receive pruning for clearances purposes.*

Photo 2. *Photo left shows how the tree looked two years ago after reduction pruning. The above photo was taken recently. The tree has filled in nicely, indicating good health and vigor.*

Photo 3. *The red line in the photo shows where the location of the building footprint is proposed.*

End Photo Supplement

Appendix C

Historical Resources Evaluation

State of California ☐ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code
Other Listings
Review Code
Reviewer
Date

Page 1 **of** 5 ***Resource Name or #:** 1652-1658 University Avenue
P1. Other Identifier: None

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted**
***a. County** Alameda **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Oakland West **Date** 1993 **Township & Range** --
c. Address 1652-1658 University Ave. City Berkeley Zip 94703
d. UTM: Zone __, _____ mE/ _____ mN
e. Other Locational Data: Assessor's Parcel Number 56-2004-20

***P3a. Description:**
The 50 foot wide by 150 foot deep subject parcel (APN 56-2004-20) is located at the southeast corner of University Ave. and Jefferson St. Fronting on University with a blank ground floor wall on Jefferson, the extant building is 40 feet wide by 75 feet deep by 25 feet high. The simple, 1-part building form is a rectangular box that stands at the back of both sidewalks and with an open rear parking lot. Within its east side setback and appended to that side of the building is a covered exterior stair that provides access to and from the second floor. An uncovered rearward stair leg provides direct access to and from the parking lot. (cont.)

P5a. Photograph

Fig.1 – 1652-1658 University Ave., front (north) and east side

***P3b. Resource Attributes:**
HP6: 1-3 story commercial building
***P4. Resources Present:** ■ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other
P5b. Description of Photo:
fig.1,3-5)MH,2022; fig.2)Sanborn map, c1990
***P6. Date Constructed/Age and Source:** ■ Historic ☐ Prehistoric ☐ Both
1927 building permit #61817 (attached)
***P7. Owner and Address:**
Gordon Commercial Real Estate Services,
2091 Rose St.,
Berkeley, CA 94709
***P8. Recorded by:**
Mark Hulbert
446 17th St. #302
Oakland, CA 94612

P9. Date Recorded:
May 27, 2022
***P10. Survey Type:** (Describe)
Intensive
***P11. Report Citation:**
None
***Attachments:** ☐NONE ☐Location Map ■Continuation Sheet ■Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California ☐ The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** 1652-1658 University Avenue, Berkeley ***NRHP Status Code**
Page 2 **of** 5

B1. Historic Name: 1652-1658 University Avenue
B2. Common Name: --
B3. Original Use: Commercial – office over store B4. Present Use: same/vacant
***B5. Architectural Style:** Commercial Modern

***B6. Construction History:**

The subject lot #20 comprises lot 8 plus the northern 22 feet of lot 5 originally mapped as part of the 1878 Hardy Tract. Thereon, the existing 2-story commercial building was constructed for a store and offices in 1947, prior to which the parcel was vacant. (cont.)

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:** None
B9a. Architect: L. W. Howard (?) b. Builder: H. B. Williamson (?)
***B10. Significance: Theme** -- **Area**
Period of Significance -- **Property Type** -- **Applicable Criteria** --

Per the attached evaluation, the subject, 1947 commercial building has no identifiable historic significance. (cont.)

B11. Additional Resource Attributes: none

***B12. References:**

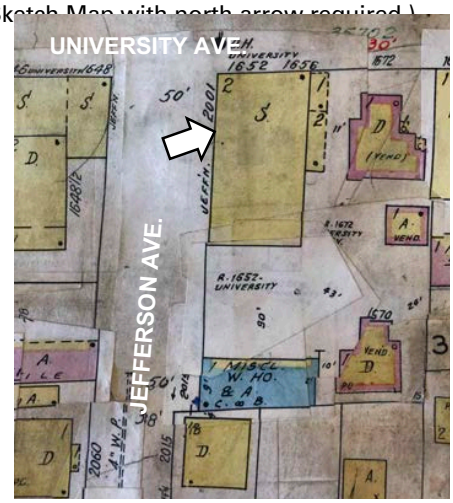
Alameda County/Oakland directories – 1920-1975 (@loc.org); Sanborn maps – 1929, 1950 (@sfpl.org) & c1990 (from City of Berkeley; City of Berkeley permit records, 1924-present; U.S. Census records (@heritagequest.com); additional reference in text.

B13. Remarks:

***B14. Evaluator:** Mark Hulbert Preservation Architect
***Date of Evaluation:** May 27, 2022

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



Description (continued from p1)

The building structure is wood frame, its exterior walls painted stucco with a shallow, painted brick base across the front and west side, storefront windows and doors at ground floor front (north), 2 flush metal doors at ground floor rear, synthetic sash windows at second floor, and a flat roof with a simple sheet metal roof coping at top of wall all around. The storefront is 6 units wide with a recessed pair of glazed aluminum entry doors to the right of center, 2 windows to its right and 3 to the left, which fixed metal framed windows are large square lites with transom lites above and aside from which there are no other windows at the ground floor. An overhanging lip spans the storefront.

The frontward east side stairway is brick construction covered with wood framed upper and lower flat roofs and with wood guardrails. The rearward stair is open wood construction. Second floor windows at the front, east side and rear are pairs each with integral awning sashes below, including at the conjoined corner windows at 3 street-oriented building corners. In the center of the upper west side wall is a similar window yet configured as a trio, which window is flanked by 2 small hung units at each side.

To the rear of the building is a paved parking lot and, across the very rear of the lot, a single-story, 50 foot wide by 22 foot deep garage/storage outbuilding that dates to 1958, is constructed of cmu walls, has 5 garage openings with outswinging pairs of wood panel garage doors facing north and a flat roof with metal coping.

The building's design style is Commercial Modern.

Fig.3 – 1652-1658 University Ave. – East side and front


Figs.4-5 – 1652-1658 University Ave. – West side and rear (left); garage outbuilding at rear (right)

Construction History (continued from p2)

The property owner and developer of the 1947 store and office building was Harry B. Williamson, who remained its owner and property manager until his passing in 1990. It is presently owned by Gordon Commercial Real Estate (Janis L. Mitchell and John K. Gordon), who acquired the property in the 1990s.

The 1947 permit identified Williamson as the owner, designer and builder, yet a certification attached to the permit identified L. W. Howard as the preparer of the plans and specifications (no original or early drawings or documents have been located).

Based on permit and directory listings, the original ground floor commercial use was the U-Save Market, which store was listed in directories from 1948 to 1951. The next identified ground floor occupant was a laundromat variously identified as “Jack Clarkson Launderette,” “University Laundromat” or “University Clean-O-Mat,” for which permit records span from 1957 to 1983. From 2003 to 2020, the ground floor tenant was a Radio Shack store. A mix of office tenants have occupied the second floor.

Based on permit records, in addition to numerous interior changes to the ground floor, exterior changes included replacement of all second floor windows in 2003. The front doors at the store are also replacements, as are the storefront windows, though there is no specific evidence of when. Address changes have been made, with the earlier lettered suites at the second floor replaced, again in 2003, by the address numbers 1654,1656 and 1658. Earlier, a pair of “cold storage” outbuildings depicted in the 1950 Sanborn map, behind and evidently for the market’s use, as well as an original porch roof across the back of the building were each removed prior to 1990. And the garage outbuilding was permitted and added in 1958.

Significance (continued from page 2)

Associated Person
Harry B. Williamson (1906-1990) was, in 1947, the developer and from 1947-1990, the owner of the subject commercial building.

Williamson worked in real estate development and management under his father, Luther M. Williamson (1861-1936), and thereafter on his own. (cont.)

In the 1950 census, Williamson, his wife Helen and a son resided at 1709 University Ave., an extant apartment building one block east and opposite of 1652 University building. The Williamsons were likewise listed at 1709 University in 1947, when 1652 University was constructed.

Significance (continued from p4)

The 1950 census also recorded his occupation as the proprietor of a property management company. In the 1950 directory, the Williamson Property Co. was listed at the address 1632 University, another extant apartment building located in the block west of his 1652 University Ave. building and which address was listed in its 1947 permit. Per a 2017 historic resource inventory for another Williamson building development, the 1632 University building was developed and owned by the Williamsons (Michael R. Corbett; *Department of Parks and Recreation Forms 523, 2009 Addison St., Berkeley*; 27 June 2017). It is likewise possible that the 1709 University apartment building, where Harry B. Williamson, resided was a family property development and/or holding. Further, the small commercial property between the subject building and the 1632 University apartment building was likely another Williamson property (though no such research has been undertaken as part of the current effort).

Designer
The 1947 permit application indicated that the subject building was designed by L.W. Howard. Per the 2017 record cited above, "a compilation of data from building permit applications prepared by B.A.H.A. lists L.W. Howard as designer of four buildings in Berkeley, two houses in the 1920s and two commercial buildings in 1946. If L.W. Howard is Lewis W. Howard, he also designed 1620 Shattuck. L.W. Howard was not prominent and it is not certain who he was. The most likely candidate from newspaper and census research is Lewis W. Howard who was a carpenter and contractor in the 1920s who went to work for the post office in the 1930s" (p5).

Evaluation
Per the *California Register of Historical Resources* evaluation criteria:

Criterion 1 – In its mid-University Ave. and mid-20th century commercial development context, there are no identifiable events of any potential historic importance associated with this property or its ordinary store and office building, so 1652-1658 University Ave. does not meet *CR criterion 3.*

Criterion 2 – The individual directly associated with the subject building, Harry B. Williamson (1906-1990), was the developer of this 1947 commercial property along with another, at 2009 Addison St., in 1946, which buildings he managed for the duration of his life. In that period, as also noted, Williamson was also the manager of nearby apartment buildings inherited from his father. Based on the evidence of his identified developments and business activities, Harry B. Williamson is of no identifiable historical importance. Consequently, the subject property and its building do not meet *CR criterion 2.*

Criterion 3 – This standard Commercial Modern building lacks distinctive design and construction character and characteristics of its type, period or region, and there are no distinctive methods of construction. Its few design features consist of its altered storefront and second floor windows – which were all replaced in 2003, including the 3 corner windows – along with its covered east side brick stair and railing, none of which are of design or construction importance. Neither is the tentatively identified architect, L. W. Howard, potentially noteworthy. Nor does the building embody any artistic intent or artistry. Therefore, there is no identifiable design or construction significance under *CR criterion 3*.

Criterion 4 – Relative to potential historic architectural resources, the subject property has not yielded and at this juncture, beyond the contents of this report, does not appear to have any potential to yield additional information of any historical importance.

Conclusion – The subject building at 1652-1658 University Ave. in Berkeley lacks potential historical significance per the California Register criteria.

20,000

60 + 96
30 48
20 144
2 75
10 569

6200
11/27/03

CITY OF BERKELEY
Building Department

APPLICATION FOR BUILDING PERMIT FOR A TYPE IV OR V BUILDING

Application is hereby made to the Building Department of the City of Berkeley for permission to build a Group F, Type ~~IV~~ V, 2 Story, 4 offices Room Building, to be occupied as Stores & Offices

Lot located on the S.E.S. corner side of Hillside Ave street ~~feet~~ of street,

Being Lot No. 8 Block 3 ~~1~~ 9 & 10 Hard Tract Tract

Estimated entire cost of building $ 10,000.00 (Includes all materials and labor for finished building.)
According to plans and specifications herewith submitted. All provisions of the Building Code will be complied with in the erection of said building whether specified herein or not.

Size of lot 50 by 150 feet. Size of proposed building 40' feet by 75' feet.

Extreme height of building 22' feet

Ceiling heights in clear to be as follows:

Cellar		ft.		in.
First Story	12	ft.	—	in.
Second Story	8	ft.	—	in.
Third Story	—	ft.	—	in.

Foundation to be of (material) Concrete

Walls	Width at top			inches.
	Width at bottom			inches.
	Least height			inches
	Greatest height			inches.
Piers	Size at top		X	inches.
	Size at bottom		X	inches.
				ft. on centers
	Height			inches.

Mud sills	2	X	6	
Main sills (plates)	2	X	6	
Post on piers	8	X	8	
Girders	8	X	16	Max. span 9'3" ft.
Underpinning	—	X	inches	— inches O. C.

Size of studs in outside walls to be as follows:

First story	2	X 6	inches	16 inches O. C.
Second story	2	X 4	inches	16 inches O. C.
Third story	—	X	inches	— inches O. C.

Bearing partitions to be same as outside walls of each story.
Exterior wall coverings to be of Stucco All outside walls covered with shingles or plaster will be close boarded.

Roof	Covered with	Tar & Gravel		
	Sheating	X	inches	inches O. C.
	Pitch			

First floor joists Concrete inches inches on centers. Longest span between supports ft.
Second floor joists 3 X 16 inches 16 inches on centers. Longest span between supports 19'8" ft.
Third floor joists — X — inches inches on centers. Longest span between supports ft.
Ceiling joists 2 X 4 inches 16 inches on centers. Longest span between supports 10 ft.
Rafters 2 X 4 inches 16 inches on centers. Longest span between supports 11 ft.

Chimneys { Brick: Number lined with terra cotta.
Patent: Number size Number of inlets per flue Size of inlets

Be Sure to Sign Statement on Other Side

Furnace, to burn
Name of Owner of Ground H B Williamson Address 1632 University
Name of Owner of Building " Address "
Name of Lessee of Building " Address "
Name of Architect or Designer " Address "
Name of Engineer " Address "
Name of Builder " Address "
State License No.

We
I hereby agree to save, indemnify and keep harmless the City of Berkeley and/or its employes, against all liabilities, judgments, costs and expenses which may in any wise accrue against said City in consequence of the granting of this permit, or from the use or occupancy of any sidewalk, street or sub-sidewalk space by virtue thereof, and will in all things strictly comply with the conditions of this permit and Ordinances of the City of Berkeley.

In Zone No. Ordinance No.

Fire Zone No. V

H B Williamson
Signature of Owner, Agent or Builder
Address 1632 University Ave.

FOR DEPARTMENT USE ONLY

1660-1670 University 52
Number Street Page

Permit No. 61817

Filed 5/6 Ready Checked by Date Issued 9-3-37

210-172

X National Automobile and Casualty Insurance Co
C 393444

I hereby CERTIFY that the plans and specifications used in making the application hereon for a Building Permit were prepared by: L. W. Howard.

.....

Address .....

and that the Laws of the State of California governing the practice of Architecture, Civil and/or Structural Engineering have not been violated in so doing.

H. Bill Thomson.

Address 1632 University Ave

Date July 28 1947 Attest .....

3 | 180 N
63 | 60 E
36 | 180

Appendix D

Phase I Environmental Site Assessment and Phase II Vapor Intrusion Investigation

PHASE 1 - ENVIRONMENTAL SITE ASSESSMENT

1652 University Avenue, Berkeley, CA 94703

PREPARED ON BEHALF OF:

Gordon Commerical Real Estate

2091 Rose Street

Berkeley, California, 94709

PREPARED BY:

CAL INC TRAINING LLC

2040 PEABODY ROAD, SUITE 400

VACAVILLE, CALIFORNIA 95687

Report Created by John Esparza of CAL INC Training, LLC

1/17/2020

Table of Contents

1.0 INTRODUCTION

CAL INC Training, LLC was retained by Gordon Commercial Real Estate to conduct a Phase I Environmental Site Assessment (ESA) of parcel APN 056-200-402-000 located at 1652 University Avenue in Berkeley, California, 94703. The parcel will be referred to in this report as "the subject property or the subject site". This Phase I ESA was prepared by CAL INC Training LLC in accordance with the American Society of Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Designation: E1527-13).

2.0 PURPOSE AND SCOPE

2.1 Purpose

The purpose of this Phase I ESA was to identify, to the extent feasible pursuant to the processes prescribed herein, Recognized Environmental Conditions (RECs) in connection with the subject property.

2.2 Scope of Services

The scope of work for this assessment was in accordance with the American Society of Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment (ESA) Process (ASTM Designation: E1527-13). These methodologies represent good commercial and customary practices for conducting a Phase I ESA of a property for identifying recognized environmental conditions. This Phase I ESA consisted of the following tasks:

- Review of Alameda County Environmental Health Department Records
- Review of a preliminary Title Report conducted for the subject site
- Interviews with past property owners, current property occupants, regulators and users of the Phase I ESA
- Site Reconnaissance
- Review of Federal, State and local environmental database records
- Review of historical aerial photographs, topographic maps, and Sanborn Fire Insurance Maps
- Preparation of a report summarizing findings, opinions and conclusions.

The scope of work for this assessment meets the requirements of ASTM Standard E1527-13. The ASTM Standard E1527-13 includes Section 13, Non-scope Considerations such as lead-based paint, asbestos, water quality testing, and mold, that are not part of the required ASTM Standard E1527-13, unless the client specifically requests otherwise.

2.3 Significant Assumptions

CAL INC Training LLC assumed that all information pertaining to the Subject Property provided in interviews and in historical information obtained from standard sources was as accurate and complete as possible. General guidance regarding PCB containing materials requires one to assume the presence of PCBs if the item in question was manufactured before 1979. Until tested by a certified inspection firm

and proven otherwise, general guidance regarding asbestos and lead-based paint requires one to assume the presence of asbestos or lead-based paint for any home, childcare facility or school built before 1978.

2.4 Limitations and Exceptions

This report has been prepared in accordance with generally accepted environmental methodologies referred to in ASTM 1527-13, and contains all the limitations inherent in these methodologies. No other warranties, expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.

The conclusions of this report are based in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the site in locations not specifically investigated (see last paragraph for locations not investigated). Should such an event occur, CAL INC Training LLC must be notified in order that we may determine if modifications to our conclusions are necessary.

The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site that were unavailable for direct observation, reasonably beyond the control of CAL INC Training, LLC.

The objective of this report was to assess environmental conditions at the site, within the context of our contract and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services.

Our observations relating to the condition of environmental media at the site are described in this report. It should be noted that compounds or materials other than those described could be present in the site environment.

Except for two rooms located on the second floor of the building and for two garage spaces, all areas were accessible at the time of the Site Reconnaissance. The interior of the building has been completed remodeled and signs of previous uses were not evident; carpets covered much of the flooring and prevented direct observation of most of the interior floor spaces. See Appendix 2.

2.5 Special Terms and Conditions

There were no special terms or contractual conditions for this assessment.

2.6 User Reliance

This report may be distributed and relied upon by Gordon Commercial Real Estate and its successors. Reliance on the information and conclusions in this report by any other person or entity is not authorized without the written consent of CAL INC Training LLC.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The subject property is situated in the State of California, County of Alameda, City of Berkeley, and is shown on that certain Parcel Map entitled Assessor's Map 56, Alameda County Records. The approximately 0.15-acre parcel is located at 1652 University Avenue in Berkeley, California. The County use code for the subject site is listed as Code 3200 – Store/Office with Apts./Lofts. See Exhibit "A" in the attached Preliminary Report for the legal description of the subject property; the title of the estate is vested in John K. Gordon and Janis L. Mitchell, trustees of the John Gordon and Janis Mitchell Living Trust, UTD 02/18/00. A Site Vicinity Map is provided in Appendix 1 and the EDR Radius Map Report found under Appendix 4; a copy of the Preliminary Title Report can also be found under Appendix 4.

3.2 Site and Vicinity General Characteristics

The subject site at 1652 University Ave is a store/office (mixed use) with Apartments/Lots located in Berkeley, CA 94703. Built in 1946, this property features 7,500 square feet lot, and 6,232 square feet of living space. The site is located on a prominent corner retail/service commercial space for lease on a busy thoroughfare. The Building occupies the northern part of the subject site with the southern part serving as a paved parking lot with a covered parking area (7-13 spaces). The site is centrally located in high-traffic area near Downtown Berkeley. The subject site is in a walkable business district, lined on both sides with independent merchants, shops and cafés. Surrounded by many new mixed-use housing developments and within three blocks to stores and restaurants, and Downtown Berkeley. See Site Photographs, Appendix 2.

3.3 Current Use(s) of the Property

At the time of the site reconnaissance, the subject property was used as office space for the Berkeley Public Schools and a massage business on the second floor. The County use code for the subject site is listed as Code 3200 – Store/Office with Apartments/Lofts.

3.4 Structures, Roads, Other Improvements on the Site

The northern part of the subject property was improved with one, approximately 6,232 square foot, two-story combined apartment and office building originally constructed in 1946. The southern have the subject site was improved with a paved parking area and detached five space garage building. There are no roads on the subject site. The public thoroughfares adjoining the subject property are University Avenue on the north and Jefferson Avenue on the west (Appendix 1).

3.5 Current Uses of Adjoining Properties

The current use of the property adjacent and south of the subject site are single family residences located along Jefferson Avenue. Adjacent and east of the subject site is Fox Commons a single-family residence converted into office spaces. The property adjacent and west of the subject site is Classy Nails, a nails salon. The property adjacent and north of the subject site is University Avenue followed by A1 Photo & Video Lab and Handle with Care Packaging Store. See Appendix 2.

4.0 USER PROVIDED INFORMATION

The following sections summarize information that was gathered to address questions regarding Landowner Liability Protection as defined in 40 Code of Federal Regulations (CFR), Section 112. Mr. John Gordon, property owner and user of this Phase I ESA, was provided user interview questions. Information for this section is included under Appendix 5, Interview Documentation and Appendix 3, Historical Research Documentation.

4.1 Environmental Liens or Activity and Use Limitations

Mr. Gordon stated that he did not know of any environmental liens or land use restrictions associated with the subject site.

4.2 Specialized Knowledge

Mr. Gordon stated that he had no specialized acknowledge of the subject site.

4.3 Commonly Known or Reasonably Ascertainable Information

Mr. Gordon stated that he had no knowledge of any information indicating environmental concerns associated with the subject site.

4.3 Obvious Indicators of presence or likely presence of contamination

Mr. Gordon stated he was not aware of any indicators of contamination or the likely presence of contamination.

4.4 Purchase price and Fair Market Value

Mr. Gordon stated that no purchase was involved and therefore the question regarding reflection of fair market value is not applicable.

5.0 RECORDS REVIEW

The purpose of the records review was to obtain and review records that will help identify recognized environmental conditions in connection with the subject property. Some records reviewed pertain not only to the property, but also to properties within an additional approximate minimum search distance to help assess the likelihood of problems from migrating hazardous substances or petroleum products. Unless stated otherwise the approximate minimum search distances used below were as specified in ASTM Standard 1527-13, Section 8.2.1. See Appendix 4 for a complete copy of the records review report and of other records cited in this section.

5.1 Standard Environmental Records

A computerized radius search of State and Federal environmental record databases was performed to investigate sites with known adverse environmental conditions that have the potential to impact the subject property and surrounding vicinity. The search was performed pursuant to ASTM Standard E1527-13 using an electronic database search conducted by Environmental Data Resources Incorporated (EDR). The results of the search, including maps, are presented in *The EDR Radius Map Report with GeoCheck.* See Appendix 4.

In summary, the subject property located at 1652 University Avenue in Berkeley, California was identified in the EDR Historical Cleaners database; the subject property was not identified in any other of the EDR databases searched. The EDR Historical Cleaners database identified "University Clean-O-Mat" at the subject site from 1969 – 1974 (approximately six years); the Type listed in the historical record was identified as "Drycleaning Plants, Except Rugs".

The search of EDR databases for sites surrounding the subject property identified nine cluster of sites within ¼ mile of the subject site. Surrounding sites were identified in the following databases: Federal RCRA generators list, ENVIROSTOR, LUST, CPS-SLIC, Registered storage tanks lists, local lists of landfill/Solid Waste Disposal Sites, Local lists of hazardous waste/contaminated sites, CERS Haz. Waste, Local lists of Registered Storage Tanks, HIST UST, CERS TANKS, CA FID UST, RCRA NonGen/NLR, HIST CORTESE, Notify 65 and, EDR Hist Auto. The Berkeley Screen Print site at 1684 University Ave., was cited as a non-generator that do not presently generate hazardous waste; the sites violation status was cited as 'no violations found'. The Tuneup Masters Site at 1698 University Ave., approximately 0.028 miles (147 feet) east of the subject site, is a LUST site with the status listed as 'completed – case closed as of 3/31/2003'. The Lindberg DF Clothes Pressers and Cleaners site at 1711 University Ave., approximately 0.066 miles (317 feet) NE of the subject site is identified in the EDR Historical Cleaners database for the year 1933. The Queen Cleaners site at 1717 University Ave., approximately 408 feet NE of the subject site is also identified in the EDR historical cleaners' database for the years 1991-1996. The Joell A T Cleaners, Dryers and Pressers site at 1616 University Ave., approximately 270 feet west of the subject site was also identified in the EDR historical cleaners database for the year 1925. The UC Berkeley Unknown Jefferson & Addison site, approximately 182 feet SE of the subject site was listed as a LUST cleanup site with a status of 'completed – case closed as of 7/14/1993'.

Orphan Site Summary: Three LUST Orphan sites were identified during the records search including the UC Berkeley Hearst Mining Building (address unknown Hearst St.), Southern Pacific (address unknown Delaware & Virginia) and CalTrans (address unknown 6th & Grove && Jefferson). See Appendix 4.

5.2 Additional Environmental Record Sources

5.2.1 Geo-Tracker

A review of the State Water Resources Control Board Geo-Tracker database did not identify the subject site; the review identified six sites within 1,000 feet of the subject property. The Tune Up Masters site was identified approximately 200 feet east of the subject site at 1698 University Street (sic) in Berkeley, CA 94703; the LUST Cleanup Site status is listed as "Completed – Case Closed" as of 3/31/2003 for potential soil contaminants of gasoline, motor oil, oil, and hydraulic/lubricating oils. The Mike Auto Service site was identified approximately 215 feet north, northeast of the subject site at 1699 University Avenue; the LUST Cleanup Site Status was listed as "Completed – Case Closed" as of 2/5/1998 for potential groundwater gasoline contamination with analysis of BTEX & TPH Gasoline and Lead; information regarding MTBE sampling was not found. The Unknown Jefferson & Addison was identified approximately 350 feet south of the subject site with no listed address; the status of the LUST site is listed as "Completed – Case Closed" as of 7/14/1993 for Diesel contamination. The Regal site was identified approximately 870 feet east of the subject site at 1801 University Avenue; the status of the site was listed as "Completed – Case Closed" as of 5/21/1996. The 1600 Addison Street site was

identified approximately 473 feet southwest of the subject site at 1600 Addison Street in Berkeley, CA; the status of the site was listed as "Completed – Case Closed" as of 9/27/1996 for gasoline contamination. The Chevron site was identified approximately 800 feet west of the subject site at 1500 University Avenue in Berkeley, California; the site is listed as "Completed – Case Closed" as of 11/30/2004 for gasoline contamination.

5.2.2 Vapor Encroachment Screening

In accordance with ASTM Standard E2600-15, a Tier 1 Vapor Encroachment Screen was conducted on the subject site. Using information collected in this Phase I ESA, minimum search distances to identify areas of concern at and near the subject site were applied as outlined ASTM standard E2600-15. Historical records indicate that the subject site was used as 'University Clean-O-Mat' from 1970 to 1992 (12 years) and as 'University Laundromat' from 1996 to 2000 (4 years). The conclusion from the Tier 1 screening is a Vapor Encroachment Condition does exist at the subject property as historical Fire Department records show that a Vic Model 34 Solvent Still may have been located onsite. Interviews and records review indicated that dry cleaning operations did not occur at the subject site. Over 25 potential areas of concern were identified within a quarter mile of the subject site including, a LUST sites at 1698 and 1699 University Avenue and historical dry cleaners at 1717 and 1616 University Avenue. The conclusion from the Tier 1 screening of off-site properties is a Vapor Encroachment Condition does not exist at the subject property (Appendix 3).

5.2.3 Sanborn Fire Insurance Maps

A Certified Sanborn Map Report for the subject property is included under Appendix 3. Collections searched included the Library of Congress, University Publications of America and EDR's Private Collection. The report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched and fire insurance maps covering the subject property were found for the years: 1903, 1911, 1929, 1950 and 1980. In summary the 1903 Map identified the subject site as a vacant undeveloped lot; the adjacent northern, western and eastern properties were shown as vacant undeveloped lots. The adjacent southern lot shows two, two-story Flats. The 1911 map also shows the subject site and most of the adjacent properties as vacant lots; the two two-story flats are shown adjacent and south of the subject. In general, more dwellings are shown in the surrounding area than in the 1903 map. The 1929 Map shows the subject property as a vacant lot. Two stores and an office are identified adjacent and east of the subject site. A vacant lot is located north and adjacent to the subject site. A boarding building with 110 marking is identified adjacent and west of the subject site. Two Two-Story Flats, a dwelling and two automobile garages are shown adjacent and south of the subject site. The 1950 map shows the subject site as developed with a two-story store and two apparent single-story buildings, an automobile garage and a building with a basement, boiler or occasionally brick. An apparent gas station is located NE of the subject site on the NW corner of University Avenue and McGee Avenue in Berkeley, CA. The 1980 map shows the northern part of the site developed with a two-story store and the southern part of the site with a single-story miscellaneous warehouse building. An apparent gas station is located NE of the subject site on the NW corner of University Avenue and McGee Avenue in Berkeley, CA (Appendix 3).

5.2.4 Historical Aerial Photographs

Historical aerial photographs were reviewed for the following years: 1939, 1946, 1958, 1963, 1968, 1974, 1982, 1993, 1998, 2005, 2009, 2012, and 2016 (Appendix 3). In summary, the 1939 appears to

show the subject site as vacant and undeveloped. The adjacent and surrounding areas appear to be residential dwellings. The 1946 to 2016 photos show the subject site as developed with an apparent structure in the north and an apparent covered parking area in the south. The adjacent and surrounding areas appear to be residential dwellings (Appendix 3).

5.2.5 Historical Topographic Maps

Historical topographic maps were reviewed for the following years: 1895, 1899, 1915, 1947, 1948, 1949, 1959, 1968, 1973, 1980, 1995 and 2012 (Appendix 3). In summary, the historic topographic maps show the subject site and surrounding area as developed urban land (built up area). See Appendix 3.

5.2.6 State of CA DTSC Envirostor

A review of the State of California Envirostor database did not identify the subject site or any sites within 1,000 feet of the subject property. See section 13.

5.2.7 City Directories

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five-year intervals for the years spanning 1920 through 2014. The EDR report compiles information gathered in this review by geocoding the latitude and longitude of subject property identified and gathering information about properties within 660 feet of the target property. A summary of the EDR City Directory Report follows:

TP/ADJ	YEAR	STREET NO	STREET NAME	OCCUPANT NAME
TP	2014	1652	University Ave	DIRECT T V
TP	2014	1652	University Ave	DISH HD NETWORK
TP	2014	1652	University Ave	EXCEED SATELLITE INTERNET SVC
TP	2014	1652	University Ave	HUGHES NET
TP	2014	1652	University Ave	RADIOSHACK CORPORATION
TP	2014	1652	University Ave	VIVINT AUTOMATION HOME SEC
TP	2010	1652	University Ave	RADIOSHACK CORPORATION
TP	2000	1652	UNIVERSITY AVE	UNIVERSITY LAUNDROMAT
TP	1996	1652	UNIVERSITY AVE	UNIVERSITY LAUNDROMAT
TP	1992	1652	UNIVERSITY AVE	UNIVERSITY CLEAN-O-MAT
TP	1986	1652	UNIVERSITY AVE	UNIVERSITY CLEAH O MAT
TP	1980	1652	UNIVERSITY AVE	University Clean O Mat
TP	1970	1652	UNIVERSITY AVE	UNIVERSITY CLEAN-O-MAT BERKELEY
TP	1955	1652	UNIVERSITY AVE	ALEXANDER S MARKET BERKELEY
TP	1955	1652	UNIVERSITY AVE	LEE ROY MOORE & SON BERKELEY
TP	1950	1652	UNIVERSITY AVE	U SAVE MARKET
TP	1950	1652	UNIVERSITY AVE	U SAVE MEAT MARKET

5.2.8 City of Berkeley Fire Prevention Branch

A request to review fire department records for local Station No. 2 related to the subject property was submitted to the City of Berkeley, Fire Prevention Branch on 27 JAN 2020. See Appendix 5.

5.2.9 City of Berkeley, Toxics Management Division

A review of City of Berkeley, Toxic Management Division records identified the subject site as located in an Environmental Management Area (EMA) as identified by the City of Berkeley, Planning & Development Department. The City identifies property owners, within an EMA, as responsible for the

proper management and disposal of contaminated groundwater or soils. A general condition of the EMA is a requirement for a soils and groundwater management plan as required by Toxics Management Division. The City of Berkeley's EMA also applies to Small Projects, greater than 300 feet from a Contaminated Site or Groundwater and Large Projects where dewatering is anticipated. See section 13.0.

5.2.10 Alameda County Department of Environmental Health (ACDEH)

A Certified Unified Program Agency (CUPA) File Review Request to the Alameda County Department of Environmental Health (ACDEH) identified no CUPA Hazmat records for the subject site. See Appendix 5.

5.2.11 Building Department Records

An EDR database review of Building Department records identified seven building permits associated with the subject site including a June 26, 2000 Express Plumbing Permit to repair drain lines by replacing cast iron pipes with cast iron and 19 December 2000 Express Building Permit to 'repair minor damage from fire in dryer, duct. Replace interior receptacle and, repair stucco on exterior of room 1958'. The other building permits included tenant improvements for new ADA and interior places with the last record dated 15 SEP 2003. Building department records also showed a demolition and new building permit at 1627 University Avenue in 1996 and 1997, respectively. See Appendix 5.

5.3 Physical Setting Source(s)

The following USGS 7.5 Minute Topographic Maps, 2012, were reviewed to determine the physical setting of the property: Oakland West, CA and Richmond, CA. The topographic gradient of the subject property is generally west, southwest. The subject property is approximately one hundred thirty-four feet above sea level. The subject site was identified on Flood Plain Panel 06001C0057G in the FEMA FIRM flood database. Federal and State of California wells were identified within a 1.25-mile radius from the subject site; depth to groundwater was reported as 12 to 30 feet below ground surface in a general West, to Southwest direction. The geologic rock stratigraphic unit underlying the subject site is from the Mesozoic Era in the Cretaceous System and Upper Mesozoic Series. The geologic age identification of the subject site is listed in the Eugeosynclinal Deposits category. The subject site soils consist of Tierra (loam) and it is in hydrologic group Class D – very slow infiltration rates. Soils are clayey, have a high-water table, or are shallow to an impervious layer. The soil drainage class is Moderately well drained. The subject site is in Alameda county; the Federal EPA Radon Zone for Alameda County is 2, where 100% of the sites (basement) tested were below 4 pCi/L (Appendix 4).

5.4 Historical Use Information on the Property

The objective of consulting historical sources is to develop a history of the previous uses of the property to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. Using a combination of historical topographic maps, historical aerial photographs, county records and interviews, all uses of the subject property, back to the property's first developed use, were identified. Based on historical topographic maps, county records and aerials photos, from 1903 to circa 1929 the subject property was undeveloped land. From circa 1946 to present the present day the property has been used as a store. In the 1950s it was used as U Save Market and from 1970 to 2000 it was used as University Clean-o-mat and University Laundromat. Various tenants occupied the building from 2010 to 2014 including Radio Shack, Hughes Net, and Dish HD Network.

5.5 Historical Use Information on Adjoining Properties

The objective of consulting historical sources is to develop a history of the previous uses of the surrounding properties to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the subject property. Using a combination of historical topographic maps, historical aerial photographs and city directory records, uses of the adjoining properties were obtained. The past uses of the adjoining properties include residential housing and office/retail buildings.

6.0 SITE RECONNAISSANCE

The purpose of the site reconnaissance is to obtain information indicating the likelihood of identifying recognized environmental conditions in connection with the subject property.

6.1 Methodology and Limiting Conditions

Mr. John Esparza inspected the subject property on 4 February 2020 and was accompanied by Mr. John Gordon, Property Owner. Mr. Esparza started the inspection at approximately 2:15 p.m. and ended his inspection at approximately 3:00 p.m. Two rooms located on the second floor of the building and two detached garage spaces were not accessible at the time of the site inspection. Most interior floors were covered with carpet that prevented direct observation of the flooring system. Mr. Esparza walked along and inspected the periphery of the subject property. To the extent possible, the periphery of the subject property was viewed from all adjacent public thoroughfares University Avenue and Jefferson Street. Mr. Esparza randomly walked across the site moving, in general, from the northern property boundary to the southern boundary. Mr. Esparza also walked along, and noted the uses of, the adjoining properties.

6.2 General Site Setting

6.2.1 Current Use(s) of the Property

At the time of the site reconnaissance, the subject site was used as office space for the City of Berkeley, public schools and a massage business. No uses likely to involve the treatment, storage, disposal or generation of hazardous substances or petroleum products were identified during the site reconnaissance (Appendix 2).

6.2.2 Past Use(s) of the Property

As identified during records review, past uses of the subject property included a meat market/market, University Laundry Mat and retail/office space. Except for two apparent washer and dryer vents and signs of the former boiler (markings on the exterior of the building), no obvious visual or physical indications of past uses were identified during the site reconnaissance (Appendix 3).

6.2.3 Current Use(s) of Adjoining Properties

The current use of the property adjacent and north of the subject site was A-1 Photo. Adjacent and east of the subject site was a residential home converted to office space. The property adjacent and west of the subject site was a retail store and residential housing. The property adjacent and south of the subject site was a residential home. No uses were noted that are likely to indicate recognized environmental conditions (RECs) in connection with the adjoining properties (Appendix 2).

6.2.4 Past Use(s) of Adjoining Properties

Historical records review indicated that the past uses of the properties adjacent to the subject site included vacant land, stores and residential homes. No past uses identified during the records review and to the extent possible, during the site reconnaissance, were identified that would indicate the presence of recognized environmental conditions in connection with the adjoining properties (Appendix 3).

6.2.5 Current or Past Uses in the Surrounding Area

In general, past uses of the area surrounding the subject site included retail businesses and residential homes.

6.2.6 Geologic, Hydrogeologic, Hydrologic, and Topographic Conditions

The general topographic gradient of the subject property and surrounding area was generally flat, slightly sloping to the west, southwest. As stated in Section 5.3, the subject property is approximately one hundred thirty-four feet above sea level. Records review identified numerous federal and state of California wells within a 1.25-mile radius from the subject site; depth to groundwater was reported as 12 to 30 feet below ground surface. The geologic rock stratigraphic unit underlying the subject site is from the Mesozoic Era in the Cretaceous System and Upper Mesozoic Series. The geologic age identification of the subject site is listed in the Eugeosynclinal Deposits category. The subject site soils consist of Tierra (loam) and it is in hydrologic group Class D – very slow infiltration rates (see Appendix 4).

6.2.7 General Description of Structures

At the time of the site reconnaissance, the subject property was improved with one large two-story wood framed stucco building and one single-story storage building; the structures were built circa 1946. The entire site was paved. The condition of the buildings was good.

6.2.8 Roads

The public thoroughfares adjoining the subject property were University Avenue to the north and Jefferson street to the west. There are no paved roads on the subject site (Appendix 2).

6.2.9 Potable Water Supply

Interviews identified the city of Berkeley as the potable water supply source for the subject property (Appendix 5).

6.2.10 Sewage Disposal System

Interviews identified that the sewer system servicing the subject site is operated by the City of Berkeley. Interviews indicated that services were current, and no issues or problems have been reported or observed. Interviews and records review also did not identify any current or past onsite septic systems at the subject site (Appendix 5).

6.3 Interior and Exterior Observations

6.3.1 Hazardous Substances and Petroleum Products in Connection with Identified Uses

Except for minor amounts of paints and janitorial supplies, no Hazardous substances or petroleum products connected with the use of the subject property, as an office building/retail space, were

identified during the site reconnaissance; minor amounts of general janitorial cleaning supplies and equipment were identified during the site reconnaissance in the detached garage building (Appendix 2).

6.3.2 Storage Tanks

Determining the presence of Aboveground Storage Tanks (ASTs) and Underground Storage Tanks (USTs) is considered essential in assessing potential contamination sources. Visual inspection and the review of tank registration records were used to determine the possible existence of past and present storage tanks at, and around, the subject property. The EDR and Alameda County records review did not identify any ASTs or USTs on the subject site. Interviews did not identify the presence or use of USTs at the subject property. The site reconnaissance did not identify any indicators of USTs or ASTs; one apparent subsurface pipe was in the NW parking lot area whose use was unknown (Appendix 3).

6.3.3 Odors

No strong, pungent or noxious odors were encountered during the site reconnaissance at 1652 University Avenue in Berkeley, California.

6.3.4 Pools of Liquid

During the site reconnaissance, no pools of liquid were observed. No sheens or other obvious signs of a release of any hazardous substance or petroleum products were observed.

6.3.5 Drums

No drums were observed during the site reconnaissance (Appendix 2).

6.3.6 Hazardous Substances and Petroleum Products Containers not in connection with Identified Uses

No hazardous substances or petroleum products containers, not in connection with identified uses as an office/retail building were encountered during the site reconnaissance (Appendix 2).

6.3.7 Unidentified Substance Containers

No unidentified substances were visually or physically observed on the subject site during the site reconnaissance (Appendix 2).

6.3.8 PCBs

No pole mounted electrical transformer were observed on the subject site. No other electrical or hydraulic equipment known to contain PCBs or likely to contain PCBs was observed on the subject property (Appendix 2).

6.4 Interior Observations

6.4.1 Heating/Cooling

No indicators of the use of heating oil as a fuel source were observed during the site reconnaissance or identified from records review. Natural Gas appeared to power the building as evident by several gas meters located in the street in front of the subject building.

6.4.2 Stains or Corrosion

No stains or significant signs of corrosion of floors, walls, or ceilings were visually and/or physically observed during the site reconnaissance (Appendix 2).

6.4.3 Drains and Sumps

No floor drains were observed during the site reconnaissance in the office/retail building or the detached garage building. One apparent floor access point was observed inside the NW corner of the office/retail space building; the purpose of the access point was unknown and resembled a potential floor safe access point. Historical fire department records show a solvent still in this area too. The access point was inspected and no obvious indicators of a current or past release were observed.

6.5 Exterior Observations

6.5.1 Pits, Ponds, or Lagoons

No pits, ponds or lagoons were observed during the site reconnaissance.

6.5.2 Stained Soil or Pavement

No areas of stained soil or pavement were observed on the subject property. Also, interviews or records did not identify the presence of stained soil or pavement (Appendix 5).

6.5.3 Stressed Vegetation

No areas of stressed vegetation were visually or physically observed on the subject property (Appendix 2).

6.5.4 Solid Waste

No depressions that may be filled or graded by non-natural causes or filled with fill of unknown origin, suggesting trash, construction debris, demolition debris or other solid was disposal, were observed on the subject property or noted during the records review or interviews (Appendix 2).

6.5.5 Wastewater

No active discharge of wastewater or other liquid was observed during the site reconnaissance. No active discharges into a drain, ditch, underground injection system or stream on or adjacent to the subject property was observed during the site reconnaissance. No sheens or strong odors were encountered during the site visit (Appendix 2).

6.5.6 Wells

The site reconnaissance did not identify any wells. Records review and interviews did identify several well permits within a two-mile radius from the subject site (Appendix 4).

6.5.7 Septic Systems

Records review did not identify any records of a septic system on the subject site. Interviews and site reconnaissance did not identify a septic system onsite (Appendix 4).

7.0 INTERVIEWS

The purpose of interview is to obtain information indicating recognized environmental conditions in connection with the property. Copies of the interview documentation can be found in Appendix 5.

7.1 Interviews with Past and Present Owners and Occupants

7.1.1 Current Property Occupant (Mr. John Gordon)

Mr. Gordon stated he has been owner of the property since circa 1997 and that he has had three re-finance loans to date. He stated a previous Phase I ESA was completed, approximately five years ago, and it had no major findings. He stated he could not locate a copy of the previous Phase I ESA. When shown the apparent floor access point in the interior of the building, Mr. Gordon stated he did not know the purpose of the feature and mentioned a possible floor safe. Mr. Gordon stated he was not aware of any environmental liens that are filed or recorded against the property. Mr. Gordon also stated there were no activity and use limitations that are in place on the property or that have been recorded against the property. Mr. Gordon stated he had no specialized knowledge of the property. Mr. Gordon stated that the question regarding purchase price and relationship to fair market value was not applicable as the property is not undergoing a sale. He stated the Phase I ESA was required as part of the property development process. Mr. Gordon indicated that past uses of the property included a coin operated laundromat and office spaces. He stated that Dry Cleaning activities did not occur as part of the laundromat services. He had no knowledge of chemical present or that were once present on the site. Mr. Gordon stated he did not know of any spills or other chemical releases that have taken place on the subject site. He also stated he did not know of any environmental cleanups that have taken place at the subject site. Mr. Gordon stated there were no obvious indicators that point to the presence or likely presence of releases at the subject site. Mr. Gordon stated that to his knowledge, there have been no USTs or ASTs located on the subject site. He stated he was aware of two incidents where the local fire department responded to the subject site regarding fires in the dryer vents. Mr. Gordon indicated that the boiler that was once located in the southeast part of the building was powered by natural gas and supplied hot water to the washer machines. He stated that the laundromat was a typical arrangement with washer and dryers for self- service use (Appendix 5).

7.2 Interviews with State and/or Local Government Officials

7.2.1 City of Berkeley Fire Prevention

On 11 February 2020 Mr. Scott McKinney, Professionals Standards Captain, Berkeley Fire Department responded to our written request for records associated with the subject site and provided copies of records his agency maintained. See Appendix 5. In summary, the fire department records showed that a Fire occurred at a Laundromat at 1652 University Avenue on 14 December 2000 and on 5 May 1991; the fires appear to have originated in and contained in the dryer ducts. A 11/19/1980 Field Incident Report also identified a fire in the laundry area on the first floor associated with a bulletin board. A record dated 10/26/1962 stated that the installation of automatic dry-cleaning equipment (coin op) was to be installed within a month. A letter dated 20 April 1965 to Mr. Irving F. Ford, University Clean-O-Mat at 1652 University Avenue in Berkeley, CA was a permit for Machinery Rearrangement in a clothes cleaning establishment at 1652 University Avenue. The letter stated that enclosed plan approved on 19 April 1965 should be submitted to the building authority. The note stated that prior to the operation of a NEW dry-cleaning plant a license is required by the State Board of Dry Cleaners. The letter further stated that a Certificate of Completion is contingent upon satisfactory compliance of several actions and that the permit shall cover the installation of a Vic Model 34 solvent still (synthetic dry-cleaning solvent). Note: a figure associated with the permit contains a site figure showing the location of the Vic Model 34 Solvent Still located in the NE corner of the building.

8.0 FINDINGS

- Records review and historical research indicate that the past uses of the subject property included meat market, market, laundry mat, and office/retail space.
- Records review and the site reconnaissance indicate the subject property is currently in use by the Berkeley Public Schools as general office space.
- Records review and the site reconnaissance indicate the past uses of the properties adjacent to the subject site included a store and residential housing. No past uses identified during the records review and to the extent possible, during the site reconnaissance, were identified that would indicate the potential presence of recognized environmental conditions in connection with the adjoining properties.
- The subject property located at 1652 University Avenue in Berkeley, California was identified in the EDR Historical Cleaners database; the subject property was not identified in any other of the EDR databases searched. The EDR Historical Cleaners database identified "University Clean-O-Mat" at the subject site from 1969 – 1974 (approximately six years).
- A review of Alameda County records did not identify any USTs or ASTs on the subject site. The site reconnaissance did not identify any USTs or ASTs located on the subject site.
- A review of the State Water Resources Control Board Geo-Tracker database did not identify the subject site. The search of EDR databases for sites surrounding the subject property identified nine cluster of sites within ¼ mile of the subject site; all sites were listed a 'completed – case closed'.
- A Vapor Encroachment Tier 1 Screen of areas of potential concern near the subject site indicated that a Vapor Encroachment Condition (VEC) does exist at the subject site due to the potential historical presence of a 'Vic Model 34 solvent still'.
- A review of City of Berkeley, Toxic Management Division records identified the subject site as located in an Environmental Management Area (EMA) as identified by the City of Berkeley, Planning & Development Department.
    - The City identifies property owners, within an EMA, as responsible for the proper management and disposal of contaminated groundwater or soils.
        - A general condition of the EMA is a requirement for a soils and groundwater management plan as required by Toxics Management Division.
            - The City of Berkeley's EMA also applies to Small Projects, greater than 300 feet from a Contaminated Site or Groundwater and Large Projects where dewatering is anticipated. See section 13.0.
- No sheens or unusual or strong odors were encountered at or around the subject site.
- No active discharge of wastewater or other liquid was observed during the site reconnaissance.
- No active discharges of wastewater into a drain, ditch, underground injection system or stream on or adjacent to the subject property was observed during the site reconnaissance.
- The records review indicated the subject property is in US EPA Radon Zone 2.
- The results of this assessment have revealed a recognized environmental condition associated with subject property due to its location in an Environmental Management Area (EMA).

9.0 OPINION

It is the professional opinion of the environmental professional (EP) that the conditions identified in the findings section of this report cannot be fully assessed based on the data discovered and available under this Phase I ESA. There were no data gaps that significantly affected the EP's ability to identify recognized environmental conditions associated with the subject property.

10.0 CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of the property located at 1652 University Avenue in Berkeley, California. Any exceptions to, or deletions from, this practice are described in Section 11 of this report. This assessment has revealed evidence of a recognized environmental conditions in connection with the subject property due to its location in an Environmental Management Area (EMA).

11.0 DEVIATIONS

Except for the limitations and exceptions discussed in Section 2.4, this Phase I ESA complies with the ASTM Standard 1527-13.

12.0 ADDITIONAL SERVICES

No additional services beyond the scope of the ASTM Standard 1527-13 were conducted as part of this assessment.

13.0 REFERENCES

The following documents, maps, or other publications may have been used in the preparation of this report.

- American Society for Testing and Materials Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E1527-13).
- Environmental Data Resources, Inc. 2020. The EDR Radius Map Report with GeoCheck, Inquiry, 2020.
- Environmental Data Resources, Inc. 2020. Certified Sanborn Map Report, 2020.
- Environmental Data Resources, Inc. 20209. Aerial Photograph Decade Package Map Report, 2020.
- Geotracker: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=1652+Univeristy+Ave+berkeley+ca
- American Society for Testing and Materials Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions (ASTM E2600-15).
- Department of Toxic Substances Control, Envirostor https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=1652+university+ave+berkeley
- USGS Historical Topographic Map Explorer, http://historicalmaps.arcgis.com/usgs/

- City of Berkeley, Toxics Management Division, Environmental Management Area
  https://www.cityofberkeley.info/Planning_and_Development/Toxics_Management/Environmental_Management_Area.aspx

14.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312.

I 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 have developed and performed the all-appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Date: ____14 FEB 2020_____

Signature:

X John Esparza

John Esparza
REPA

15.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Mr. John Richard Esparza is a Registered Environmental Property Assessor (REPA No. 263280). He is qualified and registered as a REPA by the National Registry of Environmental Professionals. The qualifications of Mr. Esparza who conducted the site reconnaissance and interviews are provided in Appendix 7.

FARALLON CONSULTING

Washington
Issaquah | Bellingham | Seattle
Oregon
Portland | Baker City
California
Oakland | Folsom | Irvine

September 21, 2020

Mr. John Gordon
Gordon Commercial Properties, LLC
2091 Rose Street, Suite C
Berkeley, California 94709

RE: VAPOR INTRUSION INVESTIGATION
1652 UNIVERSITY AVENUE
BERKELEY, CALIFORNIA
FARALLON PN: 2485-001

Dear Mr. Gordon:

Farallon Consulting, L.L.C. (Farallon) has prepared this letter report for Gordon Commercial Properties, LLC (Gordon) to present the findings of the vapor intrusion investigation conducted at the property at 1652 University Avenue in Berkeley, California (herein referred to as the Site) (Figure 1). Farallon was retained to conduct subslab vapor, soil gas, and indoor air sampling in support of future development of the Site and in accordance with the letter regarding proposal for Vapor Intrusion Investigation dated July 31, 2020 from Messrs. Henry Pietropaoli and Richard Makdisi of Farallon to Mr. Gordon. This letter report includes a brief description of the Site and project background, pre-field work elements, a summary of the sampling activities and analytical results, and conclusions and recommendations.

BACKGROUND

The Site consists of Alameda County Parcel No. 56-2004-20, which is approximately 7,500 square feet, southeast of the intersection of University Avenue and Jefferson Avenue, and associated with the addresses 1652 through 1658 University Avenue. The Site improvements consist of a two-story 6,232-square-foot mixed-use retail and apartment building constructed in 1946 on the northern portion of the Site, and a paved parking area and a detached parking structure on the southern portion of the Site. Currently, the Site is owned by Gordon; prior to COVID-19, the first-floor tenant space was used as office space for the Berkeley Unified School District and the second floor was occupied by a massage business. The ground-floor tenant space was formerly used as a Radio Shack retail store. Farallon understands that Gordon has proposed plans to develop the southern portion of the Site as a two-story condominium building with ground-floor parking underneath.

Based on City of Berkeley Toxic Management Division records and the *Phase 1 – Environmental Site Assessment, 1652 University Avenue, Berkeley, CA 94703* dated January 17, 2020 prepared for the Site by CAL INC Training, LLC (2020 Phase I ESA), the Site's location in an Environmental Management Area (EMA), as identified by the City of Berkeley Planning & Development Department, is a recognized environmental condition in connection with the Site. In addition, historical records indicate that the Site was used as a laundromat that contained a dry-cleaning machine. According to the 2020 Phase I ESA, "a record dated 10/26/1962 stated that the

installation of automatic dry-cleaning equipment (coin op) was to be installed within a month. A letter dated 20 April 1965 to Mr. Irving F. Ford, University Clean-O-Mat at 1652 University Avenue in Berkeley, CA was a permit for Machinery Rearrangement in a clothes cleaning establishment at 1652 University Avenue." A record indicated the Site was occupied by University Laundromat from 1996 to 2000. CAL INC Training, LLC conducted a Tier 1 Vapor Encroachment Screening at the Site and concluded that a vapor encroachment condition exists on the Site based on historical Berkeley Fire Department records, which indicated that a Vic Model 34 Solvent Still was potentially installed on the Site and may have been present on the Site.

The objectives of Farallon's vapor intrusion investigation were to collect sufficient information to determine whether vapor intrusion is occurring in the ground-floor tenant space of the Site and to collect a soil gas sample in the footprint of the parking area where the new condominium building is planned to be developed.

Figure 1 is a Site location map. Figure 2 shows the site plan and locations of the investigation soil gas, subslab vapor, and indoor air samples.

REGULATORY CONSIDERATIONS

The San Francisco Regional Water Quality Control Board (Water Board) has established Environmental Screening Levels (ESLs) for evaluating the likelihood of environmental impact. ESLs are conservative screening-level criteria for soil, soil gas, and groundwater designed to be generally protective of both drinking water resources and aquatic environments and incorporating both environmental and human health risk considerations. ESLs are not cleanup criteria (i.e., health-based numerical values or disposal-based values). Rather, ESLs are used as a preliminary guide in determining whether additional remediation and/or investigation may be warranted.

The most recent ESLs published by the Water Board are dated August 2019. The relevant ESLs pertaining to this investigation include the following for tetrachloroethene (PCE), which is the contaminant of concern for the Site:

- The commercial and residential subslab vapor and soil gas ESLs of 100 micrograms per cubic meter ($\mu g/m^3$) and 16 $\mu g/m^3$, respectively, for potential risk of vapor intrusion; and
- The commercial and residential ESLs of 3.0 and 0.48 $\mu g/m^3$ for potential vapor intrusion risk in indoor air.

Different ESLs are published for commercial and industrial versus residential land use; for sites where groundwater is a potential drinking water resource versus for sites where groundwater is not likely to be used as a potential drinking water resource; and for the type of receiving water body. Historical and current land use classification of the Site is currently designated as commercial. However, adjacent land use is both commercial and residential. The likelihood of impacts to groundwater for properties in the vicinity of the Site where groundwater is a potential drinking water resource appears to be negligible.

Farallon concludes that the appropriate ESL criteria for the Site are residential land use and sites where groundwater is not likely to be used as a potential drinking water resource, based on the following:

- The Site is zoned for mixed-use residential and light commercial, with some adjacent properties developed with residences.
- Groundwater is a potential drinking water resource based on the location of the Site within the California Department of Water Resources-designated East Bay Plain Groundwater Subbasin. However, this area of Berkeley is designated as "Zone B," where groundwater is unlikely to be used as a drinking water resource.
- The receiving bodies for groundwater discharge are estuaries consisting of the Aquatic Park lagoon and San Francisco Bay.

As stated above, ESLs are used as a preliminary guide in determining whether additional investigation, remediation, or other action is warranted. ESL exceedances may warrant additional actions such as monitoring plume stability to demonstrate lack of risk to sensitive receptors in the case of sites where drinking water is not threatened.

The Site is not currently under regulatory orders; however, the EMA status of the Site location indicates the City of Berkeley will eventually require preparation of a soil and groundwater management plan for the Site before construction takes place.

PRE-FIELD WORK ELEMENTS

Pre-field work elements included the following:

- Farallon reviewed a site plan showing the extent of the planned redevelopment that was provided by Mr. Oliver Johnson of Gordon;
- A drilling permit was not required by the City of Berkeley because a hand-driven soil gas sampling device was used that did not retrieve soil core to the surface;
- Farallon prepared a Site-specific Health and Safety Plan for use by Farallon personnel to reflect the drilling activity;
- Farallon obtained Summa canisters and other equipment from the analytical laboratory needed to collect the subslab vapor, soil gas, and indoor air samples;
- A site visit was performed to mark the boring locations in white paint and Underground Service Alert (USA) was notified of utility clearance, as required for subsurface work (USA Ticket No. X022403487); and
- Farallon contracted Geotech Locating of Moraga, California, a private subsurface utility locator, to provide on-Site utility clearance.

SAMPLING ACTIVITIES

Soil gas and subslab vapor Vapor Pin sampling was conducted by Farallon geologists, Mr. Henry Pietropaoli and Ms. Steffany Loeb, on August 19, 2020. The 8-hour indoor air sampling event was conducted on August 20, 2020.

The sampling locations are shown on Figure 2. Photograph documentation of field activities is provided in Attachment A.

Sampling Location Rationale

There is no contamination source known in the Site development footprint and no identified source of immediate off-Site contamination that could impact the Site; therefore, the sampling and analytical scheme required no particular bias. Sampling consisted of the following:

- Installing three additional Vapor Pins for collecting subslab vapor samples in the ground-floor tenant space. One of the three Vapor Pins was advanced in the area where the Vic Model 34 Solvent Still was inferred to have been present.
- Collecting two indoor air samples in the ground-floor tenant space and one outdoor air (ambient control) sample.
- Advancing one boring by hand auger in the parking area to a depth of 5 feet below ground surface and installing a soil gas probe to collect one soil gas sample after the requisite equilibration period.

Chemical Inventory

The Site building was vacant on the day of the vapor intrusion investigation. No chemical products or signs of staining or spills in the Site building or on the surface of the parking area were observed.

Soil Gas Sampling

Soil gas sampling was conducted following the procedures and protocols established by the California Department of Toxic Substances Control (DTSC) *Advisory—Active Soil Gas Investigations* dated July 2015 (DTSC Guidance). The soil gas sample was collected after a minimum 2-hour equilibration period following installation of the three Vapor Pins and the temporary soil gas probe. There had been no significant rainfall (equal to or greater than 0.5 inch during a 24-hour period) within 5 days prior to soil gas sampling.

Soil gas boring FSG-1 was advanced using a hand-driven slide-hammer soil gas sampling device equipped with a retractable soil gas probe for minimal subsurface disruption to a depth of 5 feet below ground surface (bgs). The probe was connected to a 0.177-inch-diameter Teflon tubing, which was inserted through the hollow 0.5-inch-diameter drive rod. The soil gas probe was pounded to the target depth of approximately 5.0 to 5.25 feet bgs and then retracted approximately 3 inches to expose the filter screen through which soil gas was collected. Hydrated bentonite was used to seal the interface of the outside of the drive rod and the ground surface to minimize potential infiltration of ambient air.

The soil gas probe was left in-place for a minimum of 2 hours, per DTSC Guidance, to allow the bentonite to sufficiently hydrate and seal and to allow the subsurface conditions to equilibrate. Prior to the collection of the soil gas sample, an initial vacuum reading of the sampling Summa canister was recorded using a laboratory-provided vacuum gauge. The sampling apparatus was then connected to the tubing extending from the boring to the probe in the ground. The sampling apparatus consists of a stainless steel manifold equipped with a flow regulator with an internal particulate filter calibrated by the laboratory to 150 milliliters (ml) per minute (ml/min). A "T" fitting stopcock valve was connected to the flow regulator with stainless steel tubing; one tube led to a Summa canister dedicated to purging the void space and a second tube led to a Summa canister dedicated to sampling.

A shut-in test was conducted on the sampling train apparatus to check for leaks in the aboveground fittings for each sampling depth location. A shut-in test was conducted by using an in-line vacuum gauge to evacuate the sampling train to a measured vacuum of approximately 100 inches of water, then shutting the vacuum in with a closed valve. The vacuum gauge was observed for approximately 1 minute and all aboveground connections were considered "airtight" (i.e., the pressure on the gauge did not noticeably dissipate).

Prior to collecting each soil gas sample, the soil gas probe and tubing was then purged of 3 purge volumes (PV), per DTSC Guidance. The hand-driven soil gas sampling tool in the 5-foot probes has no borehole or sand pack, only approximately 3 inches of 0.5-inch-diameter void space in the 3-inch-long probe; therefore, 1 PV was calculated to equal 34 ml and 3 PVs was calculated to equal 102 ml.

After purging 3 PVs from the probe, the sample was collected into a Summa canister, allowing the vacuum within the canister to draw the soil gas through the assembly at the maximum rate governed by the flow controller (150 ml/min). The canister was not allowed to fill completely, thus leaving a small vacuum (approximately 5 inches of mercury). Following sampling, a final vacuum was recorded on the Chain of Custody form.

The leak check tracer, 1,1-difluoroethane (DFA), was used to test for ambient air leaks around the sampling train fittings and at the soil gas probe rod interface with the ground surface. DFA was included for analysis with the collected samples, because its presence would indicate the intrusion of atmospheric air.

Sample Handling

One soil gas sample was collected in a 1-liter Summa canister provided by the analytical laboratory. The Summa canister was maintained at ambient temperature and kept out of direct sunlight during handling and transport to the analytical laboratory under standard chain-of-custody protocols.

Subslab Vapor Sampling

Subslab vapor sampling was conducted following the procedures and protocols established by the DTSC Guidance. There had been no significant rainfall (equal to or greater than 0.5 inch during a 24-hour period) within 5 days prior to subslab vapor sampling.

Subslab vapor was collected at sampling locations FVP-1, FVP-2, and FVP-3 in the Site building using a Vapor Pin assembly. The concrete floor was cored using a rotohammer drill equipped with a 1.5-inch drill bit to a depth of 1.75 inches; cuttings were removed from the hole; and a Vapor Pin drilling guide was set into the hole. A 5/8-inch-diameter hole was then drilled through the drilling guide and bottom of the concrete floor. The drilling guide was removed, cuttings were removed from the hole, and the Vapor Pin was set into the hole and hammered down to create a seal against the sides of the concrete hole using the flexible tubing around the sample inlet.

After allowing a minimum of 2 hours for the equilibration of subsurface vapors, a shut-in test was conducted on the sampling train apparatus to check for leaks in the aboveground fittings for each sampling location. A shut-in test was conducted using an in-line vacuum gauge to evacuate the sampling train to a measured vacuum of approximately 100 inches of water, then shutting the vacuum in with a closed valve. The vacuum gauge was observed for approximately 1 minute and all aboveground connections were considered airtight.

Prior to collecting each subslab soil vapor sample and after purging 3 PVs from each Vapor Pin, the sampling train was connected to the Vapor Pin and again purged of 3 PVs, per DTSC Guidance. Samples were collected into 1-liter Summa canisters, allowing the vacuum within the canister to draw the subsurface gas through the assembly at the maximum rate governed by the flow controller (150 ml/min). For this sampling, 1 PV was calculated to equal 16 ml and 3 PVs was calculated to equal 48 ml. The canister was not allowed to fill completely, thus leaving a small vacuum (approximately 5 inches of mercury) inside the canister. Following sampling, a final vacuum was recorded on the Chain of Custody form.

The leak check tracer, DFA, was used to test for ambient air leaks around the sampling train fittings and at the Vapor Pin interface with the concrete slab surface. DFA was included for analysis with the collected samples, because its presence would indicate the intrusion of atmospheric air.

Sample Handling

One subslab vapor sample was collected from each sampling location in 1-liter Summa canisters provided by the analytical laboratory. The Summa canisters were maintained at ambient temperature and kept out of direct sunlight during handling and transport to the analytical laboratory under standard chain-of-custody protocols.

Indoor Air Sampling

The indoor air sampling was conducted to evaluate the presence of volatile organic compounds (VOCs) by U.S. Environmental Protection Agency Method TO-15 in general accordance with the DTSC *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)* dated October 2011 (DTSC VI Guidance), and entailed 8-hour air

sampling. DTSC VI Guidance advises conducting sampling when environmental conditions show temperatures between 0 and 40 degrees Celsius (32 to 104 degrees Fahrenheit); when relative humidity is less than 90 percent; when wind is less than 20 miles per hour; and when there are no observable dust or particulate conditions.

The Site building was vacant with no functional heating, ventilating, and air-conditioning system; all entrances and windows were shut during the test day. Weather conditions recorded during the sampling day were as follows: temperature ranged from 65 to 71 degrees Fahrenheit; relative humidity equaled 60 to 67 percent; average wind speed and direction was 5.0 miles per hour from the west; and air quality was moderate due to wildfires in California.

Farallon collected three air samples: two at indoor air sampling locations IA-1 and IA-2 and one at outdoor air sampling location OA-1. The indoor air samples were collected approximately 4 feet above the floor. Indoor air sampling location IA-1 was placed in the northwestern portion of the ground-floor tenant space where ducting vents had been plugged; indoor air sampling location IA-2 was placed in the southwestern corner of the ground-floor tenant space, in a back room, where the solvent recycler was suspected to have been present and where two large vents were present. Outdoor ambient air sample OA-1 was collected approximately 10 feet above the ground surface, on top of the fence along the south-central boundary of the Site.

Sample Collection

Farallon personnel set up the test apparatus on August 20, 2020 at approximately 8:30 a.m. and returned the same day, at approximately 4:30 p.m., to disassemble the equipment after the 8-hour run time.

Sample Collection Apparatus

Air samples were collected in 6-liter stainless steel passivated Summa canisters equipped with a regulator and flow controller specifically calibrated by the laboratory to 11.8 ml/min for collecting indoor and outdoor air samples over an 8-hour period. To ensure the laboratory reporting limits were less than ESLs, each 6-liter canister was individually certified clean for the target compounds: each laboratory-supplied canister was cleaned using a combination of dilution, heat, and high vacuum, then sampled and analyzed for the project-specific contaminants of concern.

Sample Handling

Following the collection of the air samples, the Summa canisters were maintained at ambient temperature and kept out of direct sunlight during handling and transport to the analytical laboratory under standard chain-of-custody protocols.

SAMPLE ANALYTICAL METHODS

The samples collected during this investigation were analyzed as follows:

- Subslab vapor, soil gas, and indoor air samples were analyzed for VOCs by U.S. Environmental Protection Agency Method TO-15. Subslab vapor samples and the 5-foot-deep soil gas sample were additionally analyzed for the specific leak compound, DFA; and
- Subslab vapor and soil gas samples were analyzed for fixed gases, including oxygen, nitrogen, and carbon dioxide, by ASTM International Method 1946-90.

Samples were transported by courier under standard chain-of-custody protocols to Torrent Laboratory, Inc. of Milpitas, California, a California Department of Health Services Environmental Laboratory Accreditation Program-certified laboratory.

ANALYTICAL RESULTS

The following is a summary of the analytical results of samples collected from the Site, discussed in the context of the Water Board residential and commercial ESLs. The distribution of contaminants exceeding Water Board ESLs is included on Figure 2. Tables 1 through 3 summarize the analytical results of compounds detected in subslab vapor, soil gas, and air samples analyzed during the investigation. The certified analytical laboratory reports and Chain of Custody forms are provided in Attachment B.

Soil Gas Analytical Results

PCE was detected at a concentration of 23 µg/m^3 in soil gas sample FSG-1, which exceeds the residential ESL of 15 µg/m^3. Benzene was detected at a concentration of 5.2 µg/m^3 in soil gas sample FSG-1, which exceeds the residential ESL of 3.2 µg/m^3. Low concentrations of 2-butanone (methyl ethyl ketone), acetone, carbon disulfide, chloroform, cis-1,2-dichloroethene, ethylbenzene, naphthalene, toluene, trichloroethene (TCE), m,p-Xylene, and o-Xylene were detected in soil gas sample FSG-1, none of which exceeded residential ESLs.

Field Quality Control

The leak check compound, DFA, was detected at a concentration of 62,000 µg/m^3 in soil gas sample FSG-1, indicating significant leakage of ambient air into the sampling apparatus per DTSC VI Guidance (i.e., greater than 10 times the reporting limit of PCE, the contaminant of concern).

Subslab Vapor Analytical Results

PCE was detected in all three subslab vapor samples, ranging from concentrations of 690 µg/m^3 at sampling location FVP-1 to 27,000 µg/m^3 at sampling location FVP-2, both of which exceed the residential ESL of 15 µg/m^3 and the commercial ESL of 67 µg/m^3. Low concentrations of acetone and carbon disulfide were detected in the subslab vapor samples, but neither concentration exceeded residential ESLs.

Fixed gases, including oxygen and carbon dioxide, were detected at concentrations indicative of subsurface contamination. Oxygen was measured at a range of 12 percent to 16 percent, indicating potential active biodegradation. Carbon dioxide ranged from 2.2 percent to 3.2 percent in the subslab vapor samples, possibly indicating a low level of biodegradation.

Field Quality Control

The leak check compound, DFA, was detected at concentrations of 150 and 3,100 µg/m^3 in soil vapor samples collected at sampling locations FVP-1 and FVP-3, respectively, as mentioned above.

Indoor Air Analytical Results

PCE was detected in both indoor air samples IA-1and IA-2 at concentrations of 8.20 µg/m^3 and 6.41 µg/m^3, respectively, which exceed both the residential ESL of 0.046 µg/m^3 and the commercial ESL of 2.0 µg/m^3 .Vinyl chloride was detected in indoor air sample IA-1 at 0.0563 µg/m^3, which exceeds both the residential ESL of 0.0095 µg/m^3 and the commercial ESL of 0.16 µg/m^3. Chloroform was detected in indoor air samples IA-1and IA-2 at concentrations of 0.145 µg/m^3 and 0.145 µg/m^3, respectively, which exceed the residential ESL of 0.12 µg/m^3.

1,1,2,2-tetrachloroethane was detected in indoor air sample IA-1 at a concentration of 0.438 µg/m^3, which exceeds both the residential ESL of 0.048 µg/m^3 and the commercial ESL of 0.21 µg/m^3. However, it is notable that 1,1,2,2-tetrachloroethane was detected at a concentration of 0.448 µg/m^3 in outdoor air sample OA-1, which is higher than the ESLs. Benzene was detected in both indoor air samples IA-1 and IA-2 at concentrations of 0.709 µg/m^3 and 0.709 µg/m^3, which exceed both the residential ESL of 0.097 µg/m^3 and the commercial ESL of 0.42 µg/m^3. However, it is notable that benzene was detected at a concentration of 0.514 µg/m^3 in outdoor air sample OA-1, which is higher than the residential ESLs. Naphthalene was detected at concentrations of 1.02 µg/m^3 and 0.634 µg/m^3 in both indoor air samples IA-1 and IA-2, respectively, which exceed both the residential ESL of 0.083 µg/m^3 and the commercial ESL of 0.36 µg/m^3. However, it is notable that naphthalene was detected at a concentration of 0.294 µg/m^3 in outdoor air sample OA-1, which is higher than the residential ESL. The elevated concentrations of analytes in outdoor air samples may be attributed to active commercial and industrial facilities in the Site neighborhood.

Low concentrations of 1,1,2-trichloroethane, 1,1-dichloroethene, 1,2,4-trichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, 1,4-dioxane, 2-butanone (methyl ethyl ketone), 4-methyl-2-pentanone, acetone, acetone, carbon tetrachloride, chlorobenzene, chloromethane, dichlorodifluoromethane, ethylbenzene, methylene chloride, styrene, toluene, TCE, m,p-Xylene, and o-Xylene were detected in both indoor air samples IA-1 and IA-2, none of which exceeded residential ESLs.

Laboratory Quality Control Samples

Laboratory quality control samples were analyzed by the laboratory in accordance with the requirements of each analytical method. All laboratory quality control sample results and sample holding times were within the acceptance limits of the methods.

Laboratory Quality Control Procedures

Internal laboratory quality control procedures, including analysis of method blanks, control spikes, and surrogate spiked samples, are detailed in the laboratory reports in Attachment B.

SOIL GAS TO INDOOR AIR REGULATORY ATTENUATION FACTOR COMPARED TO EMPIRICAL ATTENUATION FACTOR

The Water Board ESLs use a soil gas to indoor air attenuation factor (AF) of 0.01 for commercial land use and 0.03 for residential land use. Benzene and PCE were detected in soil gas and subslab vapor samples at concentrations exceeding residential and industrial/commercial ESLs.

The highest concentration of PCE detected in subslab vapor samples was 27,000 µg/m^3 in sampling location FVP-2. Using the Water Board-recommended residential ESL AF of 0.03 predicts an indoor air result of 810 µg/m^3 of PCE, and using the commercial ESL AF of 0.01 predicts an indoor air result of 270 µg/m^3 of PCE.

The highest concentrations of benzene detected in soil gas samples was 5.2 µg/m^3 at sampling location FSG-1. Using the residential ESL AF of 0.03 predicts an indoor air result of 0.156 µg/m^3 of benzene, and using the commercial ESL AF of 0.01 predicts an indoor air result of 0.052 µg/m^3 of benzene. Benzene is considered ubiquitous in outdoor air in urban areas and was only detected in soil gas sample FSG-1. Additionally, DFA was detected at a significant concentration in soil gas sample FSG-1, indicating this detection may be the result of an ambient air leak.

Site-specific vapor intrusion models, rather than theoretical models, are typically used to evaluate the potential for Site conditions to achieve greater attenuation (smaller AFs) than ESLs provide. Using the indoor air data of indoor air sample IA-1 and the subslab vapor concentration from the highest concentration of PCE in subslab vapor sample FVP-2 (20 feet south of sampling location IA-1), the Site empirical AF is calculated as 8.20 µg/m^3 ÷ 27,000 µg/m^3, which equals 0.0003037. Using the lowest indoor air concentration of PCE in indoor air sample IA-2, the AF is calculated as 6.41 µg/m^3 ÷ 27,000 µg/m^3, which equals 0.0002374 µg/m^3. Both empirical AFs calculated are two orders of magnitude more protective of human health and the environment than the AF of 0.03 provided by the residential ESL.

SUMMARY, CONCLUSIONS, AND RECOMENDATIONS

Farallon conducted this vapor intrusion investigation to assist Gordon with evaluation of potential risk to human health and the environment at the Site due to the potential historical Site usage identified in the 2020 Phase I ESA and the Site's location in an EMA as a recognized environmental condition in connection with the Site.

The Site is located in a mixed commercial and residential area of Berkeley. The Site consists of a two-story building with commercial usage on the northern portion of the Site that is planned to be redeveloped and a concrete parking area and parking structure on the southern portion of the Site that is being considered for residential development as a condominium.

Subslab vapor, soil gas, and indoor air sampling was conducted to investigate the potential presence of residual subsurface contamination and related vapor intrusion associated with the former Site use as a dry cleaning facility.

The analytical data were compared to Water Board ESLs for evaluation of potential health risk to current and future Site users and resulted in the following conclusions and recommendations:

Conclusions

- The analytical results of the subslab vapor, soil gas, and indoor air samples detected the presence of concentrations of subsurface PCE exceeding ESLs, which indicates the likely presence a subsurface residual contaminant source.
- The most significant PCE concentration was detected in the subslab vapor samples collected in the Site building, where the Vic Model 34 Solvent Still dry cleaning machine was formerly present. The highest concentration of PCE, at 27,000 µg/m^3, was detected in sample FVP-2, three orders of magnitude higher than the commercial ESL of 67 µg/m^3 for soil gas.
- Analytical results indicate that vapor intrusion to indoor air is occuring in the Site building, but the indoor air concentration of PCE is less then one order of magnitude higher than the indoor air ESL.
- The empirically derived AF for subslab vapor to indoor air was calculated at 0.0003037; the more conservative ESL AF for residential land use is 0.03.
- Benzene detected at concentrations exceeding the residential ESL in soil gas at soil gas sample FSG-1 likely reflects the introduction of ambient air into the sampling apparatus.
- Chloroform and vinyl chloride were detected in both indoor air samples at concentrations exceeding the residential and commercial ESLs but were not detected in any of the subslab vapor and soil gas samples.
- 1,1,2,2-tetrachloroethane, benzene, and naphthalene were detected in the indoor air samples at concentrations exceeding the residential and commercial ESLs. However, these analytes were detected in the outdoor air sample above the residential and/or commercial ESLs. These outdoor air detections may be attributed to active commercial and industrial facilities in the Site neighborhood.

Recommendations

- This letter report should be provided to the Site owner and submitted to the regulatory agencies, City of Berkeley Toxics Management Division and/or the Water Board, based on the concentrations of PCE detected in the subslab vapor, soil gas, and indoor air samples that suggest an unauthorized release of PCE into the environment. The Site owner should also provide this information to any potential buyer as part of disclosure of Site conditions.
- Based on the conclusions noted above, additional soil gas investigation should be conducted by collecting samples from a depth of 5 feet bgs in the existing Site building footprint to better define the soil gas flux beneath the Site. Additional indoor air monitoring

is recommended to determine variations in the indoor air flux in the Site building to assist in identifying an appropriate mitigation strategy for vapor intrusion.

- Further, grab groundwater sampling should be conducted to investigate potential impact of the former Site use to underlying groundwater and the potential migration of contaminants from off-Site sources to the Site.

The additional investigations are recommended to fully evaluate the type and level of mitigation needed to reduce health risks to future Site users. The specific mitigation strategy for vapor intrusion will need to be based upon Site project design and use. Depending on the findings of future investigation, planned construction of a new residential building may require installation of a vapor barrier or venting system.

CLOSING

On behalf of Gordon, Farallon has prepared and submitted this report in accordance with the *Environmental Consulting Services Agreement 2485* between Farallon and Gordon and currently accepted industry standards. No other warranties, representations, or certifications are made.

Farallon appreciates the opportunity to provide environmental consulting services for this project. Please contact either of the undersigned at (510) 879-6800 if you have questions or need additional information.

Sincerely,

Farallon Consulting, L.L.C.

Henry Pietropaoli, P.G.
Senior Geologist/Project Manager

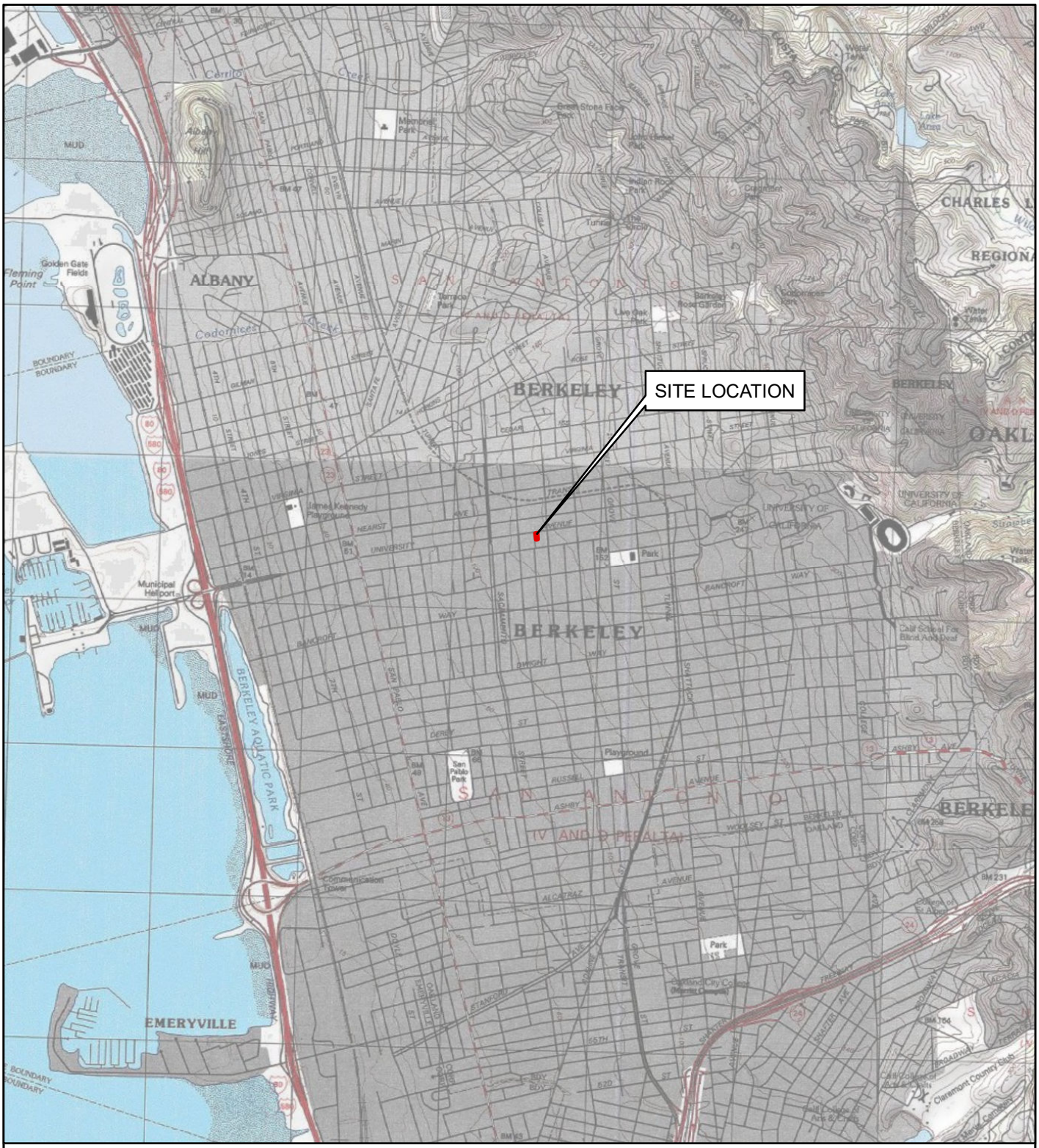
Richard Makdisi, P.G.
Principal Geochemist

Attachments: Figure 1, *Site Location Map*
Figure 2, *Site Plan with Investigation Samples and Analytical Results Exceeding ESLs*
Table 1, *Subslab Vapor and Soil Gas Analytical Results for Volatile Organic Compounds*
Table 2, *Indoor and Outdoor Air Analytical Results for Volatile Organic Compounds*
Table 3, *Soil Gas and Subslab Vapor Analytical Results for Fixed Gases*
Attachment A, Site Photographs
Attachment B, Laboratory Analytical Reports and Chain of Custody Forms

FIGURES

Vapor Intrusion Investigation
1652 University Avenue
Berkeley, California

Farallon PN: 2485-001



REFERENCE: 7.5 MINUTE USGS QUADRANGLE OAKLAND WEST, CALIFORNIA, DATED 2013

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FIGURE 1

SITE VICINITY MAP
1652 UNIVERSITY STREET
BERKELEY, CALIFORNIA

FARALLON PN: 2485-001

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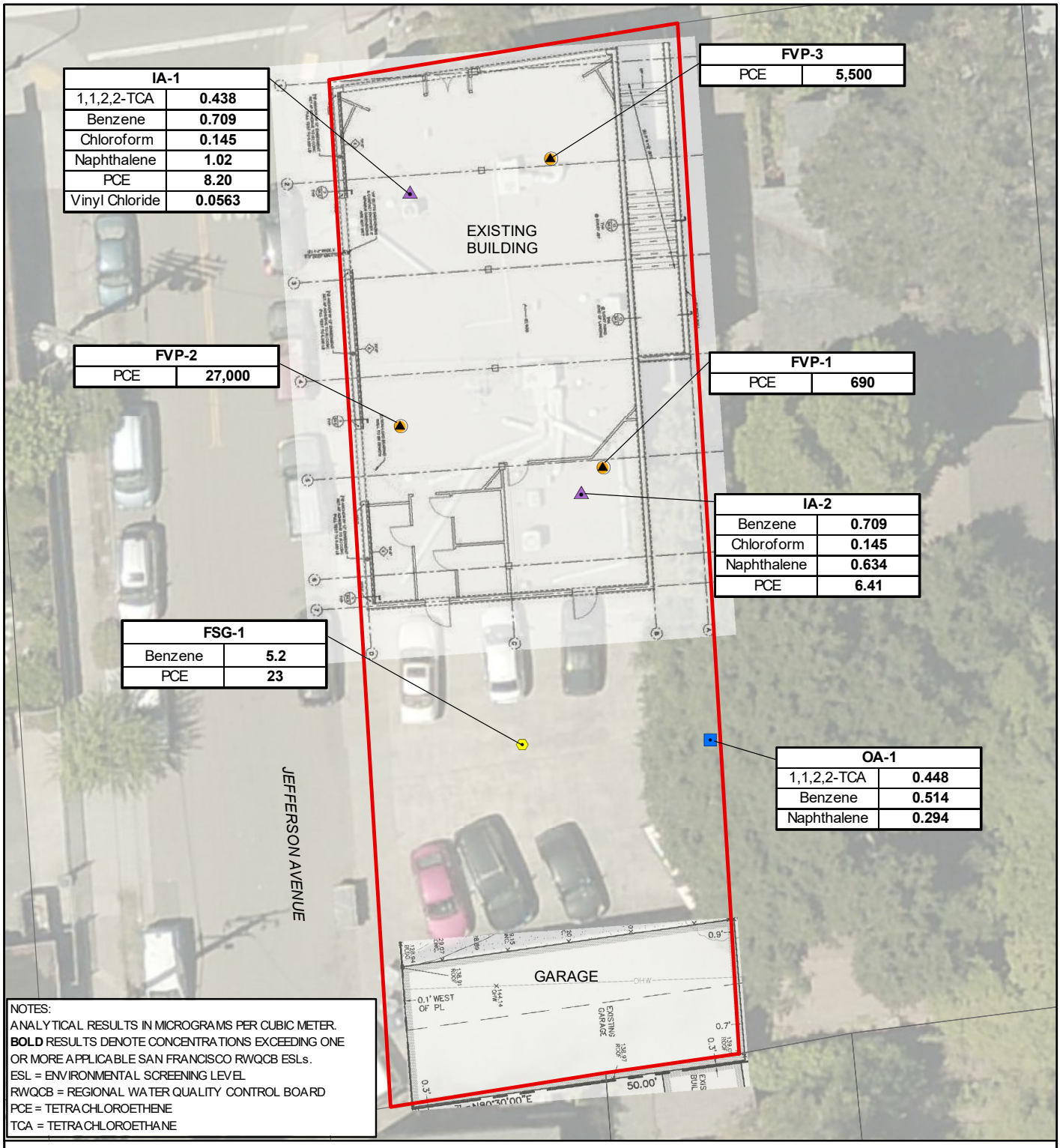

LEGEND

- INDOOR AIR
- OUTDOOR AIR
- SOIL GAS SAMPLE
- VAPOR SAMPLE
- SITE BOUNDARY
- ALAMEDA COUNTY PARCEL BOUNDARY

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1. ALL LOCATIONS ARE APPROXIMATE
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 2

SITE PLAN WITH INVESTIGATION SAMPLES AND ANALYTICAL RESULTS EXCEEDING ESLs
1652 UNIVERSITY AVENUE
BERKELEY, CALIFORNIA

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Appendices to these reports are available on file in City of Berkeley Planning Division offices, 1947 Center Street, Berkeley during regular business hours, or via the City's Permits Online project database