University of California, Berkeley
Academic Replacement Building Project

Addendum Number 3 to the UC Berkeley 2021 Long Range Development Plan and Housing Projects #1 and #2 Environmental Impact Report

State Clearinghouse Number 2020040078

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Appendix A: Applicable Program-Level Mitigation Measures and Continuing Best Practices
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1. Project Information

Project Title:	Academic Replacement Building Project
Location:	University of California, Berkeley Alameda County
LRDP Planning Zone:	Campus Park
Lead Agency:	The Regents of the University of California 1111 Franklin Street, 12th Floor Oakland, CA 94607
Contact Person:	Raphael Breines, Senior Planner University of California, Berkeley Physical & Environmental Planning planning@berkeley.edu
Project Sponsor:	University of California, Berkeley Capital Strategies Physical and Environmental Planning 200 A&E Building Berkeley, CA 94720-1382
Certified 2021 LRDP Program EIR:	This Addendum documents that none of the conditions described in CEQA Guidelines Section 15162 have occurred and that the Proposed Project will not have any significant effects that were not already disclosed, analyzed and mitigated, as necessary, in the 2021 LRDP EIR (State Clearinghouse No. 2020040078). The 2021 LRDP is a comprehensive land use plan that guides physical development on the UC Berkeley campus to accommodate projected UC Berkeley population increases and expanded and new program initiatives. The 2021 LRDP and associated EIR are available for review at https://lrdp.berkeley.edu.

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2. Introduction

2.1 BACKGROUND, PURPOSE, AND PROJECT OVERVIEW

The University of California (UC) Berkeley 2021 Long Range Development Plan (2021 LRDP) is a comprehensive long-range land use plan that guides physical development on the UC Berkeley campus consistent with UC Berkeley's mission, priorities, strategic goals, and campus population projections through the 2036-37 academic year. On July 22, 2021, the UC Board of Regents (the Regents) certified the 2021 LRDP environmental impact report (2021 LRDP EIR), State Clearinghouse No. 2020040078, and approved the 2021 LRDP. The 2021 LRDP EIR provides a program-level analysis of the overall proposed development and campus population projections in the 2021 LRDP (up to 8,096,249 square feet of new building space for residential, academic life, campus life, and parking facilities and 11,731 new beds), as well as a project-level analysis for two student housing projects. The two student housing projects were approved by the Regents on July 22, 2021, and September 30, 2021, respectively.

The proposed Academic Replacement Building Project (Proposed Project) would construct a five-story, approximately 78,000-gross-square-foot academic building within the Campus Park. The Proposed Project was identified and analyzed in the 2021 LRDP EIR and is consistent with the land uses and intensities of development contemplated in the 2021 LRDP, which prioritizes development sites on the Campus Park for academic and research space.

This Addendum uses a checklist format to document that project-specific activities are covered by the 2021 LRDP EIR pursuant to CEQA Guidelines Section 15168(c), which states that subsequent activities in a program, "must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared." This Addendum and attached supporting documents have been prepared to document that the Proposed Project is consistent with the 2021 LRDP and that its potential environmental impacts are within the scope of those addressed in the 2021 LRDP EIR, pursuant to CEQA Guidelines Section 15168. This Addendum also documents that none of the conditions described in CEQA Section 21166 or CEQA Guidelines Sections 15162 or 15163 calling for preparation of a subsequent or supplemental EIR have occurred. Pursuant to the provisions of CEQA and the CEQA Guidelines, the Regents, acting as the lead agency, are charged with the responsibility of deciding whether or not to approve the proposed action.

2.2 ENVIRONMENTAL PROCEDURES

Pursuant to CEQA Section 21166 and CEQA Guidelines Section 15162, when an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR or negative declaration shall be prepared for the project unless the lead agency determines that one or more of the following conditions are met:

- Substantial project changes are proposed that will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- Substantial changes would occur with respect to the circumstances under which the project is undertaken that require major revisions to the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- New information of substantial importance that was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified or the negative declaration was adopted shows any of the following:
    - The project will have one or more significant effects not discussed in the previous EIR or negative declaration.
    - Significant effects previously examined will be substantially more severe than identified in the previous EIR.
    - Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponent declines to adopt the mitigation measures or alternatives.
    - Mitigation measures or alternatives that are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponent declines to adopt the mitigation measures or alternatives.

Where none of the conditions specified in Section 15162[1] are present, the lead agency must determine whether to prepare an Addendum or whether no further CEQA documentation is required (CEQA Guidelines Section 15162[b]). An Addendum is appropriate where some minor technical changes or additions to the 2021 LRDP or the previously certified EIR are necessary, but there are no new or substantially more severe significant impacts (CEQA Guidelines Section 15164).

In accordance with the CEQA Guidelines, as demonstrated in Section 3, *Project Description*, and Section 5, *Environmental Analysis*, UC Berkeley has determined that an Addendum to the 2021 LRDP EIR is appropriate for the Proposed Project.

[1] See also Section 15163 of the State CEQA Guidelines, which applies the requirements of Section 15162 to supplemental EIRs.

3. Project Description

3.1 LOCATION AND SETTING

The site for the Proposed Project is in the City of Berkeley in Alameda County. The site is part of the UC Berkeley campus, which is organized into five zones—the Campus Park, Hill Campus West, Hill Campus East, Clark Kerr Campus, and the City Environs Properties. The site is in the Campus Park. Major regional roadways serving the UC Berkeley campus include Interstate 580, State Route 13, and State Route 24. Figure 1, *2021 LRDP EIR Study Area*, provides a regional location map.

The 1.62-acre project site is in the southwest quadrant of the UC Berkeley Campus Park, south of the Valley Life Sciences Building, west of Dwinelle Hall, and north of Dwinelle Hall Annex. The south fork of Strawberry Creek is located roughly 100 feet to the south. The project site is currently a surface parking lot identified as Dwinelle Lot and has 96 automobile parking spaces. The project site is generally bounded and accessed by Frank Schlessinger Way to the south and Campanile Way to the north, with pedestrian walkways to Spieker Plaza to the west and Grade Street to the east. Figure 2, *Aerial View of Project Site and Surroundings*, shows the site vicinity.

3.2 PROPOSED PROJECT

The Proposed Project would provide a new, approximately 78,000-gross-square-foot, academic building that would serve to partially replace classrooms and academic programs currently housed in Evans Hall. Evans Hall has been identified as needing seismic upgrades, improvements to classrooms and academic program space, and building systems upgrades, and UC Berkeley has determined that constructing new space would be more effective than retrofitting the existing building. The Proposed Project would include space for offices, classrooms, and other collaborative meeting spaces. The Proposed Project would not result in student or employment population growth because the new building would house existing academic programs.

The Proposed Project would be an L-shaped building that would include five above-grade floors (three floors of classrooms and two floors of offices) in the south-facing wing, and two above-grade floors and one partial basement (below-ground) level and an auditorium in the west-facing wing.

The Proposed Project would provide a mix of flexible office space, classrooms, and other meeting spaces. It would also include shared community gathering spaces and an auditorium. The building would provide space for occupancy of approximately 75 faculty offices, 26 classrooms, and a 400-person-capacity auditorium. Peak daily building occupancy would be approximately 1,696 people. The building would also provide exterior bicycle racks for 132 bikes, 36 of which would be under an overhang.

The Proposed Project has been designed with consideration for the west-facing views from Dwinelle Hall and the existing alignment of buildings along Campanile Way. To this end, the building's west-facing wing

would be designed to rise only two and a half stories above ground level, and the north edge of the building would be parallel to Dwinelle Hall and other buildings along Campanile Way. The two primary wings to the west and south would frame the auditorium with a rooftop outdoor terrace (and a ground-floor outdoor plaza) and surround the internal open plan collaboration spaces. Both the rooftop terrace and ground floor plaza would open in the direction of Strawberry Creek and the Grinnell Natural Area. The building footprint would be designed to be set back at least 50 feet from Strawberry Creek. Up to 32 trees would be removed for development of the building and the electrical power lines to serve the building. Their removal is assessed in *Section 5, Environmental Analysis*.

During construction, temporary storage of materials and equipment would occur in areas of the Campus Park adjacent to the site. A 0.26-acre laydown area located directly west of the project site would be used for materials and construction equipment staging. This area would be restored to its current condition post-construction.

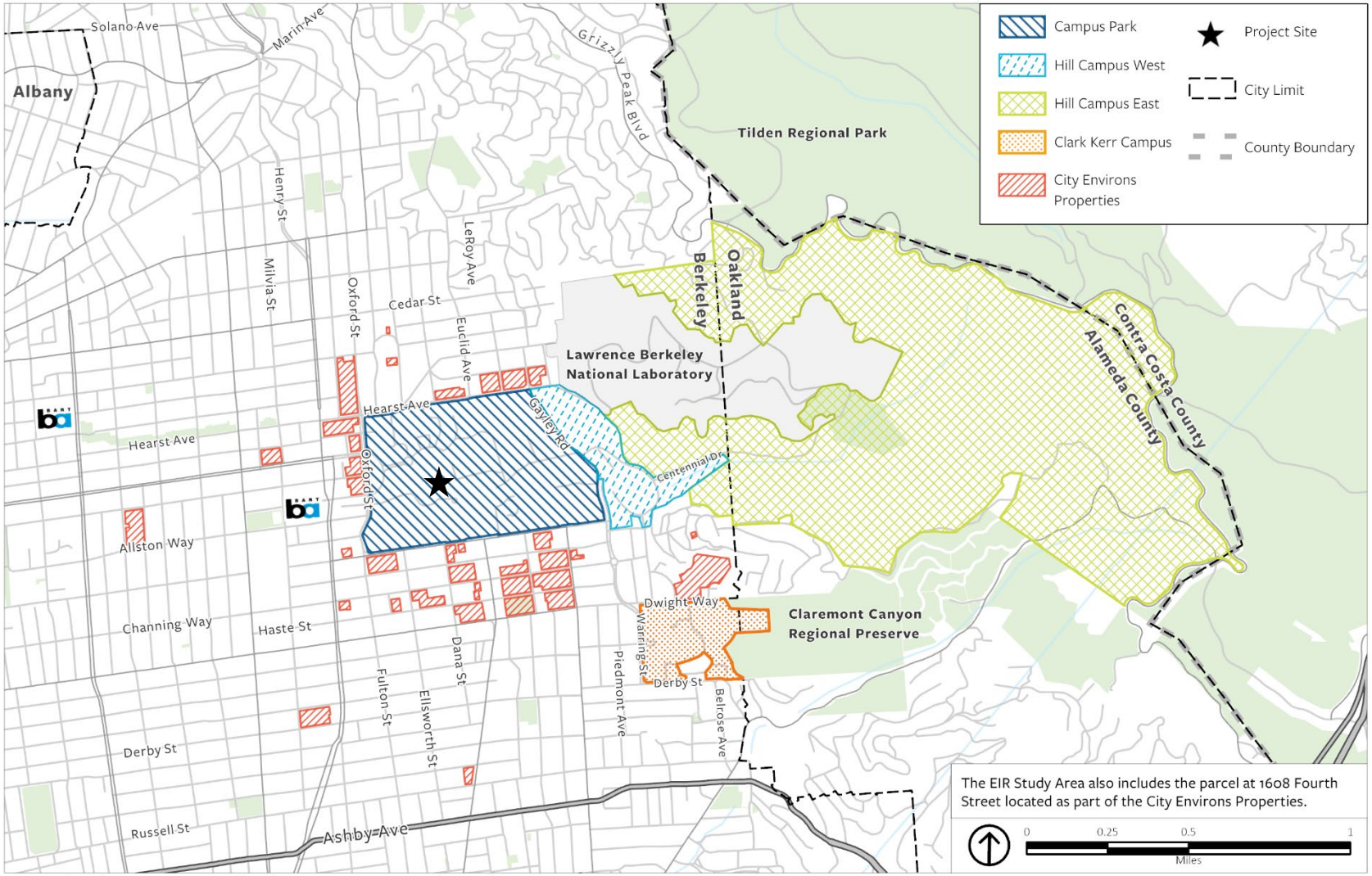
Prior to construction of the building, UC Berkeley would implement a "make-ready" phase of work (i.e., to extend campus electricity to the site). This power connection would be used during construction of the project and then be used to power the building as well as the adjacent Dwinelle Hall Annex. The Proposed Project includes a new above-ground duct bank across Strawberry Creek, an underground duct bank from Strawberry Creek to the project site, new switchgear, and all associated equipment. The new switch would be located east of the Dwinelle Hall Annex, with the transformer for the Dwinelle Hall Annex. The transformer for the Proposed Project would be located in the electrical room within the Proposed Project. The work for the make-ready phase would encompass a 0.08-acre area.

The existing parking at Dwinelle Lot would remain open until the start of construction of the Proposed Project. UC Berkeley's Parking and Transportation Department would work with parking permit holders to identify alternative parking facilities to be utilized when the existing parking lot is no longer in use. The project would not include any new on-site parking or vehicle charging spaces. Three parking spaces are anticipated to be removed from the adjacent South Circle to accommodate an improved fire lane.

The building façades would be constructed with a combination of curtain wall, lightweight rainscreen panels, and open colonnades with exposed timber framing. Landscaping would include self-retaining areas to infiltrate stormwater for several portions of the site. The Proposed Project would also participate in an off-site stormwater credit program. Green building features would include operable windows for natural ventilation in offices and most classrooms, night flush of classrooms to reduce air conditioning needs, high-efficiency air handlers with heat recovery, external solar shading at the south and west elevations, and high-efficiency lighting. The Proposed Project would also obtain a minimum LEED™ Gold rating.

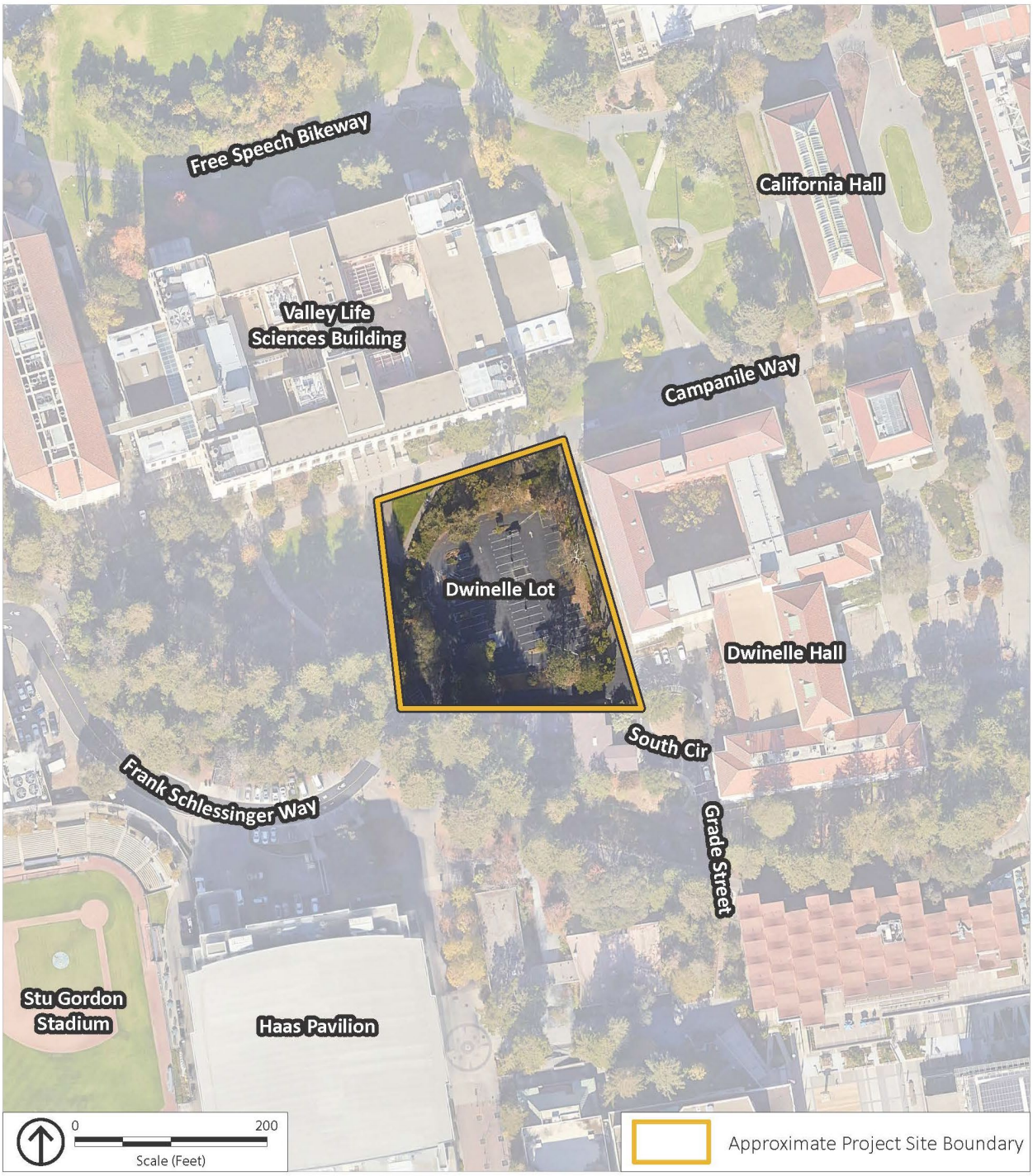
Bird safety measures would include low-reflectivity glass, avoidance of free-standing glass elements, exterior light pollution control, and interior lighting shutoffs during nighttime hours.

Figure 1 2021 LRDP EIR Study Area



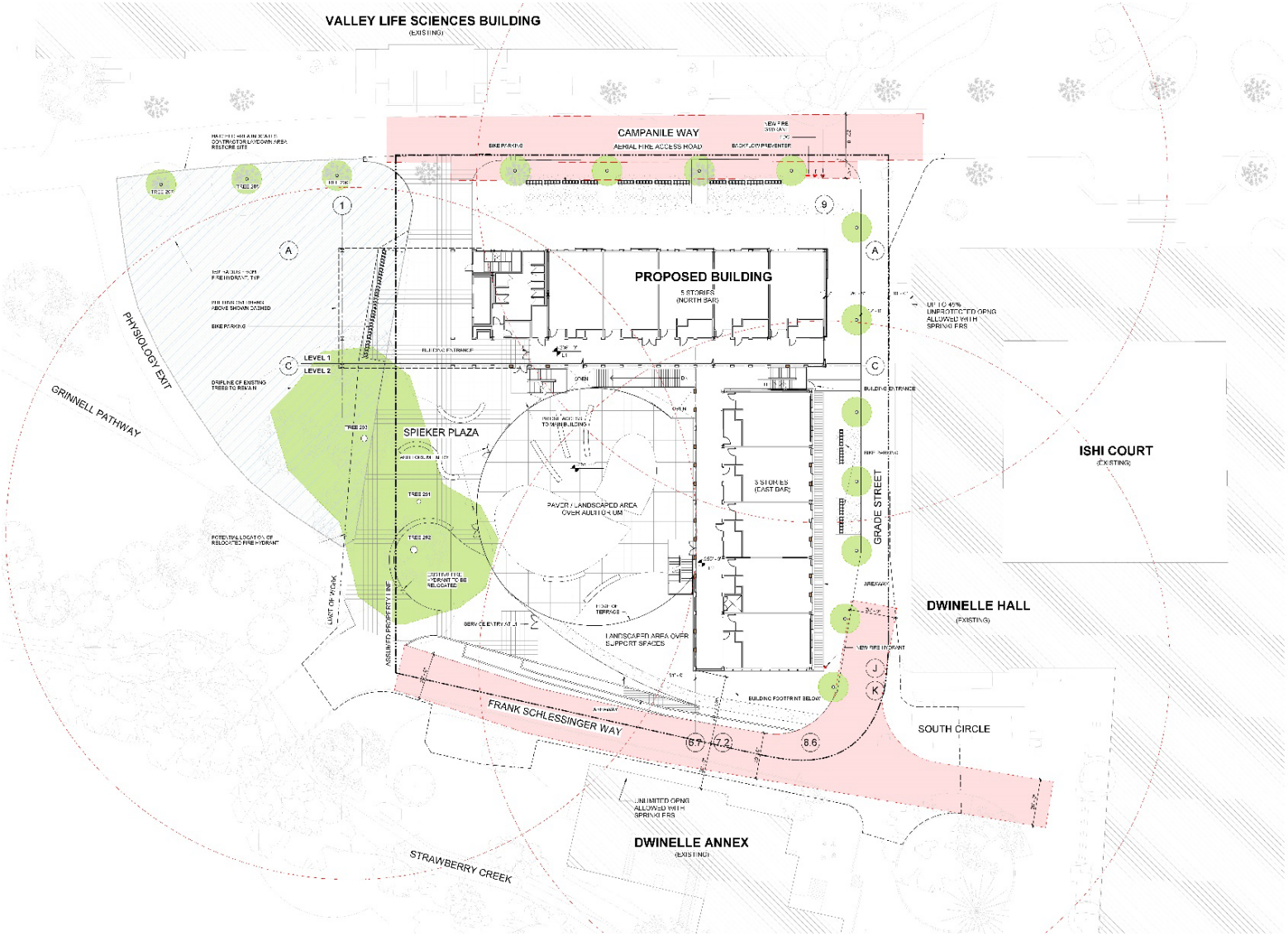
Source: Alameda County, 2019; Sasaki and Page, 2019; ESRI, 2020; PlaceWorks, 2022.

Figure 2 Aerial View of Project Site and Surroundings



Source: Google Earth, 2022 (imagery date: August 6, 2020); PlaceWorks, 2022.

Figure 3 Site Plan



Source: LMN Architectural Urban Design Interiors, 2022.

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4. Coverage under the 2021 LRDP EIR

To determine the Proposed Project's coverage under the 2021 LRDP EIR, this section addresses the following questions:

1. Is the Proposed Project consistent with the project objectives contained in the 2021 LRDP EIR?
2. Is the Proposed Project consistent with the UC Berkeley land uses evaluated in the 2021 LRDP EIR for the project area?
3. Is the amount of development associated with the Proposed Project within the development program in the 2021 LRDP EIR?
4. Have the conditions described in CEQA Guidelines Section 15162 calling for the preparation of a subsequent EIR occurred?

Questions one through three are addressed in the remainder of this section and question four is addressed in Section 5, *Environmental Analysis*. Section 5 contains a detailed analysis of the Proposed Project's potential environmental impacts and determines that none of the conditions in CEQA Guidelines Section 15162 calling for the preparation of a subsequent EIR have occurred.

4.1 OBJECTIVES CONSISTENCY

The 2021 LRDP EIR contains the following objectives relevant to the Proposed Project.

- Maintain the Campus Park as the central location for academic life, research, and student life uses as well as student services, and provide a range of adaptable and multipurpose spaces required to promote excellence and leadership in teaching, research, and public service consistent with UC Berkeley's mission and Strategic Plan. Prioritize administrative and student life facilities in locations adjacent to but off of the Campus Park.
- Maintain natural areas as well as generous natural and built open spaces on the Campus Park and the Clark Kerr Campus.
- Plan every new project (i.e., renovation, strategic infill/ additions, and new construction) to support the optimal investment of resources, meet space needs and improve space utilization, and address deferred maintenance.
- Take advantage of UC Berkeley's urban location to prioritize mobility system improvements that promote an accessible, efficient, sustainable, and safe campus.
- Minimize private vehicle access in the Campus Park and prioritize transit, bicycle, and pedestrian access to and across the Campus Park to decrease carbon emissions, congestion, and parking demand.
- Prioritize improvements and create clearly defined routes for bicycle, pedestrian, transit, and micromobility networks to enhance UC Berkeley campus connectivity and safety, to make navigation more intuitive and inclusive, and to ensure access to the campus by all UC Berkeley constituents.

- Maintain and enhance the image and experience of the UC Berkeley campus and support the continuing evolution of UC Berkeley campus's notable and historic landscapes and architecture.
- Maintain, support, and enhance UC Berkeley's status as an internationally renowned, 21st-century, public research-intensive university and center for scientific and academic advancement by expanding its graduate and professional schools, policy institutes, research programs, laboratories, and institutions.

The Proposed Project would support these objectives as follows:

- The Proposed Project would create a new academic building within the Campus Park.
- The Proposed Project would provide space for academic research, offices, classrooms, and other collaborative meeting spaces and house researchers, faculty, and students across multiple disciplines.
- The Proposed Project would make the highest and best use of limited land resources by prioritizing utilization of an undeveloped site for facility development to accommodate program needs, taking into consideration site setting and context, adjacent uses, and coordination with existing landscape, infrastructure, and mobility systems.
- The Proposed Project is in the southwestern quadrant of the Campus Park and has been designed to reinforce the existing connections through the Campus Park, particularly Campanile Way, which frames the Campanile for pedestrians walking east from Oxford Street. The project would also create welcoming and accessible gathering spaces within a courtyard on the southwestern edge of the building facing Strawberry Creek.
- The Proposed Project has been designed to be compatible with pedestrian and bike pathways that traverse and run adjacent to the project site.

4.2 UC BERKELEY LAND USE CONSISTENCY

The 2021 LRDP organizes UC Berkeley campus land uses into the following categories: residential, academic life, campus life, parking, and open space. The 2021 LRDP EIR identifies that the highest priority needs for academic life space are classrooms and study space, followed by research space, and that academic life spaces under the 2021 LRDP will be primarily located within the Campus Park. The Proposed Project is therefore consistent with the land uses evaluated in the 2021 LRDP EIR.

4.3 DEVELOPMENT PROGRAM CONSISTENCY

The 2021 LRDP plans for up to 8,096,249 net new gross square feet (GSF) of residential, academic life, campus life, and parking facility space to be developed within the area governed by the 2021 LRDP, including up to 2,284,588 net new GSF of academic life space to be located primarily within the Campus Park. The Proposed Project would construct approximately 78,000 GSF of academic life space in the UC Berkeley Campus Park. Therefore, the Proposed Project would result in total development within levels anticipated in the 2021 LRDP EIR. The 2021 LRDP also projected a total UC Berkeley campus population of 67,200 students and employees. The Proposed Project would not result in student or employment population

growth at UC Berkeley. Therefore, the UC Berkeley campus population would remain within levels analyzed in the 2021 LRDP EIR.

With respect to site-specific projections, the Proposed Project was included in the 2021 LRDP EIR as a potential redevelopment project. Specifically, the Proposed Project was identified as project CP2 in the Campus Park and was conceptually planned for 144,000 square feet of academic life space in a building with a maximum of eight stories above grade. Table 1, *Comparison of 2021 LRDP EIR Buildout and Proposed Project*, compares the Proposed Project to project CP2 in the 2021 LRDP EIR. As shown in Table 1, the Proposed Project would have a reduced square footage and reduced building height when compared to CP2 as it was analyzed at the program level in the 2021 LRDP EIR.

TABLE 1 COMPARISON OF 2021 LRDP EIR BUILDOUT AND PROPOSED PROJECT

Project Description	2021 LRDP EIR Buildout	Proposed Project
Project Characteristics		
Type of Project	New Development	New Development
Uses	Academic Life	Academic Life
Project Dimensions		
Square Footage	144,000	78,000
Beds	0	0
Parking Spaces	0	0
Stories Above Grade	8	5

Note: All numbers represent total buildout numbers, not net new.
Source: UC Berkeley, 2022.

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5. Environmental Analysis

5.1 ENVIRONMENTAL EVALUATION OF THE PROPOSED PROJECT

This Addendum documents that the Proposed Project would not result in any new significant environmental impacts, an increase in the severity of significant impacts previously identified and studied in the 2021 LRDP and 2021 LRDP EIR, or require the adoption of any new or considerably different mitigation measures or alternatives. Accordingly, this Addendum is the appropriate form of environmental review for the Proposed Project. This Addendum has been prepared to satisfy the requirements of CEQA Guidelines Sections 15164(a), 15164(d), and 15164(e).

The sections below provide an evaluation of the environmental impacts of the Proposed Project and are organized to correspond with the standards of significance in the 2021 LRDP EIR, consistent with Appendix G, *Environmental Checklist Form*, of the CEQA Guidelines. Each section contains a summary of the findings of the evaluation, organized into the following columns:

- Level of Impact for the 2021 LRDP in the 2021 LRDP EIR presents the level of significance identified for the 2021 LRDP in the 2021 LRDP EIR, using the following acronyms:
  - NI = no impact. For these topics, there is no adverse effect on the environment.
  - LTS = less than significant. These effects are noticeable but do not exceed established or defined thresholds, and no mitigation is required.
  - LTS/M = less than significant with mitigation. For these circumstances, an established or defined threshold would be exceeded and a significant impact would occur; mitigation is required and would reduce the impact to a less-than-significant level.
  - SU = significant and unavoidable. For these topics, a significant impact would occur, and continuing best practices (CBPs) and/or feasible mitigation measures would not diminish these effects to less-than-significant levels.
- Environmental Effects of the Proposed Project presents the level of significance identified for the Proposed Project based on the evaluation in this Addendum, using the following categories:
  - New Less-than-Significant Impact. The Proposed Project would have a noticeable but less-than-significant effect on the environment that was not identified for the 2021 LRDP in the 2021 LRDP EIR.
  - Same Impact as 2021 LRDP. The Proposed Project would create the same level of impact identified for the 2021 LRDP in the 2021 LRDP EIR.
  - Less Impact than 2021 LRDP. The Proposed Project would create a noticeable effect on the environment, with a lesser level of impact than was identified for the 2021 LRDP in the 2021 LRDP EIR.
  - Topic Not Applicable to the Proposed Project. The Proposed Project would not have the potential to create an impact on an environmental topic that was evaluated in the 2021 LRDP EIR.

The Proposed Project is subject to all mitigation measures and CBPs in the 2021 LRDP EIR, as applicable. Please see Appendix A, *Applicable Program-Level Mitigation Measures and Continuing Best Practices*, of this Addendum.

5.1.1 AESTHETICS

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Determined to Have No Impact in the 2021 LRDP EIR					
Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	NI		X		
Topics Evaluated in the 2021 LRDP EIR					
AES-1: Have a substantial adverse effect on a scenic vista?	LTS		X		
AES-2: In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from 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?	LTS		X		
AES-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	LTS/M		X		
AES-4: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Determined to Have No Impact in the 2021 LRDP EIR

The topic of scenic highways has been screened out from further evaluation in this Addendum because the EIR Study Area is not on or within the viewshed of a State scenic highway.[2] Consequently, there would be no impacts to scenic highways. See Section 7.1.1, *Aesthetics*, of the 2021 LRDP EIR.

Topics Evaluated in the 2021 LRDP EIR

AES-1: The 2021 LRDP EIR identified a less-than-significant impact at the program level for the 2021 LRDP with respect to adverse effects on scenic vistas. Scenic vistas are limited to those accessible by the general public; within the EIR Study Area, these include views from fire roads and vehicle turnouts within the Hill Campus East, which provide views toward the San Francisco Bay from a higher elevation than the rest of the City of Berkeley. The project site is located in an urbanized and relatively level part of the Campus Park. It is surrounded to the north and east by academic buildings, and by trees and Strawberry Creek to the south and west. The project site surroundings do not offer any scenic vistas. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

AES-2: The 2021 LRDP EIR identified a less-than-significant impact at the program level for the 2021 LRDP with respect to adverse effects on visual character of the site. The Proposed Project would result in adverse effects related to scenic quality if it were to conflict with applicable zoning or other regulations governing scenic quality. The Proposed Project conforms to the Physical Design Framework, consistent with CBP AES-1. The project has been designed with consideration to existing pathways and sightlines, particularly the east-west view along Campanile Way. The Proposed Project has been reviewed by UC Berkeley's Design Review Committee, and conforms to the project-specific design guidelines prepared by Physical & Environmental Planning, consistent with CBP AES-2. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

AES-3: The 2021 LRDP EIR identified a less-than-significant impact with mitigation at the program level for the 2021 LRDP with respect to new sources of substantial light or glare. The Proposed Project would result in an adverse effect if it created a new source of substantial light or glare which would adversely affect day or nighttime views in the area. The Proposed Project would comply with CBPs AES-6 and AES-7 to include shields and cut-offs that minimize light spillage onto unintended surfaces, minimize atmospheric light pollution, and minimize light and glare in exterior surfaces. The proposed building design includes low-reflectivity glass. Interior lighting would be controlled with an adjustable control system, and exterior lighting would be directed downward and screened. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant

[2] California Department of Transportation California Scenic Highways Program, Scenic Highway System Lists, List of eligible and officially designated State Scenic Highways, https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways, accessed June 24, 2022.

impact.

AES-4: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to aesthetic impacts. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.2 AGRICULTURE AND FORESTRY RESOURCES

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Determined to Have No Impact in the 2021 LRDP EIR					
Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	NI		X		
Conflict with existing zoning for agricultural use, or a Williamson Act contract?	NI		X		
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))?	NI		X		
Result in the loss of forest land or conversion of forest land to non-forest use?	NI		X		
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?	NI		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Determined to Have No Impact in the 2021 LRDP EIR

The 2021 LRDP EIR did not analyze impacts to agriculture and forestry resources because the EIR Study Area is primarily in an urbanized setting, and approval and implementation of the 2021 LRDP, including the

Proposed Project, would have no impact on agriculture and forestry resources. Accordingly, this issue is not discussed further in this Addendum. See Section 7.1.2, *Agricultural and Forestry Resources*, of the 2021 LRDP EIR.

5.1.3 AIR QUALITY

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
AIR-1: Conflict with or obstruct implementation of the applicable air quality plan?	SU		X		
AIR-2: 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?	SU		X		
AIR-3: Expose sensitive receptors to substantial pollutant concentrations?	SU			X	
AIR-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	LTS		X		
AIR-5: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact.	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

AIR-1 and AIR-2: The 2021 LRDP EIR identified a significant and unavoidable impact at the program level regarding consistency with the Bay Area Air Quality Management District's *2017 Clean Air Plan: Spare the Air, Cool the Climate* (2017 Clean Air Plan) because the 2017 Clean Air Plan does not directly account for UC Berkeley's development program. Because the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR, the Proposed Project would not increase the development program analyzed in the 2021 LRDP EIR. The Proposed Project would provide a new building to house UC Berkeley's existing academic programs and would not result in student or employment population growth at UC Berkeley. Thus, the Proposed Project would not substantially affect housing, employment, or population projections in the region that are the basis of the 2017 Clean Air Plan projections.

The 2021 LRDP EIR identified significant and unavoidable impacts at the program level associated with the generation of fugitive dust, construction equipment exhaust, and reactive organic gases (ROG) emissions during construction and operation of development under the 2021 LRDP. The Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Construction and operation of the Proposed Project would result in criteria air pollutant emissions. As required by 2021 LRDP EIR Mitigation Measure AIR-2.1, off-road diesel-powered construction equipment with more than 50 horsepower used for the Proposed Project would meet the United States Environmental Protection Agency Tier 4 Final emissions standards or higher, where commercially available. In addition, as required by 2021 LRDP EIR Mitigation Measure AIR-2.2, interior architectural coatings used in the Proposed Project would be low volatile organic compound (VOC) or no-VOC paints. In addition, construction of the Proposed Project would adhere to CBP AIR-2 and CBP AIR-3, which require control measures for fugitive dust control and to reduce emissions of diesel particulate matter and ozone precursors. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

AIR-3: The 2021 LRDP EIR identified a significant and unavoidable impact at the program level associated with construction-related health risks. As required by Mitigation Measure AIR-3.1, a construction health risk assessment (HRA) has been prepared for the Proposed Project (see Appendix B, *Construction Health Risk Assessment*, of this Addendum). In addition, as described above, the Proposed Project would comply with Mitigation Measure AIR-2.1, which requires off-road diesel-powered construction equipment with more than 50 horsepower to meet the United States Environmental Protection Agency Tier 4 Final emissions standards or higher, where commercially available. The construction HRA found that, with mitigation, the Proposed Project would not expose off-site sensitive receptors to substantial concentrations of air pollutant emissions during construction. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

AIR-4: The 2021 LRDP EIR identified a less-than-significant impact associated with the generation of substantial odors that would affect a substantial number of people. The type of facilities that are typically considered to have objectionable odors include wastewater treatment plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The Proposed Project's uses are not associated with foul odors that constitute a public nuisance. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

AIR-5: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to toxic air contaminants. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.4 BIOLOGICAL RESOURCES

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Determined to Have No Impact in the 2021 LRDP EIR					
Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	NI		X		
Topics Evaluated in the 2021 LRDP EIR					
BIO-1: 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 Game or U.S. Fish and Wildlife Service?	LTS		X		
BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	LTS		X		
BIO-3: Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	LTS		X		
BIO-4: 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?	LTS/M		X		
BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	NI		X		
BIO-6: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Determined to Have No Impact in the 2021 LRDP EIR

Since the 2021 LRDP was approved and the EIR was certified, no local, regional, or State conservation plans have been approved that encompass the EIR Study Area, including the site of the Proposed Project. Accordingly, no further analysis regarding this standard of significance and the Proposed Project is required, and this issue is not discussed further in this Addendum. See Section 7.1.3, *Biological Resources*, of the 2021 LRDP EIR.

Topics Evaluated in the 2021 LRDP EIR

BIO-1 through BIO-3: The 2021 LRDP EIR identified less-than-significant impacts for the 2021 LRDP with respect to special-status plant species, riparian habitat or other sensitive natural communities, and federally protected wetlands. No special-status plant species, other sensitive natural communities, or regulated waters occur within the project site due to the extent of past development and its location in an urbanized setting. Despite its location near Strawberry Creek, the project site does not contain riparian habitat and is separated from the creek corridor by paved roadways and paths within the Campus Park. Furthermore, the Proposed Project would adhere to CBP BIO-1 to avoid disturbance or removal of bird nests protected under the federal Migratory Bird Treaty Act and California Department of Fish and Game Code. The project would also adhere to CBP BIO-4 and CBP BIO-6 to comply with development requirements in the Strawberry Creek Management Plan. The development of a new above-ground duct bank across Strawberry Creek would not require UC Berkeley to obtain a regulatory permit because the work would not affect the bed, channel, or bank of the creek, nor would the duct bank interfere with the management strategies laid out in the Strawberry Creek Management Plan. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

BIO-4: The 2021 LRDP EIR identified a less-than-significant impact with mitigation concerning movement of wildlife species, wildlife corridors, and native wildlife nursery sites. Given the urbanized location of the Proposed Project, no adverse impacts on wildlife movement opportunities are anticipated. However, the new building proposed could pose the risk of bird collisions. As required by 2021 LRDP EIR Mitigation Measure BIO-4, the proposed building would be designed to minimize the potential risk of bird collisions. The Proposed Project has been designed consistent with the San Francisco Planning Department's Standards for Bird-Safe Buildings and the City of Berkeley's Draft Bird Safe Ordinance. The proposed building design includes low-reflectivity glass. The Proposed Project would not include any glass skyways or walkways or freestanding glass walls. Rooftop mechanical equipment would be concealed. Interior lighting would be controlled with an adjustable control system, and exterior lighting would be directed downward and screened. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

BIO-5: The 2021 LRDP EIR identified no conflict with any local policies or ordinances protecting biological resources. The Proposed Project would have no impact in the same regard because UC Berkeley is not subject to local regulations. Up to 32 trees would need to be removed for development of the building and the make-ready work phase; however, as required through the implementation of CBP BIO-9, the Proposed

Project would comply with the Campus Specimen Tree Program and the Campus Design Standards, which protect sensitive habitat, trees, and waterways on the UC Berkeley campus. Specifically, implementation of CBP BIO-9 requires replacement landscaping where specimen resources are adversely affected, either through salvage and transplanting of existing trees or shrubs or through new horticulturally appropriate replacement plantings, as directed by the Campus Landscape Architect. Furthermore, the Proposed Project would also adhere to CBP BIO-10 for the implementation of the recommendations of the Landscape Master Plan and subsequent updates; project-specific design guidelines to improve the important open space characteristics and resilience of the Campus Park; and CBP BIO-11's requirement for routine maintenance of trees and other vegetation. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

BIO-6: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to biological resources. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.5 CULTURAL RESOURCES

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
CUL-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	SU		X		
CUL-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	LTS/M		X		
CUL-3: Disturb any human remains, including those interred outside of formal cemeteries?	LTS		X		
CUL-4: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	SU		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

CUL-1: The 2021 LRDP EIR identified a significant and unavoidable impact at the program level for the 2021 LRDP regarding substantial adverse change in the significance of a historical resource. Because of the programmatic nature of the 2021 LRDP, future projects could result in the demolition of one or more historical resources and/or modification of one or more historical resources in a manner not in conformance with the Secretary of the Interior's Standards for Rehabilitation. The project site is currently developed with a surface parking lot called Dwinelle Lot, which is not eligible for listing on the California or National Registers. Therefore, there would be no impacts to any historical resources. Furthermore, implementation of 2021 LRDP EIR Mitigation Measure CUL-1.1e would ensure that construction vibration does not negatively affect any nearby historic structures. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

CUL-2: The 2021 LRDP EIR identified a less-than-significant impact with mitigation concerning archaeological resources. The archaeological sensitivity analysis for the 2021 LRDP EIR identified 55 percent of the Campus Park as moderately to extremely sensitive, including the project site.[3] Therefore, soils beneath the project site could contain potentially significant prehistoric archaeological resources, which the Proposed Project has the potential to disturb. As required by 2021 LRDP EIR Mitigation Measure CUL-2, the Proposed Project would implement control measures during ground-disturbing activities to ensure that potential impacts to archaeological resources will be less than significant. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

CUL-3: The 2021 LRDP EIR identified a less-than-significant impact with respect to the disturbance of human remains. Though ground-disturbing activities, such as site grading and trenching for utilities, including the make-ready work phase, have the potential to disturb human remains interred outside of formal cemeteries, the Proposed Project would adhere to CBP CUL-1, under which any human remains encountered during ground-disturbing activities would be required to be treated in accordance with California Health and Safety Code Section 7050.5, Public Resources Code Section 5097.98, and the California Code of Regulations Section 15064.5(e) (CEQA). Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

CUL-4: The 2021 LRDP EIR identified a significant and unavoidable cumulative impact for the 2021 LRDP with respect to cultural resources. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed

[3] University of California Berkeley, July 2021, UC Berkeley 2021 Long Range Development Plan and Housing Projects #1 and #2 Environmental Impact Report, State Clearinghouse No. 2020040078, page 5.4-14.

in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.6 ENERGY

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
ENE-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	LTS		X		
ENE-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	NI		X		
ENE-3: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

ENE-1 and ENE-2: The 2021 LRDP EIR identified a less-than-significant impact at the program level for the 2021 LRDP regarding wasteful, inefficient, or unnecessary consumption of energy resources, and no impacts concerning conflicts with State or local plans for renewable energy or energy efficiency. The Proposed Project would comply with the University of California Sustainable Practices Policy, and the building would be designed to achieve or exceed the U.S. Green Building Council's LEED™ Gold certification. The Proposed Project would incorporate electrification and would not use natural gas for building heat or hot water generation, to comply with the fossil-fuel-free provision of the Sustainable Practices Policy. During construction, the Proposed Project would use a combination of gas- or diesel-powered and electric equipment. Transportation energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that use diesel fuel and/or gasoline. Overall, use of all construction equipment would cease upon completion of project construction. Thus, impacts related to electricity and transportation fuel use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure. Furthermore, to limit wasteful and unnecessary energy consumption, the construction contractors would minimize nonessential idling of construction equipment, in accordance with

Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9, and as required by CBP AIR-3. Such required practices would limit wasteful and unnecessary energy consumption during construction.

Electrical service to the Proposed Project would be provided by Pacific Gas and Electric Company through connections to existing off-site electrical lines and new on-site infrastructure. Although the Proposed Project would result in an increase in electricity demand, it would include project design features to minimize energy demand to the extent feasible. The Proposed Project would, at minimum, comply with the current Building Energy Efficiency Standards and the California Green Building Standards Code (CALGreen). In addition, the Proposed Project proposes to obtain a minimum LEED™ Gold rating.[4] Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

ENE-3: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to energy. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.7 GEOLOGY AND SOILS

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Determined to Have No Impact in the 2021 LRDP EIR					
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?	NI		X		

[4] Leadership in Energy and Environmental Design, or LEED, provides a framework for healthy, efficient, carbon and cost-saving green buildings. LEED certified buildings save money, improve efficiency, lower carbon emissions and create healthier places for people.

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: a) 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? Refer to Division of Mines and Geology Special Publication 42. b) Strong seismic ground shaking? c) Seismic-related ground failure, including liquefaction? d) Landslides?	LTS		X		
GEO-2: Result in substantial soil erosion or the loss of topsoil?	LTS		X		
GEO-3: 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?	LTS		X		
GEO-4: 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?	LTS		X		
GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	LTS/M		X		
GEO-6: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Determined to Have No Impact in the 2021 LRDP EIR

The topic of alternative wastewater disposal systems has been screened out from further evaluation because the potential future development under the 2021 LRDP, including the Proposed Project, would not include the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur regarding soil capability to adequately support the use of septic tanks or alternative wastewater disposal systems, and this issue is not discussed further in this Addendum. See Section 7.1.4, *Geology and Soils*, of the 2021 LRDP EIR.

Topics Evaluated in the 2021 LRDP EIR

GEO-1 though GEO-4: The 2021 LRDP EIR identified less-than-significant impacts at the program level for the 2021 LRDP with respect to the creation or exacerbation of fault rupture, earthquake ground shaking, liquefaction and related ground failure, and landslides; substantial soil erosion; location on an unstable geologic unit; or location on expansive soil. The project site is not subject to landslide hazards, and the probability of subsidence impacts is generally low due to the generally uniform vertical movement in the area surrounding the project site. The project site is located in an urbanized part of the City of Berkeley and would be required to implement construction phase best management practices (BMPs) as well as post-construction site design, source-control, and treatment control measures in accordance with applicable permit requirements, such as low-impact development (LID) measures. The Proposed Project would adhere to CBP GEO-1 through CBP GEO-4 and CBP GEO-6 through CBP GEO-8. These CBPs require compliance with the California Building Code (CBC) and the UC Seismic Safety Policy; incorporation of recommendations for geotechnical hazard prevention in required site-specific geotechnical studies; review of all seismic and structural engineering designs; use of site-specific seismic ground motions for analysis and design; and implementation of programs and projects in emergency planning, training, response, and recovery. Furthermore, the Proposed Project would be required to comply with the Campus Design Standards, which contain regulatory and other requirements for construction-phase and post-construction stormwater management to reduce erosion, as described in CBP GEO-9.

The expansion potential of the clay soils in the 2021 LRDP EIR Study Area varies from low to critically high.[5] Therefore, the Proposed Project has potential to expose people to hazards associated with expansive soils. However, such impacts would be avoided through compliance with the CBC and the University of California Seismic Safety Policy and with review by the Seismic Review Committee, as required by CBP GEO-1 and CBP GEO-3. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

GEO-5: The 2021 LRDP EIR identified a less-than-significant impact with mitigation concerning paleontological resources. The project site is located on the Franciscan Assemblage, which is a highly sensitive geologic formation where fossils could potentially be found. As required by 2021 LRDP EIR

[5] University of California Berkeley, July 2021, UC Berkeley 2021 Long Range Development Plan and Housing Projects #1 and #2 Environmental Impact Report, State Clearinghouse No. 2020040078, page 5.6-33.

Mitigation Measure GEO-5, UC Berkeley would provide a paleontological resources awareness training program to all construction personnel active on the project site during earth-moving activities. Furthermore, the Proposed Project would adhere to the procedures in CBP GEO-10, to be followed in the event that a unique paleontological resource is discovered. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

GEO-6: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to geology and soils. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.8 GREENHOUSE GAS EMISSIONS

Would the Proposed Project:

Environmental Issues		Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
			New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR						
GHG-1:	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	LTS		X		
GHG-2:	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	LTS/M			X	
GHG-3:	In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

GHG-1: The 2021 LRDP EIR identified less-than-significant impacts at the program level for the 2021 LRDP regarding the generation of greenhouse gas (GHG) emissions. Construction and operation of the Proposed Project would generate an increase in GHG emissions from transportation sources (passenger vehicles, trucks, delivery vehicles), water use and wastewater generation, and solid waste generation. GHG emissions associated with the Proposed Project are included in the 2021 LRDP emissions forecast, which was

determined not to contribute a significant amount of GHG emissions or contribute to existing cumulative emissions impacts. Furthermore, UC Berkeley conducts annual GHG emissions inventories and implements the University of California Office of the President and UC Berkeley sustainability and policy initiative, which would apply to the Proposed Project. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

GHG-2: The 2021 LRDP EIR identified less-than-significant impacts with mitigation concerning conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. Such plans include California Air Resources Board's Scoping Plan outlining the State's strategies to reduce GHG emissions in accordance with the targets established under Assembly Bill (AB) 32 and Senate Bill (SB) 32, as well as Metropolitan Transportation Commission/Association of Bay Area Governments' Plan Bay Area 2040 to achieve the passenger vehicle emissions reductions identified under SB 375. New buildings are required to comply with the current Building Energy Efficiency Standards and CALGreen as well as the statewide strategies to reduce GHG emissions. Because the Proposed Project would not include any parking stalls, site users would access the site through nonvehicular modes of transportation. Vehicle trips during operation would be limited to delivery and maintenance vehicles; therefore, the Proposed Project would generate minimal new vehicle trips to the project site. In addition, as described in Section 4.3, *Development Program Consistency*, the Proposed Project would provide a new building to house UC Berkeley's existing academic programs and would not result in student or employment population growth at UC Berkeley. As such, the UC Berkeley campus population would remain within levels analyzed in the 2021 LRDP EIR and the Proposed Project would not be a significant growth-inducing project. Thus, it would be consistent with the overall goals of Plan Bay Area 2040 in concentrating new development in locations where there is existing infrastructure. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

GHG-3: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to GHG emissions. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.9 HAZARDS AND HAZARDOUS MATERIALS

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Determined to Have No Impact in the 2021 LRDP EIR					
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, result in a safety hazard or excessive noise for people residing or working in the project area?	NI		X		

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	LTS		X		
HAZ-2: 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?	LTS		X		
HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	LTS		X		
HAZ-4: Be located on a site which is included on a list of hazardous materials 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?	LTS			X	
HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	LTS		X		
HAZ-6: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	LTS		X		
*Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	*See Section 4.1.20, Wildfire, of this Addendum*				

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable
* Note: Impacts related to exposing people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires are fully discussed in the Draft EIR in Chapter 5.18, Wildfire, and in this Addendum in Section 5.1.20, Wildfire. Therefore, this standard is not discussed in this section.

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Determined to Have No Impact in the 2021 LRDP EIR

The topic of airport-related hazards has been screened out from further evaluation because the EIR Study Area is not within an airport land use plan or within two miles of an airport. The nearest public airport is the

Oakland International Airport, roughly ten miles south of the planning area. Therefore, no impact would occur regarding hazards related to the Proposed Project's location within an airport land use plan area or within two miles of a public airport or public use airport. Consequently, this issue is not discussed further in this Addendum. See Section 7.1.5, *Hazards and Hazardous Materials*, of the 2021 LRDP EIR.

Topics Evaluated in the 2021 LRDP EIR

HAZ-1 through HAZ-4: The 2021 LRDP EIR identified less-than-significant impacts at the program level for the 2021 LRDP with respect to the hazards associated with the use, handling, disposal, and release of hazardous materials. The closest sensitive receptors to the Proposed Project are the mixed-use residential buildings approximately 720 feet south of the Proposed Project along Bancroft Way. Sensitive receptor locations could be potentially exposed to hazardous materials from the proposed construction and operation of the Proposed Project.

Construction activities for the Proposed Project would include the use of materials such as fuels, lubricants, and greases in construction equipment and coatings. The potential exists for these materials to spill or to create hazardous conditions. However, the materials used would not be in such quantities or stored in such a manner as to pose a significant safety hazard to nearby sensitive receptors. Fugitive dust would be generated primarily from ground-disturbing and material-loading activities in addition to vehicles traveling over unpaved surfaces. However, fugitive dust associated with construction activities would not expose off-site sensitive receptors to substantial concentrations of air pollutants (see Appendix B, *Construction Health Risk Assessment*, of this Addendum). To prevent hazardous conditions, existing UC Berkeley, State, and federal laws would be enforced at the construction site. Furthermore, these activities would also be short term or one time in nature and would cease upon completion of the construction phases for the Proposed Project.

Operation of the Proposed Project would involve the use of small amounts of hazardous materials, such as cleansers, paints, fertilizers, and pesticides, for cleaning and maintenance purposes. However, hazardous materials stored and handled on the UC Berkeley campus would not exist in quantities sufficient to pose a risk to occupants of nearby sensitive receptors, in case of an accidental release, and a risk management plan would be prepared in accordance with the State of California's Accidental Release Prevention program requirements, if necessary. Additionally, the use, storage, transport, and disposal of hazardous materials would be governed by existing regulations of several agencies, including the Environmental Protection Agency, Department of Toxic Substances Control, U.S. Department of Transportation, International Air Transport Association, California Division of Occupational Safety and Health, and UC Berkeley Office of Environment, Health & Safety (EH&S) programs and policies.

The Proposed Project would adhere to CBP HAZ-1, which requires the continued implementation of equivalent health and safety plans, programs, practices, and procedures related to the use, storage, disposal, or transportation of hazardous materials and wastes.

The project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would result in no impact to the public or the environment. Regardless, the Proposed Project would adhere to CBP HAZ-5, and UC Berkeley would perform a site history and due

diligence assessment of the project site where ground-disturbing construction is proposed, to assess the potential for soil and groundwater contamination resulting from past or current site land uses at the site or in the vicinity. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

HAZ-5: The 2021 LRDP EIR identified less-than-significant impacts concerning adopted emergency response plans or emergency evacuation plans. The Proposed Project would be required to comply with the provisions of the California Fire Code (CFC) and the CBC, which would ensure that building and life safety measures are incorporated into the Proposed Project and would facilitate implementation of emergency response plans. During construction, the Proposed Project would be required to comply with all applicable provisions of the CFC to ensure fire safety during the construction phase. The Proposed Project would not involve physical components that would interfere with the ability of UC Berkeley, the City of Berkeley, Alameda County, or emergency response service providers to implement emergency response activities within the project site or vicinity. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

HAZ-6: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to hazards and hazardous materials. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.10 HYDROLOGY AND WATER QUALITY

Would the Proposed Project:

Environmental Issues		Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
			New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR						
HYD-1:	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	LTS		X		
HYD-2:	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	LTS		X		

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
HYD-3: 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: a) Result in substantial erosion or siltation on or off site? b) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; c) 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 d) Impede or redirect flood flows?	LTS		X		
HYD-4: In flood, hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	LTS		X		
HYD-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	LTS		X		
HYD-6: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

HYD-1 through HYD-5: The 2021 LRDP EIR identified less-than-significant impacts at the program level for the 2021 LRDP with respect to hydrology and water quality. Because the Proposed Project would involve the disturbance of more than one acre of land, it would be required to comply with the requirements of the Construction General Permit, which includes submitting Permit Registration Documents to the State Water Resources Control Board and preparing and implementing a Stormwater Pollution Prevention Plan that includes measures to reduce the potential for erosion, siltation, and pollutants to enter the storm drain

system. UC Berkeley's EH&S or a designated third party would also verify that the Proposed Project complies with all applicable requirements and BMPs.

The Proposed Project's stormwater management strategy is designed to manage runoff and treat and remove pollutants prior to discharge. Furthermore, East Bay Municipal Utility District (EBMUD) does not use groundwater for water supply, and therefore implementation of the project would not decrease groundwater supplies. The groundwater basin that extends under the project site is not currently the local water supply and does not serve local or planned land uses. The proposed site is not in a dam or tsunami inundation zone.

The Campus Design Standards prohibit all development within the 100-year floodplain. The limit of work at the southwestern edge of the project site may extend into the 100-year floodplain mapped along Strawberry Creek. However, the Proposed Project would not place any new structures within the floodplain, and would therefore not redirect or obstruct floodwaters or reduce the stormwater carrying capacity of the floodplain.

Construction dewatering would be required for the construction of the auditorium and elevator due to the presence of shallow groundwater. The effects of dewatering are temporary in nature and would not substantially interfere with groundwater recharge nor contribute to the lowering of the local groundwater table. No issues regarding contaminated soil or groundwater have been reported at the site. However, a dewatering plan must be submitted by the contractor and approved by UC Berkeley's EH&S and Facilities Services offices prior to the start of construction to ensure that all disposal of water is in accordance with State and local regulations.

The Proposed Project would adhere to CBP HYD-1 through CBP HYD-3, CBP HYD-5 through CBP HYD-8, CBP HYD-11, and CBP HYD-13. In implementing these CBPs, UC Berkeley reviews each development project to determine whether project runoff would affect rainwater infiltration to groundwater or increase pollutant loading and verify that the Proposed Project complies with all applicable requirements and BMPs, including implementation of the Strawberry Creek Management Plan. UC Berkeley also continues to manage runoff into storm drain systems to avoid no net increase in runoff over existing conditions, and maintains a campuswide educational program regarding safe use and disposal of facilities maintenance chemicals and laboratory chemicals to prevent the discharge of these pollutants. Dewatering would be monitored and maintained by qualified engineers in compliance with the Campus Design Standards and applicable regulations. Landscaped areas of the project site would be designed to absorb runoff from rooftops and walkways, and encroachment into creek channels and riparian zones would be prohibited.

Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

HYD-6: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to hydrology and water quality. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.11 LAND USE AND PLANNING

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
LU-1: Physically divide an established community?	LTS		X		
LU-2: Cause a significant environmental impact due to a conflict with any land use plan, or policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	LTS		X		
LU-3: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

LU-1: The 2021 LRDP EIR identified less-than-significant impacts at the program level for the 2021 LRDP with respect to established communities. The Proposed Project would be an infill development within the Campus Park and would not change the layout of existing roadways or create features that would divide established communities. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

LU-2: The 2021 LRDP EIR identified less-than-significant impacts concerning conflict with any land use plan, or policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. UC Berkeley is constitutionally exempt from local regulations whenever using property under its control in furtherance of its educational mission. The Proposed Project is consistent with the land uses and intensities of development contemplated in the 2021 LRDP, which prioritizes development sites on the Campus Park for academic and research space. Moreover, the Proposed Project would support 2021 LRDP goals by providing a range of spaces for academic research, offices, classrooms, and other collaborative meeting spaces to promote excellence and leadership in teaching, research, and public service. Furthermore, the Proposed Project would adhere to CBP LU-1, which requires new projects in the Campus Park to conform to the Physical Design Framework. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

LU-3: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to land use and planning. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.12 MINERAL RESOURCES

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Determined to Have No Impact in the 2021 LRDP EIR					
Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	NI		X		
Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	NI		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Determined to Have No Impact in the 2021 LRDP EIR

The 2021 LRDP EIR did not analyze impacts to mineral resources because there are no areas in the EIR Study Area, including the project site, with development potential that contain mineral resources where there is adequate information indicating significant mineral deposits or the high likelihood of significant mineral deposits. Accordingly, this issue is not discussed further in this Addendum. See Section 7.1.6, *Mineral Resources*, of the 2021 LRDP EIR.

5.1.13 NOISE

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Determined to Have No Impact in the 2021 LRDP EIR					
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?	NI		X		
Topics Evaluated in the 2021 LRDP EIR					
NOI-1: Generate 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?	SU		X		
NOI-2: Generate excessive groundborne vibration or groundborne noise levels?	LTS/M		X		
NOI-3: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	SU		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Determined to Have No Impact in the 2021 LRDP EIR

The topic of airport-related noise has been screened out from further evaluation because the EIR Study Area is not within two miles of an airport. The nearest public airport is the Oakland International Airport, roughly ten miles south of the planning area. Therefore, no impact would occur regarding noise hazards due to proximity to airports. Consequently, this issue is not discussed further in this Addendum. See Section 7.1.7, *Noise*, of the 2021 LRDP EIR.

Topics Evaluated in the 2021 LRDP EIR

NOI-1: The 2021 LRDP EIR identified significant and unavoidable impacts at the program level for the 2021 LRDP with respect to ambient noise levels because construction activities associated with potential future projects may occur near noise-sensitive receptors, and noise disturbances may occur for prolonged periods or during the more sensitive nighttime hours or may exceed UC Berkeley's adopted construction noise

standards, even with project-level mitigation. Two types of short-term noise impacts could occur during construction of the Proposed Project: (1) mobile-source noise from the transport of workers, material deliveries, and debris/soil hauling and (2) stationary-source noise from use of construction equipment. The transport of workers and materials to and from the construction site would incrementally increase noise levels along local roadways. Anticipated construction equipment would include, but is not limited to, saws, backhoes/loaders, generators, excavators, plate compactors, and a crane. Construction of the Proposed Project would temporarily increase the noise level of the ambient noise environment and would have the potential to affect noise-sensitive land uses in the vicinity of the project site. However, no noise-sensitive receptors exist within 700 feet of the project. Any potentially sensitive receptors beyond 700 feet would have noise attenuated below levels of concern by existing vegetation and buildings. Therefore, the Proposed Project would not require any mitigation or temporary noise barriers to reduce construction noise levels.

Similar to the construction phase, two types of noise impacts could occur during operation of the Proposed Project: (1) mobile-source noise from vehicles traveling to and from the Proposed Project (from visitors and deliveries) and (2) stationary-source noise from people and equipment on the project site. Based on the program-level traffic noise analysis conducted for the 2021 LRDP EIR, cumulative traffic noise at full buildout of the 2021 LRDP is anticipated to increase by 1.0 dBA (A-weighted decibels) along Oxford Street south of Center Street and by 1.1 dBA along Bancroft Way between Dana Street and Telegraph Avenue.[6] These increases are under the 1.5 dBA threshold identified in the 2021 LRDP EIR as the minimum level of noise increase considered to represent a significant impact, depending on the ambient noise environment.[7] Traffic noise increases associated with the operation of the Proposed Project are expected to be minimal because the Proposed Project would not result in an increase to the UC Berkeley campus population.

Regarding stationary noise sources, the Proposed Project would adhere to CBP NOI-1, which requires mechanical equipment selection and building design shielding to be used as appropriate so that noise levels from building operations would not exceed the limits of the City of Berkeley Noise Ordinance. The Proposed Project would also adhere to CBP NOI-2, which lists required measures to be implemented for all construction projects to minimize site disruptions. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

NOI-2: The 2021 LRDP EIR identified less-than-significant impacts with mitigation concerning groundborne vibration levels associated with construction. Vibration generated by construction equipment has the potential to damage or annoy nearby receptors. As required by 2021 LRDP EIR Mitigation Measure NOI-2, the Proposed Project would implement steps concerning the use of vibration-causing construction activities/equipment and, depending on construction activity/equipment and distances to receptors, would implement alternative methods/equipment and a construction vibration monitoring program, as required.

[6] University of California Berkeley, July 2021, UC Berkeley 2021 Long Range Development Plan and Housing Projects #1 and #2 Environmental Impact Report, State Clearinghouse No. 2020040078, Table 5.11-24.

[7] University of California Berkeley, July 2021, UC Berkeley 2021 Long Range Development Plan and Housing Projects #1 and #2 Environmental Impact Report, State Clearinghouse No. 2020040078, page 5.11-26.

Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

NOI-3: The 2021 LRDP EIR identified a significant and unavoidable cumulative impact for the 2021 LRDP with respect to noise. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.14 POPULATION AND HOUSING

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
POP-1: 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)?	LTS/M			X	
POP-2: Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	LTS/M				X
POP-3: In combination with past, present, and reasonably foreseeable projects, result in significant cumulative impacts?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

POP-1 and POP-2: The 2021 LRDP EIR identified less-than-significant impacts with mitigation at the program level for the 2021 LRDP with respect to unplanned population growth and displacement of people and housing. The Proposed Project includes offices, classrooms, and an auditorium. It is planned for nonresidential uses and does not involve new homes or businesses. The project site is currently undeveloped, and the Proposed Project would not displace people or housing because the existing project site does not house any residents. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

POP-3: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to population and housing. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.15 PUBLIC SERVICES

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
PS-1: Result in substantial adverse physical impacts associated with the need for new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police services?	LTS		X		
PS-2: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact to police services?	LTS		X		
PS-3: Result in substantial adverse physical impacts associated with 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 for fire protection services?	LTS		X		
PS-4: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact to fire protection services?	LTS		X		
PS-5: Result in substantial adverse physical impacts associated with the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives for school services?	LTS		X		
PS-6: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact to schools?	LTS		X		
PS-7: In order to maintain acceptable service ratios or other performance objectives, the Proposed Project would result in the provision of or need for new or physically altered library facilities, the construction or operation of which could cause significant environmental impacts?	LTS		X		

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
PS-8: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact to public services?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

PS-1, PS-3, PS-5, and PS-7: The primary purpose of the public services impact analysis is to examine the impacts associated with physical improvements to public service facilities required to maintain acceptable service ratios, response times, or other performance objectives. Public service facilities need improvements (i.e., construction, renovation, or expansion) as demand for services increases. Increased demand is typically driven by increases in population. A project would have a significant environmental impact if it would exceed the ability of public service providers to adequately serve the population, thereby requiring construction of new facilities or modification of existing facilities.

The 2021 LRDP EIR identified less-than-significant impacts at the program level for the 2021 LRDP with respect to public services. The Proposed Project would accommodate a daytime population that would represent a more intense use of the project site when compared to its existing undeveloped state. As described in Section 4.3, *Development Program Consistency*, the Proposed Project would provide a new building to house UC Berkeley's existing academic programs and would not result in student or employment population growth at UC Berkeley. As such, the UC Berkeley campus population would remain within levels analyzed in the 2021 LRDP EIR. Accordingly, the Proposed Project would not require the construction, renovation, or expansion of police services, fire protection services, school services, or library facilities in the project area. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

PS-2, PS-4, PS-6, and PS-8: The 2021 LRDP EIR identified less-than-significant cumulative impacts for the 2021 LRDP with respect to public services. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.16 PARKS AND RECREATION

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
REC-1: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks facilities, need for new or physically altered parks facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for parks services?	LTS		X		
REC-2: 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?	LTS		X		
REC-3: Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	LTS		X		
REC-4: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact related to parks and recreation?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

REC-1 through REC-3: The 2021 LRDP EIR identified less-than-significant impacts at the program level for the 2021 LRDP with respect to parks and recreational facilities. The Proposed Project does not involve housing that would induce population growth and would not remove any existing parks or recreational space. Therefore, implementation of the Proposed Project is not anticipated to create a need for new or altered parks or recreational facilities or increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration would occur or be accelerated. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

REC-4: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to parks and recreation. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.17 TRANSPORTATION

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
TRAN-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	LTS/M			X	
TRAN-2: Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	LTS		X		
TRAN-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	SU			X	
TRAN-4: Result in inadequate emergency access?	LTS		X		
TRAN-5: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact?	SU		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

TRAN-1: The 2021 LRDP EIR identified less-than-significant impacts with mitigation at the program level for the 2021 LRDP with respect to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The Proposed Project would be an infill development within the Campus Park and would not result in an increase to the UC Berkeley campus population. Furthermore, the Proposed Project would adhere to CBP TRAN-1 by ensuring bicycle, pedestrian, and transit access to the Proposed Project. Additionally, UC Berkeley will implement CBP TRAN-4 by working with the City of Berkeley, AC Transit, and BART to coordinate transit access to the new

academic building. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

TRAN-2: Pursuant to CEQA Guidelines Section 15064.3(b)(1), projects within half a mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less-than-significant transportation impact. Accordingly, the 2021 LRDP EIR did not evaluate impacts for projects within this screening distance. Due to its location within half a mile of the Downtown Berkeley BART station and a TPA, transportation impacts related to vehicle miles traveled (VMT) from the Proposed Project are presumed to be less than significant. Accordingly, no quantified VMT analysis is presented in this Addendum. See Section 7.1.8, *Transportation*, of the 2021 LRDP EIR.

TRAN-3: The 2021 LRDP EIR identified significant and unavoidable impacts in regard to hazards due to a geometric design feature or incompatible uses because of the unknowns of future buildings and structures at the time of analysis. The Proposed Project would be an infill development within the Campus Park and therefore would not introduce an incompatible use with the potential to create a transportation hazard. The Proposed Project would not include modifications in the City of Berkeley public right-of-way. Improvements to the pedestrian routes through and around the project site would be designed and constructed based on the applicable design standards and guidelines so as not to substantially increase hazards due to a geometric design feature related to roadway or sidewalks.

The 2021 LRDP EIR identifies a significant impact associated with pedestrian (ground) level wind hazards for new buildings that are 100 feet or more in height and includes Mitigation Measure TRAN-3 requiring a wind hazards analysis for buildings of this height. Along the Campanile Way frontage, the building would rise to approximately 72 feet at its tallest point; therefore, no mitigation is required.

Furthermore, the Proposed Project would adhere to CBP TRAN-5 through CBP TRAN-8, which require UC Berkeley to reimburse the City of Berkeley for its fair share of costs associated with damage to city streets from UC Berkeley construction activities; manage project schedules to minimize the overlap of excavation or other heavy truck activity periods that have the potential to combine impacts on traffic loads and street system capacity; and require contractors working on major new construction or major renovation projects to develop and implement a Construction Traffic Management Plan.

Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

TRAN-4: The 2021 LRDP EIR identified less-than-significant impacts concerning inadequate emergency access. The Proposed Project would provide emergency vehicle access along Frank Schlessinger Way and Campanile Way. Furthermore, the Proposed Project would improve nearby South Circle to accommodate an improved fire lane. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

TRAN-5: The 2021 LRDP EIR identified a significant and unavoidable cumulative impact for the 2021 LRDP with respect to transportation. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in

the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.18 TRIBAL CULTURAL RESOURCES

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
TCR-1: Cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is: a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of the Public Resource Code Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance to a California Native American tribe?	LTS/M		X		
TCR-2: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact to tribal cultural resources?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

TCR-1: The 2021 LRDP EIR identified less-than-significant impacts with mitigation at the program level for the 2021 LRDP with respect to tribal cultural resources. While UC Berkeley did not receive information as a result of the tribal consultation process that the 2021 LRDP would potentially impact a known tribal cultural

resource, the results of a site-specific reconnaissance survey identified that the project site has the potential to contain resources that may be associated with Native American habitation. Accordingly, development on the project site could impact potential tribal cultural resources, including Native American artifacts and human remains. The Proposed Project would implement 2021 LRDP EIR Mitigation Measure TCR-1, which requires implementation of Mitigation Measure CUL-2, described in the Cultural Resources section of this Addendum. Therefore, the Proposed Project would not result in any new or more severe impacts than were identified in the 2021 LRDP EIR, and no new mitigation measures would be required.

TCR-2: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to tribal cultural resources. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.19 UTILITIES AND SERVICE SYSTEMS

Would the Proposed Project:

Environmental Issues		Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
			New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR						
UTIL-1:	Require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects?	**LTS**		X		
UTIL-2:	Not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	**LTS**		X		
UTIL-3:	In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact related to water supply?	**LTS**		X		
UTIL-4:	Require or result in the relocation or construction of new or expanded wastewater treatment or facilities, the construction or relocation of which could cause significant environmental effects?	**LTS**		X		
UTIL-5:	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	**LTS**		X		

Would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRDP	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
UTIL-6: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact related to wastewater?	LTS		X		
UTIL-7: Require or result in the relocation or construction of new or expanded stormwater drainage facilities, the construction or relocation of which could cause significant environmental effects?	LTS		X		
UTIL-8: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact related to stormwater?	LTS		X		
UTIL-9: 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?	LTS		X		
UTIL-10: Not comply with federal, State, and local management and reduction statutes and regulations related to solid waste?	LTS		X		
UTIL-11: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact related to solid waste?	LTS		X		
UTIL-12: Require or result in the relocation or construction of new or expanded electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	LTS		X		
UTIL-13: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact related to electric power, natural gas, or telecommunications?	LTS		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

UTIL-1 and UTIL-2: The 2021 LRDP EIR identified less-than-significant impacts at the program level for the 2021 LRDP with respect to water facilities and supply. The Orinda Water Treatment Plant has maximum

capacity of 200 million gallons per day (MGD). Full implementation of the 2021 LRDP would increase demand by 348 MG/year or approximately 1 MGD, which would amount to less than 1 percent of the plant's capacity and would not have an adverse effect on the plant's operation.[8] With a combination of water conservation measures and acquisition of supplemental supplies, EBMUD would be able to accommodate water demand in normal, single dry years, and multiple dry years. The Proposed Project would adhere to CBP USS-1, CBP USS-3, and CBP USS-4, which require UC Berkeley to continue to evaluate the size of existing distribution lines and the pressure of the specific feed affected by development; incorporate specific water conservation measures into project design; and analyze water and sewer systems on a project-by-project basis. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

UTIL-4 and UTIL-5: The 2021 LRDP EIR identified less-than-significant impacts in regard to wastewater treatment. EBMUD's wastewater treatment plant has a residual capacity of 57 MGD and can accommodate the increase of 0.70 MGD in wastewater generation from the 2021 LRDP.[9] The increased wastewater demand would represent about 0.67 percent of the wastewater treatment plant's excess capacity, and the average annual daily flow is well below the permitted capacity. The Proposed Project has been designed to minimize water consumption and wastewater production. Furthermore, since the Proposed Project would connect to the UC Berkeley sewer system, it is included in UC Berkeley's annual payment of fees to the City of Berkeley. Wastewater discharge would also be required to comply with EBMUD's wastewater control ordinance, EBMUD Wastewater Discharge Permit for UC Berkeley, and the UC Berkeley sewer system management plan. The Proposed Project would adhere to CBP USS-3 and CBP USS-4, as well as CBP USS-5 requiring payments to service providers to help fund wastewater treatment collection facilities in conformance with California Government Code Section 54999. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

UTIL-7: The 2021 LRDP EIR identified less-than-significant impacts concerning stormwater facilities. The Proposed Project will occur in an urbanized and developed area that already contains a large amount of impervious surface. The Proposed Project would comply with the requirements of the Phase II MS4 Permit by implementing LID BMPs and site design BMPs, which effectively minimize the impact of impervious surfaces by treating, retaining or detaining stormwater on site, decreasing surface water flows, and slowing runoff rates. To meet MS4 Permit requirements, the Proposed Project will implement a combination of on-site BMPs within the project site, and off-site BMPs through the purchase of campus stormwater credits. In addition, UC Berkeley manages runoff into storm drain systems so that the aggregate effect of new projects creates no net increase in runoff over existing conditions. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

[8] University of California Berkeley, July 2021, UC Berkeley 2021 Long Range Development Plan and Housing Projects #1 and #2 Environmental Impact Report, State Clearinghouse No. 2020040078, page 5.17-15.

[9] University of California Berkeley, July 2021, UC Berkeley 2021 Long Range Development Plan and Housing Projects #1 and #2 Environmental Impact Report, State Clearinghouse No. 2020040078, page 5.17-32.

UTIL-9 and UTIL-10: The 2021 LRDP EIR identified less-than-significant impacts regarding solid waste generation and regulation. The Proposed Project would comply with the 2019 CALGreen Building Code Standards, the requirements of AB 341, AB 1826, SB 1383, SB 1335, the State Agency Buy Recycled Campaign, the City of Berkeley's Single Use Foodware Ordinance, and University of California's Sustainable Practices policies. The Keller Canyon Landfill would be able to accommodate projected solid waste from buildout of the 2021 LRDP until its closure date in 2030. If UC Berkeley has not yet met its zero-waste goal at that date, then an alternate landfill, such as Altamont Landfill, would be able to accommodate solid waste from UC Berkeley. Furthermore, the Proposed Project would adhere to CBP USS-6 and CBP USS-7, which require UC Berkley to continue implementing zero waste requirements, and contractors working for UC Berkeley to report their solid waste diversion. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

UTIL-12: The 2021 LRDP EIR identified less-than-significant impacts related to electric power, natural gas, and telecommunications. The 2021 LRDP would result in an increase in electricity consumption. The Proposed Project is an infill development. The project site includes a make-ready phase to bring power to the site from UC Berkeley's existing infrastructure. The Proposed Project would not result in the relocation or construction of new or expanded off-site electricity service facilities. The 2021 LRDP would result in a net decrease in natural gas usage over the buildout horizon because University of California and UC Berkeley energy policies prohibit new natural gas connections in new construction, like the Proposed Project, or large renovation projects on sites that are not in the cogeneration plant system, which currently uses natural gas. UC Berkeley is already served by telecommunications infrastructure, and the Proposed Project is anticipated to connect to existing telecommunication facilities and would not result in the relocation or construction of new or expanded telecommunications facilities off site. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

UTIL-3, UTIL-6, UTIL-8, UTIL-11, and UTIL-13: The 2021 LRDP EIR identified a less-than-significant cumulative impact for the 2021 LRDP with respect to utilities and service systems. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

5.1.20 WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Proposed Project:

Environmental Issues	Level of Impact for the 2021 LRDP in the 2021 LRDP EIR	Environmental Effects of the Proposed Project			
		New Less-Than-Significant Impact	Same Impact as 2021 LRD"	Less Impact Than 2021 LRDP	Topic Not Applicable to the Proposed Project
Topics Evaluated in the 2021 LRDP EIR					
WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan?	LTS		X		
WF-2: 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?	SU			X	
WF-3: 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?	SU			X	
WF-4: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	SU			X	
WF-5: In combination with past, present, and reasonably foreseeable projects, result in a cumulative impact related to wildfire?	SU		X		

Key: NI = no impact; LTS = less than significant; LTS/M = less than significant with mitigation; SU = significant and unavoidable

Summary of Analysis

No new significant or more severe impact than analyzed in the 2021 LRDP EIR.

Discussion

Topics Evaluated in the 2021 LRDP EIR

WF-1: The 2021 LRDP EIR identified a less-than-significant impact at the program level for the 2021 LRDP with respect to impairment of an adopted emergency response plan or emergency evacuation plan. The Proposed Project is not in a designated Fire Hazard Severity Zone (FHSZ), California Public Utilities Commission high-fire-threat district, or Wildland Urban Interface (WUI). The Proposed Project is in an urbanized area surrounded by existing development. However, it is within one-quarter mile of the Alameda County Local Responsibility Area (LRA) Very High FHSZ, and therefore vulnerable to wildfires in the area. The City of Berkeley identifies Bancroft Way and Oxford Street, two roadways near to the Proposed

Project, as emergency evacuation routes;[10] however, development of the Proposed Project would not alter these or other surrounding roadways. UC Berkeley has its own Emergency Preparedness Program and Emergency Operations Plan and coordinates emergency preparations, response, and recovery activities, such as those pertaining to wildfire, under its Office of Emergency Management. The Proposed Project would be required to integrate these plans. In addition, the Proposed Project would comply with applicable regulations that involve fire prevention and safety measures, such as the CBC and CFC. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

WF-2 and WF-4: The 2021 LRDP EIR identified significant and unavoidable impacts concerning exacerbation of wildfire risks due to steep terrain and heavy vegetation in the Hill Campus East. The project site is within the western portion of the Campus Park, which is generally flat. Because the project site is an already urbanized area and is not within a FHSZ or the WUI, the Proposed Project would not, from prevailing winds or other factors such as vegetation, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. In addition, the project site is not subject to landslide hazards and would not place any new structures within a flood hazard zone. Under CBP WF-3, UC Berkeley will continue to plan and implement programs to reduce risk of wildland fires. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

WF-3: The 2021 LRDP EIR identified significant and unavoidable impacts concerning installation or maintenance of associated infrastructure in the Very High FHSZ that may exacerbate fire risk due to the potential unknown impacts from future development at the time of analysis. The Proposed Project would involve new utility connections to existing utility infrastructure on the Campus Park and would include improvements to the on-campus roadways accessing the project site. Construction of the project would not require additional off-site utilities infrastructure. Due to the location of the Proposed Project outside of the fire hazard severity zones and the WUI, the installation of on-site utilities and infrastructure would not exacerbate fire risks. Furthermore, consistent with 2021 LRDP EIR Mitigation Measure WF-3, electrical lines would be undergrounded, with the exception of a portion of the make-ready electrical infrastructure that would be placed within an above-ground duct bank across Strawberry Creek, to avoid adverse effects to the creekbed. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

WF-5: The 2021 LRDP EIR identified a significant and unavoidable cumulative impact for the 2021 LRDP with respect to wildfire. The cumulative setting for the Proposed Project is buildout under the 2021 LRDP, and the Proposed Project would not result in additional development beyond what was analyzed in the 2021 LRDP EIR. Therefore, the Proposed Project would not result in any new significant impacts or a substantial increase in the severity of a previously identified significant impact.

[10] City of Berkeley, Emergency Access and Evacuation Network, https://berkeleyca.gov/sites/default/files/documents/Berkeley-Emergency-Access-Evacuation-Routes-06-2011.pdf, accessed July 25, 2022.

5.2 MANDATORY FINDINGS OF SIGNIFICANCE

Would the Proposed Project:

Environmental Issues	New Less-Than-Significant Impact	Topic Not Applicable to the Proposed 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?	X	
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.)	X	
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	X	

Discussion

a) With respect to biological resources and cultural resources, development under the Proposed Project would not change from the 2021 LRDP. The Proposed Project would not increase the 2021 LRDP's development program and boundaries. As discussed throughout this Addendum, the Proposed Project would not result in a new impact or a substantial increase in magnitude of the existing impacts.

b) CEQA Guidelines Section 15355, Cumulative Impacts, defines cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts may result from individually minor, but collectively significant projects taking place over a period of time. As described in Section 4.3, *Development Program Consistency*, buildout of the Proposed Project, in addition to past and pending projects since certification of the 2021 LRDP EIR, is within the net new buildout analyzed in the 2021 LRDP EIR.

Section 5.1, *Environmental Evaluation of the Proposed Project*, of this Addendum includes an evaluation of the Proposed Project's potential cumulative impacts. As discussed throughout Section 5.1, the Proposed Project would not create any new significant cumulative impacts. The Proposed Project would incrementally contribute to, but would not exceed, the cumulative impacts analyses in the 2021 LRDP EIR. Therefore, the Proposed Project would not be expected to contribute to significant cumulative impacts when considered along with other projects constructed under the 2021 LRDP.

c) Development under the Proposed Project would not change from the 2021 LRDP with respect to direct and indirect effects on human beings. The Proposed Project would not increase the 2021 LRDP's development program and boundaries. As discussed throughout this Addendum, the Proposed Project would not result in a new impact or a substantial increase in magnitude of existing impacts.

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6. Conclusion

As summarized below, and for the reasons described in Section 5, *Environmental Analysis*, of this Addendum, UC Berkeley has concluded that the Proposed Project would not result in any new significant impacts not previously identified in the 2021 LRDP EIR; nor would it result in a substantial increase in the severity of any significant environmental impact previously identified in the 2021 LRDP EIR. For these reasons, a subsequent EIR is not required, and an Addendum to the 2021 LRDP EIR is the appropriate CEQA document to address the Proposed Project.

6.1 SUBSTANTIAL CHANGES TO THE PROJECT

The Proposed Project is not a substantial change to the 2021 LRDP because it is within the study area described in the 2021 LRDP EIR in Section 3.4, *EIR Study Area*, and shown on Figure 3-2, *EIR Study Area*, and because it is within the buildout and population projections described and evaluated in Section 3.5.1.8, *Development Program*, of the 2021 LRDP EIR. Consequently, there are no substantial changes proposed to the 2021 LRDP that will require major revisions of the 2021 LRDP EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

6.2 SUBSTANTIAL CHANGES IN CIRCUMSTANCES

As described in Section 5, *Environmental Analysis*, of this Addendum, the Proposed Project would not result in new significant environmental impacts beyond those identified in the 2021 LRDP EIR, would not substantially increase the severity of significant environmental effects identified in the 2021 LRDP EIR, and thus would not require major revisions to the 2021 LRDP EIR. The Proposed Project, therefore, is not substantial and does not require major revisions to the 2021 LRDP EIR or preparation of a subsequent EIR. In addition, the physical conditions within the UC Berkeley campus have not changed substantially since the certification of the 2021 LRDP EIR, although some structures have been improved and others have been demolished.

6.3 NEW INFORMATION

No new information of substantial importance, which was not known and could not have been known when the 2021 LRDP EIR was certified in 2021, shows that the Proposed Project would be expected to result in: 1) new significant environmental effects not identified in the 2021 LRDP EIR; 2) substantially more severe environmental effects than shown in the 2021 LRDP EIR; 3) mitigation measures or alternatives previously determined to be infeasible that would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project sponsor declines to adopt the mitigation or alternative; or 4) mitigation measures or alternatives that are considerably different from those identified in the 2021

LRDP EIR that would substantially reduce one or more significant effects of the project, but the project sponsor declines to adopt the mitigation measure or alternative.

APPENDIX A

APPLICABLE PROGRAM-LEVEL MITIGATION MEASURES AND CONTINUING BEST PRACTICES

Applicable Program-Level Mitigation Measures and Continuing Best Practices

The table below identifies mitigation measures and Continuing Best Practices (CBPs) from the 2021 LRDP EIR that are applicable to the Gateway Project.

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
Air Quality	Mitigation Measure	AIR-2.1	UC Berkeley shall use equipment that meets the United States Environmental Protection Agency Tier 4 Final emissions standards or higher for off-road diesel-powered construction equipment with more than 50 horsepower, unless it can be demonstrated to UC Berkeley that such equipment is not commercially available. For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier 4 Final engines similar to the availability for other large-scale construction projects in the city occurring at the same time and taking into consideration factors such as (i) potential significant delays to critical-path timing of construction and (ii) geographic proximity to the project site of Tier 4 Final equipment. Where such equipment is not commercially available, as demonstrated by the construction contractor, Tier 4 interim equipment shall be used. Where Tier 4 interim equipment is not commercially available, as demonstrated by the contractor, Tier 3 equipment retrofitted with a California Air Resources Board's Level 3 Verified Diesel Emissions Control Strategy (VDECS) shall be used. The requirement to use Tier 4 Final equipment or higher for engines over 50 horsepower shall be identified in construction bids and the following shall also be completed: • Prior to construction, the project engineer shall ensure that all demolition and grading plans clearly show the requirement for United States Environmental Protection Agency Tier 4 Final or higher emissions standards for construction equipment over 50 horsepower. • During construction, the construction contractor shall maintain a list of all operating equipment in use over 20 hours on the construction site for verification by UC Berkeley. • The construction equipment list shall state the makes, models, and numbers of construction equipment on-site. • To the extent that equipment is available and cost-effective, contractors shall use electric, hybrid, or alternate-fueled off-road construction equipment. • Contractors shall use electric construction tools, such as saws, drills, and compressors, where grid electricity is available. • Construction activities shall be prohibited when the Air Quality Index (AQI), as measured by the closest Bay Area Air Quality Management District monitoring station (e.g., Berkeley Aquatic Center), is greater than 150 for particulates and ozone in the project area. • Contractors shall provide information on transit and ridesharing programs and services to construction employees.	2021 LRDP EIR Table 6-1, Mitigation Monitoring and Reporting Program for the Long Range Development Plan

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			Additionally, meal options on-site and/or shuttles between the facility and nearby meal destinations for construction employees shall be provided.	
Air Quality	Mitigation Measure	AIR-2.2	To reduce Reactive Organic Gas emissions, for interior architectural coatings, UC Berkeley shall utilize certified (e.g., Greenguard or Green Seal) low-Volatile Organic Compound (VOC) paints or, when feasible, no-VOC paints (i.e., less than 5 grams per liter of VOC). UC Berkeley shall verify that the requirement to use low-VOC (and/or no-VOC) paints is identified in construction bids and on architectural plans.	2021 LRDP EIR Table 6-1, Mitigation Monitoring and Reporting Program for the Long Range Development Plan
Air Quality	Mitigation Measure	AIR-3.1	Construction projects subject to CEQA on sites one acre or greater, within 1,000 feet of residential and other sensitive land use projects (e.g., hospitals, schools, nursing homes, day care centers), as measured from the property line of the project to the property line of the source/edge of the sensitive land use, that utilize off-road equipment of 50 horsepower or more and, that occur for more than 12 months of active construction (i.e., exclusive of interior renovations), shall require preparation of a construction health risk assessment (HRA) prior to future discretionary project approval, as recommended in the current HRA Guidance Manual prepared by the California Office of Environmental Health Hazard Assessment (OEHHA). Additionally, UC Berkeley shall consider whether unusual circumstances warrant evaluation of construction health risk for projects with construction durations of less than 12 months or on development sites smaller than one acre. For example, unusual circumstances would include sites that require extensive site preparation with more than 10,000 cubic yards of excavation. The construction HRA shall generally be prepared in accordance with policies and procedures of the OEHHA and the Bay Area Air Quality Management District. The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the construction HRA shows that the incremental cancer risk exceeds 10 in a million (10E-06), PM2.5 concentrations exceed 0.3 µg/m3, or the appropriate noncancer hazard index exceeds 1.0, the construction HRA shall be required to identify all feasible measures capable of reducing potential cancer and noncancer risks to an acceptable level to the extent feasible (i.e., below 10 in a million, a hazard index of 1.0, or 0.3 µg/m3 of PM2.5), including appropriate enforcement mechanisms. Examples of feasible measures include use of U.S. Environmental Protection Agency rated Tier 4 construction equipment, diesel particulate filters, and electric equipment. The construction health risk assessment shall be submitted to UC Berkeley's Office of Environment, Health & Safety for review and approval. Measures identified in the health risk assessment shall be included in bid documents, purchase orders, contracts, and grading plans prepared for the development projects. Compliance with these measures shall be verified during regular construction site inspections.	2021 LRDP EIR Table 6-1, Mitigation Monitoring and Reporting Program for the Long Range Development Plan
Biological Resources	Mitigation Measure	BIO-4	Structures and buildings that are new or are taller than existing structures and buildings shall be designed to minimize the potential risk of bird collisions. This should at a minimum include the following design considerations	2021 LRDP EIR Table 6-1,

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			and management strategies: (1) avoid the use of highly reflective glass as an exterior treatment, which appears to reproduce natural habitat and can be attractive to some birds; (2) limit reflectivity and prevent exterior glass from attracting birds in building plans by utilizing low-reflectivity glass and providing other non-attractive surface treatments; (3) use low-reflectivity glass or other bird safe glazing treatments for the majority of the building's glass surface, not just the lower levels; (4) for office and commercial buildings, interior light "pollution" should be reduced during evening hours through the use of a lighting control system programmed to shut off during non-work hours and between 10 p.m. and sunrise; (5) exterior lighting should be directed downward and screened to minimize illuminating the exterior of the building at night, except as needed for safety and security; (6) untreated glass skyways or walkways, freestanding glass walls, and transparent building corners should be avoided; (7) transparent glass should not be allowed at the rooflines of buildings, including in conjunction with green roofs; and (8) all roof mechanical equipment should preferably be covered by low-profile angled roofing or other treatments so that obstacles to bird flight are minimized. These strategies shall be incorporated at the direction of the Campus Architect during plan review, and the Campus Architect shall confirm the incorporation of these strategies into architectural plans prior to building construction. The Campus Architect shall incorporate additional strategies to avoid or reduce avian collisions that are indicated by the best available science.	Mitigation Monitoring and Reporting Program for the Long Range Development Plan
Cultural Resources	Mitigation Measure	CUL-1.1e	Implement Mitigation Measure NOI-2.	2021 LRDP EIR Table 6-1, Mitigation Monitoring and Reporting Program for the Long Range Development Plan
Cultural Resources	Mitigation Measure	CUL-2	For construction projects that include substantial ground-disturbing activities (including, but not limited to, soil removal, parcel grading, new utility trenching, and foundation-related excavation), UC Berkeley shall implement the following steps to ensure impacts to archaeological resources will be less than significant. • **All Projects with Ground-Disturbing Activities.** ○ Prior to soil disturbance, UC Berkeley shall confirm that contractors have been notified of the procedures for the identification of federal- or State-eligible cultural resources, and that the construction crews are aware of the potential for previously undiscovered archaeological resources or tribal cultural resources on site, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work. ○ If a resource is discovered during construction (whether or not an archaeologist is present), the following measures shall be implemented: - All soil disturbing work within 35 feet of the find shall cease. - UC Berkeley shall contact a qualified archaeologist to provide and implement a plan for survey, subsurface	2021 LRDP EIR Table 6-1, Mitigation Monitoring and Reporting Program for the Long Range Development Plan

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			investigation as needed to define the deposit, and assessment of the remainder of the site within the project area to determine whether the resource is significant and would be affected by the project. - Any previously undiscovered resources found during construction activities shall be recorded on appropriate California Department of Parks and Recreation forms and evaluated for significance in terms of the California Environmental Quality Act (CEQA) criteria by a qualified archaeologist. - If the resource is a tribal cultural resource, the consulting archaeologist, approved by UC Berkeley in consultation with the appropriate tribe as determined by the Native American Heritage Commission, shall consult with the appropriate tribe to evaluate the significance of the resource and to recommend appropriate and feasible avoidance, testing, preservation or mitigation measures, in light of factors such as the significance of the find, proposed project design, costs, and other considerations. - If avoidance is infeasible, other appropriate measures (e.g., data recovery) may be implemented. - If the resource is a non-tribal resource determined significant under CEQA, a qualified archaeologist shall prepare and implement a research design and archaeological data recovery plan that will capture those categories of data for which the site is significant. - The archaeologist shall also perform appropriate technical analyses; prepare a comprehensive report complete with methods, results, and recommendations; and provide for the permanent curation of the recovered resources if appropriate. - The report shall be submitted to the relevant city (if it falls under Berkeley or Oakland boundaries), California Historic Resources Information System Northwest Information Center, and the State Historic Preservation Office, if required. • **Areas with High Archaeological Sensitivity.** In addition to the requirements above for all construction projects with ground-disturbing activities, for projects in areas with moderately high to extreme archaeological sensitivity (as shown on the confidential Figure 11, Prehistoric Cultural Sensitivity Overlay Analysis Results, prepared for the 2021 LRDP Update EIR) ground-disturbing activities shall be monitored from the outset. Monitoring shall occur for soil removal, parcel grading, new utility trenching, and foundation-related excavation in those areas that extend into previously undisturbed soils. If the resources are tribal, archaeological monitoring must be undertaken by a qualified archaeologist approved by UC Berkeley in consultation with the appropriate tribe as determined by the Native American Heritage Commission or the appropriate tribe, who is familiar with a wide range of prehistoric archaeological or tribal remains and is conversant in artifact identification, human and faunal bone, soil descriptions, and interpretation. Based on project-specific daily construction schedules, field conditions, and archaeological observations, full-time monitoring may not be warranted following initial observations. • **Sites with Known Archaeological Resources.** In the event the disturbance of a site with known archaeological or tribal cultural resources cannot be avoided, in addition to the requirements above for all construction projects with ground-disturbing activities, for project sites with known on-site archaeological or tribal cultural resources, the following additional actions shall be implemented prior to ground disturbance: ○ UC Berkeley, in consultation with the appropriate tribe, will retain a qualified archaeologist to conduct a	

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			subsurface investigation of the project site, and to ascertain the extent of the deposit of any buried archaeological materials relative to the project's area of potential effects. The archaeologist shall prepare a site record and, upon tribal approval, it shall be filed with the California Historical Resource Information System. ○ If the resource extends into the project's area of potential effects, the resource shall be evaluated by a qualified archaeologist approved by UC Berkeley in consultation with the appropriate tribe. UC Berkeley shall consider this evaluation in determining whether the resource qualifies as a historical resource or a unique archaeological resource under the criteria of California Environmental Quality Act (CEQA) Guidelines Section 15064.5. - If the resource does not qualify, no further mitigation is required unless there is a discovery of additional resources during construction (as required above for all construction projects with ground-disturbing activities). - If a resource is determined to qualify as an historical resource or a unique archaeological resource in accordance with CEQA, UC Berkeley shall consult with the appropriate tribe (in the case of Native American sites) and a qualified archaeologist, approved by UC Berkeley in consultation with the appropriate tribe, to mitigate the effect through data recovery if appropriate to the resource or, if data recovery is infeasible, to consider means of avoiding or reducing ground disturbance within the site boundaries, including where and if feasible, minor modifications of building footprint, landscape modification, the placement of protective fill, the establishment of a preservation easement, or other means that would permit avoidance or substantial preservation in place of the resource. A written report of the results of investigations shall be prepared by a qualified archaeologist and, upon tribal approval, filed with the University Archives/ Bancroft Library and the California Historic Resources Information System Northwest Information Center.	
Geology and Soils	Mitigation Measure	GEO-5	For ground-disturbing activities within highly sensitive geologic formations (i.e., Franciscan Assemblage, Great Valley Sequence, Orinda Formation, Claremont Chert, unnamed mudstone, or older alluvium, as shown on Figure 5.6-1, Geologic Map, of the 2021 LRDP Update EIR), if pre-construction testing does not take place, ground-disturbing activities shall implement the following measures. "Ground-disturbing activities" shall include soil removal, parcel grading, utility trenching, and foundation-related excavation in those areas that extend into previously undisturbed soils. ● UC Berkeley shall provide a paleontological resources awareness training program to all construction personnel active on the project site during earth moving activities. The first training will be provided prior to the initiation of ground-disturbing activities by a qualified paleontologist. The program will include relevant information regarding fossils and fossil-bearing formations that may be encountered. The training will also describe appropriate avoidance and minimization measures for resources that have the potential to be located on the project site. ● If any paleontological resources are encountered during ground-disturbing activities, the contractor shall ensure that activities in the immediate area of the find are halted and that UC Berkeley is informed. UC Berkeley shall retain a qualified paleontologist to evaluate the discovery and recommend appropriate treatment options pursuant to guidelines developed by the Society of Vertebrate Paleontology, including development and implementation of a paleontological resource impact mitigation program by a qualified paleontologist for treatment of the particular resource, if applicable. These measures may include, but not be limited to the following:	2021 LRDP EIR Table 6-1, Mitigation Monitoring and Reporting Program for the Long Range Development Plan

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<tr><th>Topic</th><th>Type of Measure</th><th>Mitigation/ CBP #</th><th>Mitigation/Continuing Best Practice Text</th><th>Source Document</th></tr>
<tr><td></td><td></td><td></td><td>○ salvage of unearthed fossil remains and/or traces (e.g., tracks, trails, burrows);
○ screen washing to recover small specimens;
○ preparation of salvaged fossils to a point of being ready for curation (e.g., removal of enclosing matrix, stabilization and repair of specimens, and construction of reinforced support cradles); and
○ identification, cataloging, curation, and provision for repository storage of prepared fossil specimens.</td><td></td></tr>
<tr><td>Noise</td><td>Mitigation Measure</td><td>NOI-2</td><td>If any vibration causing construction activities/equipment are anticipated to be used for future development projects, UC Berkeley shall implement the following steps to ensure impacts from vibration causing construction activities/equipment will be less than significant.
• Step 1 (Activity/Equipment Screening Distances): UC Berkeley shall use the construction vibration screening standards shown below based on Federal Transit Administration criteria to determine if the construction activity/equipment is within the vibration screening distances that could cause building damage/human annoyance or sensitive equipment disturbance. If the construction activity/equipment is within the screening distance, then Step 2 (Alternative Methods/Equipment) shall be implemented.
Screening Distances to PPV in/sec Threshold: Building Damage
<table><tr><th>Activity/Equipment</th><th>Reference Vibration Levels (in/sec PPV) at 25 feet</th><th>Screening Level Distance in feet for 0.20 in/sec PPV [a]</th><th>Screening Level Distance in feet for 0.12 in/sec PPV [b]</th></tr><tr><td>Pile Driving</td><td>1.518</td><td>97</td><td>136</td></tr><tr><td>Caisson Drilling</td><td>0.089</td><td>15</td><td>21</td></tr><tr><td>Vibratory Roller</td><td>0.21</td><td>26</td><td>37</td></tr><tr><td>Large Bulldozer</td><td>0.089</td><td>15</td><td>21</td></tr></table>Screening Distance to VdB Threshold: Human Annoyance and Sensitive Equipment Disturbance
<table><tr><th>Activity/Equipment</th><th>Reference Vibration Levels (VdB) at 25 feet</th><th>Screening Level Distance in feet for 72 VdB [c]</th><th>Screening Level Distance in feet for 65 VdB [d]</th></tr><tr><td>Pile Driving</td><td>112</td><td>520</td><td>890</td></tr><tr><td>Caisson Drilling</td><td>87</td><td>80</td><td>140</td></tr><tr><td>Vibratory Roller</td><td>94</td><td>140</td><td>240</td></tr><tr><td>Large Bulldozer</td><td>87</td><td>80</td><td>140</td></tr></table>Notes: Peak Particle Velocity inches per second (PPV in/sec); Vibration Decibel (VdB).
a. FTA Building Category III, Non-engineered timber and masonry buildings (residential).
b. FTA Building Category IV, Buildings extremely susceptible to vibration damage (historic).
c. FTA Land Use Category 2, Residences and buildings where people normally sleep.
d. FTA Land Use Category 1, Buildings where vibration would interfere with interior operations.
Source: Federal Transit Administration, 2018, Transit Noise and Vibration Impact Assessment.</td><td>2021 LRDP EIR Table 6-1, Mitigation Monitoring and Reporting Program for the Long Range Development Plan</td></tr>
</table>

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			• **Step 2 (Alternative Methods/Equipment):** When the anticipated vibration-causing construction activity/equipment is within the screening standards in Step 1 (Activity/Equipment Screening Distances), UC Berkeley shall consider whether alternative methods/equipment are available and shall verify that the alternative method/equipment is shown on the construction plans prior to the beginning of construction. Alternative methods/equipment may include, but are not limited to: ○ For pile driving, the use of caisson drilling (drill piles), vibratory pile drivers, oscillating or rotating pile installation methods, pile pressing, "silent" piling, and jetting or partial jetting of piles into place using a water injection at the tip of the pile shall be used, where feasible. ○ For paving, use of a static roller in lieu of a vibratory roller shall be implemented. ○ For grading and earthwork activities, off-road equipment shall be limited to 100 horsepower or less. Where alternative methods/equipment to vibration causing activities/equipment are not feasible, then Step 3 (Construction Vibration Monitoring Program) shall be implemented. • **Step 3 (Construction Vibration Monitoring Program):** Prior to any project-related excavation, demolition or construction activity for projects within the screening distances listed in Step 1 (Activity/Equipment Screening Distances) and where alternative methods/equipment to vibration causing activities/equipment are not feasible pursuant to Step 2 (Alternative Methods/Equipment), UC Berkeley shall prepare a construction vibration monitoring program. The program shall be prepared and implemented by a qualified acoustical consultant or structural engineer. Where the vibration sensitive receptors are historic resources, the program shall be prepared and implemented 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: ○ 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. ○ 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	

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			discovered. UC Berkeley shall establish the frequency of monitoring and reporting, based upon the recommendations of the qualified acoustical consultant or structural engineer or if there are historic buildings, the historic architect and structural engineer. Monitoring reports shall be submitted to UC Berkeley's designated representative responsible for construction activities. ○ Develop a vibration monitoring and construction contingency plan, which shall identify where monitoring would be conducted, establish a vibration monitoring schedule, define structure-specific vibration limits, and require photo, elevation, and crack surveys to document conditions before and after demolition and construction activities. Construction contingencies would be identified for when vibration levels approach the limits. If vibration levels approach limits, suspend construction and implement contingencies to either lower vibration levels or secure the affected structure. ○ Report substantial adverse impacts to vibration sensitive buildings including historic resources related to construction activities that are found during construction to UC Berkeley's designated representative responsible for construction activities. UC Berkeley'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. UC Berkeley'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 UC Berkeley'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 UC Berkeley within two weeks upon completion of each phase identified in the project construction schedule. ○ 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	
Cultural Resources	Mitigation Measure	TCR-1	Implement Mitigation Measure CUL-2.	2021 LRDP EIR Table 6-1,

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
				Mitigation Monitoring and Reporting Program for the Long Range Development Plan
Wildfire	Mitigation Measure	WF-3	Electrical lines associated with future electrical infrastructure shall be undergrounded, where feasible. UC Berkeley shall verify compliance with this measure as part of plan review prior to construction.	2021 LRDP EIR Table 6-1, Mitigation Monitoring and Reporting Program for the Long Range Development Plan
Aesthetics	Continuing Best Practice	AES-1	New projects will as a general rule conform to the Physical Design Framework. While the guidelines in the Physical Design Framework would not preclude alternate design concepts when such concepts present the best solution for a particular site, UC Berkeley will not depart from the Physical Design Framework except for solutions of extraordinary quality.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Aesthetics	Continuing Best Practice	AES-2	Major new campus projects will continue to be reviewed at each stage of design by the UC Berkeley Design Review Committee. The provisions of the LRDP, as well as project-specific design guidelines prepared for each such project, will guide these reviews.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Aesthetics	Continuing Best Practice	AES-6	Lighting for new development projects will be designed to include shields and cut-offs that minimize light spillage onto unintended surfaces and minimize atmospheric light pollution. The only exception to this principle will be in those areas where such features would be incompatible with the visual and/or historic character of the area.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Aesthetics	Continuing Best Practice	AES-7	As part of UC Berkeley's design review procedures, light and glare will be given specific consideration and measures will be incorporated into the project design to minimize both. In general, exterior surfaces will not be reflective; architectural screens and shading devices are preferable to reflective glass.	2021 LRDP EIR Table 7-1, Continuing Best Practices

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
				Implementation and Monitoring
Air Quality	Continuing Best Practice	AIR-2	UC Berkeley will continue to comply with the current Bay Area Air Quality Management District basic control measures for fugitive dust control. The requirement to comply with the basic control measures will be identified in construction bids. The Bay Area Air Quality Management District's current basic control measures include: • Water all active construction areas at least twice daily, or as often as needed to control dust emissions. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water will be used whenever possible. • Pave, apply water twice daily or as often as necessary to control dust, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer). • Sweep daily (with water sweepers using reclaimed water if possible) or as often as needed all paved access roads, parking areas and staging areas at the construction site to control dust. • Sweep public streets daily (with water sweepers using reclaimed water if possible) in the vicinity of the project site, or as often as needed, to keep streets free of visible soil material. • Hydroseed or apply nontoxic soil stabilizers to inactive construction areas. • Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.). • Limit vehicle traffic speeds on unpaved roads to 15 miles per hour. • Replant vegetation in disturbed areas as quickly as possible.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Air Quality	Continuing Best Practice	AIR-3	UC Berkeley will continue to implement the following control measures to reduce emissions of diesel particulate matter and ozone precursors from construction equipment exhaust: • Equipment will be properly serviced and maintained in accordance with the manufacturer's recommendations. • Construction contractors will also ensure that all nonessential idling of construction equipment is restricted to five minutes or less, in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Biological Resources	Continuing Best Practice	BIO-1	Avoid disturbance or removal of bird nests protected under the federal Migratory Bird Treaty Act and California Department of Fish and Game Code when in active use. This will be accomplished by taking the following steps. • If tree removal and initial construction is proposed during the nesting season (February 1 to August 31), a focused survey for nesting raptors and other migratory birds will be conducted by a qualified biologist within 14 days prior to the onset of tree and vegetation removal in order to identify any active nests on the site and surrounding area within up to 500 feet of proposed construction, with the distance to be determined by a qualified biologist based on project location. The site will be resurveyed to confirm that no new nests have been established if vegetation removal and demolition has not been completed or if construction has been delayed or stopped for more than seven consecutive days during the nesting season.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			• If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), tree and vegetation removal and building construction may proceed with no restrictions. • If bird nests are found, an adequate setback will be established around the nest location and vegetation removal, building demolition, and other construction activities shall be restricted within this no-disturbance zone until the qualified biologist has confirmed that birds have either not begun egg-laying and incubation, or that the juveniles from those nests are foraging independently and capable of survival outside the nest location. Required setback distances for the no-disturbance zone will be based on input received from the California Department of Fish and Wildlife and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone will be fenced with temporary orange construction fencing if construction is to be initiated on the remainder of the site. • A report of findings will be prepared by the qualified biologist and submitted to the UC Berkeley's Office of Physical & Environmental Planning for review and approval prior to initiation of vegetation removal, building demolition and other construction activities during the nesting season. The report will either confirm absence of any active nests or confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is required if vegetation removal and other construction activities are initiated during the non-nesting season and continue uninterrupted according to the above criteria.	
Biological Resources	Continuing Best Practice	BIO-4	Future development projects will be designed to avoid substantial adverse effects on riparian habitat or sensitive natural communities. The Strawberry Creek Management Plan will continue to be revised and implemented, in consultation with the California Department of Fish and Wildlife, to include recommendations for habitat restoration and enhancement along specific segments of the creek on both the Campus Park and the Hill Campus East. This will include minimum development setbacks, targets on invasive species controls, appropriate native plantings, and in-channel habitat improvements such as retention of large woody debris and creation of deep plunge pools.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Biological Resources	Continuing Best Practice	BIO-6	Proposed projects on the Campus Park and the Hill Campus East will be designed to avoid designated jurisdictional wetlands and waters along the Strawberry Creek channel. When a project has the potential to affect jurisdictional waters, wetlands will be mapped and the extent of jurisdictional waters verified by the U.S. Army Corps of Engineers during planning and feasibility studies prior to development of specific projects or implementation of management plans in the Hill Campus East. Any modifications to Strawberry Creek and other jurisdictional waters will be coordinated with jurisdictional agencies, including the California Department of Fish and Wildlife, U.S. Army Corps of Engineers, and Regional Water Quality Control Board, as necessary, with any necessary authorizations secured in advance. Where avoidance of designated jurisdictional wetlands and waters is infeasible, appropriate mitigation will be developed and implemented in accordance with applicable State and federal regulations.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Biological Resources	Continuing Best Practice	BIO-9	Adverse effects to specimen trees and plants will be avoided. UC Berkeley will continue to implement the Campus Specimen Tree Program to reduce effects to specimen trees and flora. Replacement landscaping will be provided where specimen resources are adversely affected, either through salvage and transplanting of existing trees and	2021 LRDP EIR Table 7-1, Continuing Best Practices

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			shrubs or through new horticulturally appropriate replacement plantings, as directed by the Campus Landscape Architect.	Implementation and Monitoring
Biological Resources	Continuing Best Practice	BIO-10	Implementation of the recommendations of the Landscape Master Plan and subsequent updates, and project-specific design guidelines, will provide for stewardship of existing landscaping, and use of replacement and expanded tree and shrub plantings to improve the important open space characteristics and resilience of the Campus Park. Native plantings and horticulturally appropriate species will continue to be used in future landscaping, serving to partially replace any trees lost as a result of development.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Biological Resources	Continuing Best Practice	BIO-11	Trees and other vegetation require routine maintenance. As trees age and become senescent, UC Berkeley will continue to undertake trimming, thinning, or removal, particularly if trees become a safety hazard. Vegetation in the Hill Campus East requires continuing management for fire safety, emergency evacuation, habitat enhancement, and other objectives. This may include removal of mature trees such as native live oaks and non-native plantings of eucalyptus and pine. The Landscape Master Plan, Landscape Heritage Plan and their subsequent updates will provide guidance on potential species to replace trees that are removed, where appropriate.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Cultural Resources	Continuing Best Practice	CUL-1	UC Berkeley will follow the procedures of conduct following the discovery of human remains that have been mandated by Health and Safety Code Section 7050.5, Public Resources Code Section 5097.98 and the California Code of Regulations Section 15064.5(e) (California Environmental Quality Act [CEQA]). According to the provisions in CEQA, if human remains are encountered at the site, all work in the immediate vicinity of the discovery shall cease and necessary steps to ensure the integrity of the immediate area shall be taken. The County Coroner shall be notified immediately. The Coroner shall then determine whether the remains are Native American. If the Coroner determines the remains are Native American, the Coroner shall notify the California Native American Heritage Commission (NAHC) within 24 hours, who will, in turn, notify the person the NAHC identifies as the Most Likely Descendant (MLD) of any human remains. Further actions shall be determined, in part, by the desires of the MLD. The MLD has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery. If the NAHC is unable to identify an MLD, the MLD fails to make a recommendation within 48 hours after being notified, or the landowner rejects the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner, the owner shall, with appropriate dignity, reinter the remains in an area of the property secure from further disturbance.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Geology and Soils	Continuing Best Practice	GEO-1	UC Berkeley will continue to comply with the California Building Code and the University of California Seismic Safety Policy.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
Geology and Soils	Continuing Best Practice	GEO-2	Site-specific geotechnical studies will be conducted under the supervision of a California Registered Certified Engineering Geologist or licensed geotechnical engineer and UC Berkeley will incorporate recommendations for geotechnical hazard prevention and abatement into project design.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Geology and Soils	Continuing Best Practice	GEO-3	The UC Berkeley Seismic Review Committee will continue to review all seismic and structural engineering design for new and renovated existing buildings on campus.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Geology and Soils	Continuing Best Practice	GEO-4	UC Berkeley will continue to use site-specific seismic ground motions for analysis and design of campus projects. Site-specific ground motions provide more current geo-seismic data than the U.S. Geological Survey (USGS) and are used for performance-based analyses.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Geology and Soils	Continuing Best Practice	GEO-6	UC Berkeley will continue to implement programs and projects in emergency planning, training, response, and recovery. Each campus Building Coordinator will prepare, and update as needed, building response plans and coordinate education and planning for all building occupants.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Geology and Soils	Continuing Best Practice	GEO-7	As stipulated in the UC Seismic Safety Policy, the design parameters for specific site peak acceleration and structural reinforcement will be determined by the geotechnical and structural engineer for each new or rehabilitation project proposed under the LRDP. The acceptable level of actual damage that could be sustained by specific structures will be calculated based on geotechnical information obtained at the specific building site.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Geology and Soils	Continuing Best Practice	GEO-8	Site-specific geotechnical studies will include an assessment of landslide hazard, including seismic vibration and other factors contributing to slope stability.	2021 LRDP EIR Table 7-1, Continuing Best Practices

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				Implementation and Monitoring
Geology and Soils	Continuing Best Practice	GEO-9	Campus construction projects must comply with the Campus Design Standards, which contain regulatory and other campus requirements for construction-phase and post-construction stormwater management.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Geology and Soils	Continuing Best Practice	GEO-10	In the event that a unique paleontological resource is identified during project planning or construction, the work will stop immediately in the area of effect, and the find will be protected until its significance can be determined by a qualified paleontologist. If the resource is determined to be a "unique resource," a mitigation plan will be formulated pursuant to guidelines developed by the Society of Vertebrate Paleontology and implemented to appropriately protect the significance of the resource by preservation, documentation, and/or removal, prior to recommencing activities in the area of effect. The plan will be prepared by the qualified paleontologist and submitted to the UC Berkeley project manager for review and approval prior to initiation or recommencement of construction activities in the area of effect.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Hazards and Hazardous Materials	Continuing Best Practice	HAZ-1	UC Berkeley will continue to implement the same (or equivalent) health and safety plans, programs, practices, and procedures related to the use, storage, disposal, or transportation of hazardous materials and wastes (including chemical, radioactive, and biohazardous materials and waste) during the LRDP planning horizon. These include, but are not limited to: • Requirements for safe transportation of hazardous materials • UC Berkeley Office of Environment, Health & Safety training programs and oversight • The Hazard Communication Program • Publication and promulgation of the Water Protection Policy, the drain disposal guidelines, the Wastewater Toxics Management Plan, and the Slug Control Plan • Requirements that laboratories have Chemical Hygiene Plans and a chemical inventory database • The Aboveground Storage Tank Spill Prevention Control and Countermeasure Plan and monitoring of underground storage tanks • Implementation of the hazardous waste disposal program and policies • The Green Labs Program • The Biosafety Program • The Medical Waste Management Program • The Laser Safety Program • The Radiation Safety Program • The Drain Disposal Restrictions	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			These programs may be subject to modification as regulations or UC Berkeley policies are developed or if the programs become obsolete through replacement by other programs that incorporate similar or more effective health and safety protection measures. However, any modifications must incorporate similar or more effective health and safety protection measures.	
Hazards and Hazardous Materials	Continuing Best Practice	HAZ-5	UC Berkeley will continue to perform site histories and due diligence assessments of all sites where ground-disturbing construction is proposed, to assess the potential for soil and groundwater contamination resulting from past or current site land uses at the site or in the vicinity. The investigation will include review of regulatory records, historical maps and other historical documents, and inspection of current site conditions. UC Berkeley will act to protect the health and safety of workers or others potentially exposed should hazardous site conditions be found.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Hydrology and Water Quality	Continuing Best Practice	HYD-1	During the plan check review process and construction phase monitoring, UC Berkeley Office of Environment, Health & Safety will review each development project to determine whether project runoff would increase pollutant loading and verify that the proposed project complies with all applicable requirements (e.g., Regional Water Quality Control Board and Campus Design Standards requirements) and best management practices (e.g., those described in the California Stormwater Quality Association's Construction BMP Handbook).	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Hydrology and Water Quality	Continuing Best Practice	HYD-2	UC Berkeley will continue implementing an urban runoff management program containing best management practices, as published in the Strawberry Creek Management Plan, and as developed through the Stormwater Permit Annual Reports completed for the Phase II municipal separate storm sewer system (MS4) permit. UC Berkeley will continue to comply with the MS4 stormwater permitting requirements by implementing construction and post-construction control measures and best management practices required by project-specific Stormwater Pollution Prevention Plans (SWPPPs) and by the Phase II MS4 permit to control pollution. SWPPPs will be prepared by the project contractor as required to prevent discharge of pollutants and to minimize sedimentation resulting from construction and the transport of soils by construction vehicles.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Hydrology and Water Quality	Continuing Best Practice	HYD-3	UC Berkeley will maintain a campuswide educational program regarding safe use and disposal of facilities maintenance chemicals and laboratory chemicals to prevent the discharge of these pollutants to Strawberry Creek and campus storm drains.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Hydrology and Water Quality	Continuing Best Practice	HYD-5	Landscaped areas of development sites will be designed to absorb runoff from rooftops and walkways. Open or porous paving systems will be included in project designs, where feasible, to minimize impervious surfaces and absorb runoff.	2021 LRDP EIR Table 7-1, Continuing Best Practices

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
				Implementation and Monitoring
Hydrology and Water Quality	Continuing Best Practice	HYD-6	UC Berkeley will continue to develop and implement the recommendations of the Strawberry Creek Management Plan and its updates, and construct improvements as appropriate. These recommendations include, but are not limited to, minimization of the amount of land exposed at any one time during construction as feasible; use of temporary vegetation or mulch to stabilize critical areas where construction staging activities must be carried out prior to permanent cover of exposed lands; installation of permanent vegetation and erosion control structures as soon as practical; protection and retention of natural vegetation; and implementation of post-construction structural and non-structural water quality control techniques.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Hydrology and Water Quality	Continuing Best Practice	HYD-7	UC Berkeley will continue to review each development project, to determine whether rainwater infiltration to groundwater is affected. If it is determined that existing infiltration rates would be adversely affected, UC Berkeley will design and implement the necessary improvements to retain and infiltrate stormwater. Such improvements could include retention basins to collect and retain runoff, grassy swales, infiltration galleries, planter boxes, permeable pavement, or other retention methods. The goal of the improvement should be to ensure that there is no net decrease in the amount of water recharged to groundwater that serves as freshwater replenishment to Strawberry Creek. The improvement should maintain the volume of flows and times of concentration from any given site at pre-development conditions.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Hydrology and Water Quality	Continuing Best Practice	HYD-8	Dewatering, when needed, will be monitored and maintained by qualified engineers in compliance with the Campus Design Standards and applicable regulations.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Hydrology and Water Quality	Continuing Best Practice	HYD-11	Development that encroaches on creek channels and riparian zones will be prohibited. An undisturbed buffer zone will be maintained between proposed capital projects and creek channels.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Hydrology and Water Quality	Continuing Best Practice	HYD-13	UC Berkeley will continue to manage runoff into storm drain systems such that the aggregate effect of projects implemented pursuant to the LRDP creates no net increase in runoff over existing conditions.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
Land Use and Planning	Continuing Best Practice	LU-1	New projects in the Campus Park will, as a general rule, conform to the Physical Design Framework. The Physical Design Framework includes specific provisions to ensure projects at the city interface consider the transition from campus to city.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Noise	Continuing Best Practice	NOI-1	Mechanical equipment selection and building design shielding will be used, as appropriate, so that noise levels from future building operations would not exceed the City of Berkeley Noise Ordinance limits for commercial areas or residential zones as measured on any commercial or residential property in the area surrounding a project proposed to implement the LRDP. Controls typically incorporated to attain this outcome include selection of quiet equipment, sound attenuators on fans, sound attenuator packages for cooling towers and emergency generators, acoustical screen walls, and equipment enclosures.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Noise	Continuing Best Practice	NOI-2	UC Berkeley will require the following measures for all construction projects: • Construction activities will be limited to a schedule that minimizes disruption to uses surrounding the project site as much as possible. Construction outside the Campus Park will be scheduled within the allowable construction hours designated in the noise ordinance of the local jurisdiction to the full feasible extent, and exceptions will be avoided except where necessary. As feasible, construction equipment will be required to be muffled or controlled. • The intensity of potential noise sources will be reduced where feasible by selection of quieter equipment (e.g., gas or electric equipment instead of diesel powered, low noise air compressors). • Functions such as concrete mixing and equipment repair will be performed off-site whenever possible. • Stationary equipment such as generators and air compressors will be located as far as feasible from nearby noise-sensitive uses. • At least 10 days prior to the start of construction activities, a sign will be posted at the entrance(s) to the job site, clearly visible to the public, that includes contact information for UC Berkeley's authorized representative in the event of a noise or vibration complaint. If the authorized contractor's representative receives a complaint, they will investigate, take appropriate corrective action, and report the action to UC Berkeley. • During the entire active construction period and to the extent feasible, the use of noise-producing signals, including horns, whistles, alarms, and bells, will be for safety warning purposes only. The construction manager will use smart back-up alarms, which automatically adjust the alarm level based on the background noise level, or switch off back-up alarms and replace with human spotters in compliance with all safety requirements and laws. For projects requiring pile driving: • With approval of the project structural engineer, pile holes will be pre-drilled to minimize the number of impacts necessary to seat the pile. • Pile driving will be scheduled to have the least impact on nearby sensitive receptors.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			• Pile drivers with the best available noise control technology will be used. For example, pile driving noise control may be achieved by shrouding the pile hammer point of impact, by placing resilient padding directly on top of the pile cap, and/or by reducing exhaust noise with a sound-absorbing muffler. • Alternatives to impact hammers, such as oscillating or rotating pile installation systems, will be used where feasible.	
Transportation	Continuing Best Practice	TRAN-1	UC Berkeley will implement bicycle, pedestrian, and transit access and circulation improvements as part of new building projects, major renovations, and landscape projects. Improvements will address the goal of increasing non-vehicular commuting and safety; improving access from adjacent campus or city streets and public transit; reducing multi-modal conflict; providing bicycle parking; and providing commuter amenities.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Transportation	Continuing Best Practice	TRAN-4	UC Berkeley will continue to work with the City of Berkeley, AC Transit, and BART to coordinate transit access to new academic buildings, parking facilities, and campus housing projects, in order to accommodate changing locations or added demand.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Transportation	Continuing Best Practice	TRAN-5	UC Berkeley will require contractors working on major new construction or major renovation projects to develop and implement a Construction Traffic Management Plan that reduces construction-period impacts on circulation and parking within the vicinity of the project site. The Construction Traffic Management Plan will address job-site access, vehicle circulation, bicycle and pedestrian safety, and be coordinated with the City of Berkeley Public Works Department when projects require temporary modifications to city streets.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Transportation	Continuing Best Practice	TRAN-6	For each construction project, UC Berkeley will require the prime contractor to prepare a Construction Traffic Management Plan which will include the following elements: • Proposed truck routes to be used, consistent with the City truck route map. • Construction hours, including limits on the number of truck trips during the morning (AM) and evening (PM) peak traffic periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.), if conditions demonstrate the need. • Proposed employee parking plan (number of spaces and planned locations). • Proposed construction equipment and materials staging areas, demonstrating minimal conflicts with circulation patterns. • Expected traffic detours needed, planned duration of each, and traffic control plans for each. • Identifying bicycle and pedestrian detours and safety plan, including solutions to address impacts to accessible routes.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
Transportation	Continuing Best Practice	TRAN-7	UC Berkeley will manage project schedules to minimize the overlap of excavation or other heavy truck activity periods that have the potential to combine impacts on traffic loads and street system capacity, to the extent feasible.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Transportation	Continuing Best Practice	TRAN-8	UC Berkeley will reimburse the City of Berkeley for its fair share of costs associated with damage to City streets from UC Berkeley construction activities, provided that the City adopts a policy for such reimbursements applicable to all development projects within Berkeley.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Utilities and Service Systems	Continuing Best Practice	USS-1	For development that increases water demand, UC Berkeley will continue to evaluate the size of existing distribution lines as well as pressure of the specific feed affected by development on a project-by-project basis, and necessary improvements will be incorporated into the scope of work for each project to maintain current service and performance levels. The design of the water distribution system, including fire flow, for new buildings will be coordinated among UC Berkeley, the East Bay Municipal Utility District, and the City of Berkeley Public Works Department and Fire Department.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Utilities and Service Systems	Continuing Best Practice	USS-3	UC Berkeley will continue to incorporate specific water conservation measures into project design to reduce water consumption and wastewater generation. This could include the use of special air-flow aerators, water-saving shower heads, flush cycle reducers, low-volume toilets, weather-based or evapotranspiration irrigation controllers, drip irrigation systems, and the use of drought resistant plantings in landscaped areas, and collaboration with the East Bay Municipal Utility District to explore suitable uses of recycled water.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Utilities and Service Systems	Continuing Best Practice	USS-4	UC Berkeley will analyze water and sewer systems on a project-by-project basis to determine specific capacity considerations for both UC Berkeley systems and off-site municipal systems in the planning of any project proposed under the LRDP.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Utilities and Service Systems	Continuing Best Practice	USS-5	Payments to service providers to help fund wastewater treatment or collection facilities will conform to Section 54999 of the California Government Code, including, but not limited to, the following provisions: ● Fees will be limited to the cost of capital construction or expansion. ● Fees will be imposed only after an agreement has been negotiated by UC Berkeley and the service provider. ● The service provider must demonstrate the fee is nondiscriminatory: i.e. the fee must not exceed an amount	2021 LRDP EIR Table 7-1, Continuing Best Practices

Topic	Type of Measure	Mitigation/ CBP #	Mitigation/Continuing Best Practice Text	Source Document
			determined on the basis of the same objective criteria and methodology applied to comparable nonpublic users, and must not exceed the proportionate share of the cost of the facilities of benefit to the entity property being charged, based upon the proportionate share of use of those facilities. The service provider must demonstrate the amount of the fee does not exceed the amount necessary to provide capital facilities for which the fee is charged.	Implementation and Monitoring
Utilities and Service Systems	Continuing Best Practice	USS-6	UC Berkeley will continue to implement the Zero Waste requirements of the UC Sustainability Policy designed to reduce the total quantity of campus solid waste that is disposed of in landfills.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Utilities and Service Systems	Continuing Best Practice	USS-7	In accordance with the CalGreen Code, and as required for Leadership in Energy and Environmental Design certification, contractors working for UC Berkeley will be required under their contracts to report their solid waste diversion according to UC Berkeley's waste management reporting requirements.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring
Wildfire	Continuing Best Practice	WF-3	UC Berkeley will continue to plan and implement programs to reduce risk of wildland fires, including plan review and construction inspection programs that ensure that its projects incorporate fire prevention measures.	2021 LRDP EIR Table 7-1, Continuing Best Practices Implementation and Monitoring

APPENDIX B

CONSTRUCTION HEALTH RISK ASSESSMENT

1. Construction Health Risk Assessment

1.1 INTRODUCTION

On July 22, 2021, the Board of Regents of the University of California (the Regents) certified the University of California (UC), Berkeley 2021 Long Range Development Plan (LRDP Update) and Housing Projects #1 and #2 Environmental Impact Report (EIR), State Clearinghouse (SCH) No. 2020040078. The programmatic LRDP Update evaluated a development program for up to 8,096,249 square feet of new building space for residential, academic life, campus life, and parking facilities and 11,731 new beds. The two housing projects were approved by the Regents on July 22, 2021 and September 30, 2021, respectively. Together the LRDP Update and Housing Projects #1 and #2 and the 2021 EIR, including any subsequent addenda, are considered the "Evaluated Project" and the "Certified EIR," respectively.

The University of California Berkeley (UC Berkeley or the university) proposes to develop the Academic Replacement Building Project (Proposed Project) in the southwest quadrant of the UC Berkeley Campus Park in the City of Berkeley, Alameda County, California. The Proposed Project site is currently a surface parking lot identified as Dwinelle Lot and is west of Dwinelle Hall, south of the Valley Life Sciences Building and north of Dwinelle Hall Annex. The Proposed Project was included in the Certified EIR as a potential redevelopment project as project CP2 and conceptually planned for 144,000 square feet (SF) of academic life space.

The Certified EIR concluded construction-related health risk impacts associated with the LRDP Update are considered significant and unavoidable at the program level, and included the following mitigation measure:

> **Mitigation Measure AIR-3.1:** Construction of projects subject to CEQA on sites one acre or greater, within 1,000 feet of residential and other sensitive land use projects (e.g., hospitals, schools, nursing homes, day care centers), as measured from the property line of the project to the property line of the source/edge of the sensitive land use, that utilize off-road equipment of 50 horsepower or more and, that occur for more than 12 months of active construction (i.e., exclusive of interior renovations), shall require preparation of a construction health risk assessment (HRA) prior to future discretionary project approval, as recommended in the current HRA Guidance Manual prepared by the California Office of Environmental Health Hazard Assessment (OEHHA). Additionally, UC Berkeley shall consider whether unusual circumstances warrant evaluation of construction health risks for projects with construction durations of less than 12 months or on development sites smaller than one acre. For example, unusual circumstances would include sites that require extensive site preparation with more than 10,000 cubic yards of excavation. The construction HRA shall generally be prepared in accordance with policies and procedures of the OEHHA and the Bay Area Air Quality Management District. The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the construction HRA shows that the incremental cancer risk exceeds 10 in a million (10E-06), $PM_{2.5}$ concentrations exceed

0.3 μg/m^3, or the appropriate noncancer hazard index exceeds 1.0, the construction HRA shall be required to identify all feasible measures capable of reducing potential cancer and noncancer risks to an acceptable level to the extent feasible (i.e., below 10 in a million, a hazard index of 1.0, or 0.3 μg/m^3 of $PM_{2.5}$), including appropriate enforcement mechanisms. Examples of feasible measures include use of U.S. Environmental Protection Agency rated Tier 4 construction equipment, diesel particulate filters, and electric equipment.

The construction health risk assessment shall be submitted to UC Berkeley's Office of Environment, Health & Safety for review and approval. Measures identified in the health risk assessment shall be included in bid documents, purchase orders, contracts, and grading plans prepared for the development projects. Compliance with these measures shall be verified during regular construction site inspections

The Proposed Project would involve utility trenching, demolition and debris hauling, site preparation and soil haul, grading, and construction of a 78,000 SF academic building on a site greater than one acre in size and for a construction period over 12 months. Per Mitigation Measure AIR-3.1 of the Certified EIR, a health risk assessment (HRA) was conducted to determine potential health risk impacts from construction of the Proposed Project to nearby air quality sensitive receptors. The following provides the background methodology used for the construction HRA for the Proposed Project.

The latest version of the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines requires projects to evaluate the impacts of construction activities on air quality sensitive receptors (BAAQMD, 2017). Project construction is anticipated to take place starting at the beginning of June 2023 and be completed by November 2025 (approximately 2.4 years or 632 workdays). As shown on Figure 1, the closest sensitive receptors to the Proposed Project are the mixed-use residential buildings approximately 720 feet south of the Proposed Project along Bancroft Way. Although beyond 1,000 feet from the Project Site, other sensitive receptors included in the evaluation include mixed-use residential buildings and multi-family residences to the west and southwest of Campus Park, between Oxford Street and Shattuck Avenue and north of Durant Avenue. These receptor locations could be potentially impacted from the proposed construction activities. This HRA considers the health impact to off-site sensitive receptors (i.e., nearby residences) from construction emissions at the project site, including diesel equipment exhaust (diesel particulate matter or DPM) and particulate matter less than 2.5 microns ($PM_{2.5}$).

1.2 METHODOLOGY AND SIGNIFICANCE THRESHOLDS

For this HRA, the BAAQMD significance thresholds were deemed to be appropriate and the thresholds that were used for this project are shown below:

- Excess cancer risk of more than 10 in a million
- Non-cancer hazard index (chronic) greater than 1.0
- Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.3 micrograms per cubic meter (μg/m^3)

The methodology used in this HRA is consistent with the following BAAQMD and the Office of Environmental Health Hazard Assessment (OEHHA) guidance documents:

- BAAQMD, 2017. *California Environmental Quality Act (CEQA) Air Quality Guidelines*. May 2017.
- BAAQMD, 2016. *Planning Healthy Places*. May 2016.
- BAAQMD, 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. Version 3.0. May 2012.
- OEHHA. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. February, 2015.

Potential exposures to DPM and $PM_{2.5}$ from Proposed Project construction were evaluated for off-site sensitive receptors in close proximity to the site. Pollutant concentrations were estimated using an air dispersion model, and excess lifetime cancer risks and chronic non-cancer hazard indexes were calculated. These risks were then compared to the significance thresholds adopted for this HRA.

It should be noted that these health impacts are based on conservative (i.e., health protective) assumptions. The United States Environmental Protection Agency (USEPA, 2005) and OEHHA note that conservative assumptions used in a risk assessment are intended to ensure that the estimated risks do not underestimate the actual risks. The use of conservative assumptions tends to produce upper-bound estimates of exposure and thus may overestimate the actual risk.

For residential-based receptors, the following conservative assumptions were used:

- It was assumed that maximum-exposed off-site residential receptors (both children and adults) stood outdoors and are subject to DPM at their residence for 8 hours per day, and approximately 260 construction days per year. In reality, California residents typically will spend on average 2 hours per day outdoors at their residences (USEPA, 2011), so actual exposures and risks would be significantly lower than those calculated in this HRA.

- The calculated risk for infants from third trimester to age 2 is multiplied by a factor of 10 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA, 2015).

1.3 CONSTRUCTION EMISSIONS

Construction emissions were calculated as average daily emissions in pounds per day, using the proposed construction schedule and the latest version of California Emissions Estimation Model, known as CalEEMod Version 2022.1 (CAPCOA, 2022). DPM emissions were based on the CalEEMod construction runs, using annual exhaust PM_{10} construction emissions converted from tons per year to pounds (lbs) per day. The $PM_{2.5}$ emissions were taken from the CalEEMod output for exhaust $PM_{2.5}$ also converted to lbs per day.

The Certified EIR identified significant and unavoidable impacts at the program level during construction of development under the LRDP Update. The following mitigation measure was included in the Certified EIR for construction activities associated with LRDP Update:

> **Mitigation Measure AIR-2.1:** UC Berkeley shall use equipment that meets the United States Environmental Protection Agency Tier 4 Final emissions standards or higher for off-road diesel-

powered construction equipment with more than 50 horsepower, unless it can be demonstrated to UC Berkeley that such equipment is not commercially available. For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier 4 Final engines similar to the availability for other large-scale construction projects in the city occurring at the same time and taking into consideration factors such as (i) potential significant delays to critical-path timing of construction and (ii) geographic proximity to the project site of Tier 4 Final equipment. Where such equipment is not commercially available, as demonstrated by the construction contractor, Tier 4 interim equipment shall be used. Where Tier 4 interim equipment is not commercially available, as demonstrated by the contractor, Tier 3 equipment retrofitted with a California Air Resources Board's Level 3 Verified Diesel Emissions Control Strategy (VDECS) shall be used. The requirement to use Tier 4 Final equipment or higher for engines over 50 horsepower shall be identified in construction bids and the following shall also be completed:

- Prior to construction, the project engineer shall ensure that all demolition and grading plans clearly show the requirement for United States Environmental Protection Agency Tier 4 Final or higher emissions standards for construction equipment over 50 horsepower.
- During construction, the construction contractor shall maintain a list of all operating equipment in use over 20 hours on the construction site for verification by UC Berkeley.
- The construction equipment list shall state the makes, models, and numbers of construction equipment on-site.
- To the extent that equipment is available and cost-effective, contractors shall use electric, hybrid, or alternate-fueled off-road construction equipment.
- Contractors shall use electric construction tools, such as saws, drills, and compressors, where grid electricity is available.
- Construction activities shall be prohibited when the Air Quality Index (AQI), as measured by the closest Bay Area Quality Management District monitoring station (e.g., Berkeley Aquatic Center), is great than 150 for particulates and ozone in the project area.
- Contractors shall provide information on transit and ridesharing programs and services to construction employees. Additionally, meal options on-site and/or shuttles between the facility and nearby meal destinations for construction employees shall be provided.

Mitigation Measure AIR-2.1 of the Certified EIR is applicable to the Proposed Project and was included in the construction emissions modeling. Construction of the Proposed Project was assumed to take place over 2.4 years (632 workdays) beginning in June 2023 and to be completed by November 2025. The first phase of construction, known as the Make Ready phase, would occur from June through October 2023 and includes utility trenching to bring electric power to the new building. Demolition and new building construction at the Project Site is anticipated to occur between November 2023 and November 2025. The average daily emission rates from construction equipment used during Proposed Project construction were determined by dividing the annual average emissions for each construction year by the number of construction days per year for each calendar year of construction (i.e., 2023, 2024 and 2025). The off-site hauling emission rates were adjusted to evaluate localized emissions from the 1.25-mile haul route near the Proposed Project site. The CalEEMod construction emissions output and emission rate calculations are provided in Appendix A of the HRA.

1.4 DISPERSION MODELING

Air quality modeling was performed using the AERMOD atmospheric dispersion model to assess the impact of emitted compounds at nearby sensitive receptors. The model is a steady state Gaussian plume model and is an approved model by BAAQMD for estimating impacts from point and fugitive sources in simple and complex terrain. The on-site construction emissions for the project were modeled as poly-area sources. The off-site mobile sources were modeled as adjacent line volume sources. The model requires additional input parameters, including chemical emission data and local meteorology. Inputs for the construction emission rates are those described in Section 1.3. Meteorological data obtained from the California Air Resources Board (CARB) for the nearest representative meteorological station (Metro Oakland International Airport) with the five latest available years (2013 to 2017) of record were used to represent local weather conditions and prevailing winds (BAAQMD, 2022).

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. To accommodate the model's Cartesian grid format, direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. In addition, national elevation dataset (NED) data for the area were obtained and included in the model runs to account for complex terrain. An emission release height of 4.15 meters was used as representative of the stack exhaust height for off-road construction equipment and diesel truck traffic, and an initial vertical dispersion parameter of 1.93 m was used, per CARB guidance (CARB, 2000).

To determine contaminant impacts during construction hours, the model's Season-Hour-Day (HRDOW) scalar option was invoked to predict flagpole-level concentrations (1.5 m for ground-floor receptors, 6.1 m for 2nd-floor, 9.1 m for 3rd floor, and 12.2 m for 4th floor) for construction emissions generated between the hours of 7:00 AM and 4:00 PM with a 1-hour lunch break.

A unit emission rate of 1 gram per second was used for the air dispersion model to represent both DPM and $PM_{2.5}$ construction emissions. The unit emission rates were proportioned over the poly-area sources for on-site construction emissions and divided between the volume sources for off-site hauling emissions. The maximum modeled concentrations from the output files were then multiplied by the emission rates calculated in Appendix A to obtain the maximum flagpole-level concentrations at the off-site maximum exposed individual resident (MEIR). The MEIR is the mixed-use residential building at the southeast corner of Bancroft Way and Telegraph Avenue.

The receptor locations are presented in Figure 1. The air dispersion model output is presented in Appendix B. The DPM and $PM_{2.5}$ concentrations at the MEIR are provided in Appendix C.

1.5 RISK CHARACTERIZATION

1.5.1 Carcinogenic Chemical Risk

A threshold of ten in a million ($10x10^{-6}$) has been established as a level posing no significant risk for exposures to carcinogens. Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its cancer potency factor

(CPF), a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a lifetime of 70 years.

Recent guidance from OEHHA recommends a refinement to the standard point estimate approach with the use of age-specific breathing rates and age sensitivity factors (ASFs) to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose for each age group. Once determined, contaminant dose is multiplied by the cancer potency factor in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, to accommodate the unique exposures associated with the sensitive receptors, the following dose algorithm was used.

$$\text{Dose}_{\text{AIR,per age group}} = (C_{air} \times EF \times [\frac{BR}{BW}] \times A \times CF)$$

Where:

$Dose_{AIR}$	=	dose by inhalation (mg/kg-day), per age group
C_{air}	=	concentration of contaminant in air ($\mu g/m^3$)
EF	=	exposure frequency (number of days/365 days)
BR/BW	=	daily breathing rate normalized to body weight (L/kg-day)
A	=	inhalation absorption factor (default = 1)
CF	=	conversion factor ($1x10^{-6}$, µg to mg, L to m^3)

The inhalation absorption factor (A) is a unitless factor that is only used if the cancer potency factor included a correction for absorption across the lung. The default value of 1 was used for this assessment. For residential receptors, the exposure frequency (EF) of 0.96 is used to represent 350 days per year to allow for a two-week period away from home each year (OEHHA, 2015).

For construction analysis, the exposure duration spans the length of construction (e.g., 632 workdays). As the length of construction is more than 2 years, the third trimester, 0-2, and 2-9 age bins apply to the construction analysis for the off-site residential receptors. For residential receptors, the 95th percentile daily breathing rates (BR/BW), exposure duration (ED), age sensitivity factors (ASFs), and fraction of time at home (FAH) for the various age groups are provided herein:

Age Groups	BR/BW (L/kg-day)	ED	ASF	FAH
Third trimester	361	0.25	10	0.85
0-2 age group	1,090	2.0	10	0.85
2-9 age group	861	0.17	3	0.72

To calculate the overall cancer risk, the risk for each appropriate age group is calculated per the following equation:

$$\text{Cancer Risk}_{\text{AIR}} = \text{Dose}_{\text{AIR}} \times CPF \times ASF \times FAH \times \frac{ED}{AT}$$

Where:

$Dose_{AIR}$	=	dose by inhalation (mg/kg-day), per age group
CPF	=	cancer potency factor, chemical-specific $(mg/kg\text{-}day)^{-1}$
ASF	=	age sensitivity factor, per age group
FAH	=	fraction of time at home, per age group (for residential receptors only)
ED	=	exposure duration (years)
AT	=	averaging time period over which exposure duration is averaged (70 years)

The CPFs used in the assessment were obtained from OEHHA guidance. The excess lifetime cancer risks during the construction period to the maximally exposed resident and students were calculated based on the factors provided above. The cancer risks for each age group are summed to estimate the total cancer risk for each toxic chemical species. The final step converts the cancer risk in scientific notation to a whole number that expresses the cancer risk in "chances per million" by multiplying the cancer risk by a factor of $1x10^6$ (i.e., 1 million).

The calculated results are provided in Appendix C.

1.5.2 Non-Carcinogenic Hazards

An evaluation was also conducted of the potential non-cancer effects of chronic chemical exposures. Adverse health effects are evaluated by comparing the annual receptor level (flagpole) concentration of each chemical compound with the appropriate reference exposure limit (REL). Available RELs promulgated by OEHHA were considered in the assessment.

The hazard index approach was used to quantify non-carcinogenic impacts. The hazard index assumes that chronic sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). Target organs presented in regulatory guidance were used for each discrete chemical exposure. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. This ratio is summed for compounds affecting the same toxicological endpoint. A health hazard is presumed to exist where the total equals or exceeds one.

The chronic hazard analysis for DPM is provided in Appendix C. The calculations contain the relevant exposure concentrations and corresponding reference dose values used in the evaluation of non-carcinogenic exposures.

1.5.3 Criteria Pollutants

The BAAQMD incorporated $PM_{2.5}$ into the District's CEQA significance thresholds due to recent studies that show adverse health impacts from exposure to this pollutant. An incremental increase of greater than 0.3 $\mu g/m^3$ for the annual average $PM_{2.5}$ concentration is considered to be a significant impact.

1.6 CONSTRUCTION HRA RESULTS

The calculated results are provided in Appendix C and the results are summarized in Table 1.

TABLE 1. CONSTRUCTION RISK SUMMARY

Receptor	Cancer Risk (per million)	Chronic Hazards	$PM_{2.5}$ ($\mu g/m^3$)
Maximum Exposed Individual Resident (MEIR)	0.6	0.002	0.002
BAAQMD Threshold	10	1.0	0.30
Exceeds Threshold?	**No**	**No**	**No**

Note: Modeling includes Mitigation Measure AIR-2.1 of the Certified EIR, which requires use of Tier 4 Final equipment for engines 50 horsepower and higher.

Cancer risk for the MEIR from project-related construction emissions was calculated to be 0.6 in a million, which is below the significance threshold of 10 in a million. In accordance with the latest 2015 OEHHA guidance, the calculated total cancer risk conservatively assumes that the risk for the MEIR consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 2.4-year construction period; therefore, calculated risk values for the first 2.25 years were multiplied by a factor of 10 and the remaining risk values by a factor of 3. In addition, it was conservatively assumed that the residents were outdoors 8 hours a day and exposed to all of the daily construction emissions.

For non-carcinogenic effects, the chronic hazard index identified for each toxicological endpoint totaled less than one for all off-site sensitive receptors. Therefore, chronic non-carcinogenic hazards resulting from the Proposed Project are less than significant. Additionally, the maximum annual $PM_{2.5}$ concentrations would not exceed the BAAQMD significance threshold of 0.3 micrograms per cubic meter ($\mu g/m^3$) for all off-site sensitive receptors.

As noted in Section 1.3, Mitigation Measure AIR-2.1 of the Certified EIR was included in the construction modeling used to determine the health risks provided in Table 1. The results indicate that, with implementation of Mitigation Measure AIR-2.1 of the Certified EIR, excess cancer risk would be less than the BAAQMD's significance thresholds for the MEIR. The project would not expose off-site sensitive receptors to substantial concentrations of air pollutant emissions during construction and impacts would be less than significant with mitigation. Therefore, the Proposed Project would not result in any new significant impacts, and no new mitigation measures are required.

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Source: Nearmap, 2022, (Imagery date: 5/18/2022).

Project Site | Maximum Exposed Individual Resident (MEIR) | Receptors | Truck Route

Figure 1

Project Site and Off-site Receptor Locations

Appendix A. Emission Rate Calculations

CalEEMod Project Characteristics Inputs (Construction): Academic Replacement Building

Name:	Academic Replacement Building
County:	Alameda
Climate Zone:	5
Land Use Setting:	Urban
Air Basin:	San Franicisco Bay
Air District:	BAAQMD

Total Project Site Area:	1.62	acres
Building Footprint	26,025	SF

Project Components	SQFT	Acres
University Building	78,000	0.60
Non-Asphalt Paving	36,631	0.84
Landscaping	17,846	0.41
Make Ready	3,485	0.08

1.93

CalEEMod Land Use Inputs*

Land Use	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet
University Building	Education	University/College (4 yrs)	0.0 **	Student	0.78	78,000
Non-parking asphalt	Parking	Other Non-asphalt	0.84	acres	0.84	36,631
					1.62	

**Based on information provided by and CalEEMod defaults verified by the University.*

*** Set to 1 in model, as CalEEMod does not run with a unit of 0.*

Demolition and Hauling

Component	Amount to be Demolished (CYs)	Amount to be Demolished (Tons)*	Haul Truck Capacity (tons)	Haul Distance (miles)*	Total Round Trips	Total 1-Way Trip Ends
AC/PCC		545	16	20	34	**68**

Soil Hauling

Component	Total Soil Haul Import (CY)*	Total Soil Haul Export (CY)*	Haul Truck Capacity (CY)*	Haul Distance (miles)	Total Round Trips	Total Trip Ends
Soil	600	7,400	16	20	500	1,000
AC/PCC			16	20	0	0
Total	600	7,400				**1,000**

Architectural Coating

Percentage of Buildings' Interior Painted:*	100%
Percentage of Buildings' Exterior Painted:*	100%

** Per the University*

BAAQMD Regulation 8 Rule 3

Interior Paint VOC content:	100	grams per liter
Exterior Paint VOC content:	150	grams per liter

Uses	Land Use Square Feet	CalEEMod Paintable Surface Area Factor	Total Paintable Surface Area[2]	Paintable Interior Area[1]	Paintable Exterior Area[1]	Parking Lot Area
University Building	78,000	2.0	156,000	117,000	39,000	
Non-Asphalt Paving	36,631	0.06	2,198			2,198

**CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively. Architectural coatings for the parking lot is based on CalEEMod methodology applied to a surface parking lot (i.e., striping), in which 6% of surface area is painted.*

Construction - Unmitigated Run

BAAQMD Basic Control Measures

Replace Ground Cover	PM10:	5	% Reduction
	PM25:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction
Unpaved Roads	Vehicle Speed:	15	mph
Clean Paved Road		9	% PM Reduction

Construction Phasing: Academic Replacement Building

Schedule Per the University Phase Name

	Start Date	End Date	Workdays*	Total Calendar Days
Make-ready work	6/1/2023	10/31/2023	109	152
Demolition (concrete/asphalt/clearing)	11/1/2023	11/28/2023	20	27
Demolition Debris Haul (if applicable)	11/1/2023	12/26/2023	40	55
Site Preparation	11/29/2023	12/12/2023	10	13
Site Prep Haul	11/29/2023	12/12/2023	10	13
Grading	12/13/2023	12/18/2023	4	5
Building Construction	12/19/2023	11/1/2025	489	683
Architectural Coating/Painting	10/19/2025	11/1/2025	10	13
Asphalt Paving	10/5/2025	11/1/2025	20	27
Finishing/Landscaping	8/10/2025	11/1/2025	60	83
		Workdays	632	Total
**5-day work week*		Workdays	523	w/o Make Ready

Adjusted Schedule to Account for Shared Equipment

CalEEMod Construction Off-Road Equipment Inputs*

*Based on information provided by and CalEEMod defaults verified by the University.

Electric equipment was omitted from health risk evaluation.

Equipment Type	CalEEMod Equipment Type	Unit Amount	Average Hours/Day	HP	LF	CalEEMod Vendor Trips
Make Ready Work						**Default**
Concrete/Industrial Saws	Concrete/Industrial Saws	1	6	33	0.73	
Excavators	Excavators	2	8	36	0.38	
Generator Set	Generator Sets	1	8	14	0.74	
Plate Compactors	Plate Compactors	1	8	8	0.43	
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	6	84	0.37	
Demolition						Default+4
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	3	8	84	0.37	
Rubber Tired Dozers	Rubber Tired Dozers	1	8	367	0.4	
Concrete/Industrial Saws	Concrete/Industrial Saws	1	8	33	0.73	
Water Trucks[2]						4
Site Preparation						Default+4
Graders	Graders	1	8	148	0.41	
Rubber Tired Dozers	Rubber Tired Dozers	1	7	367	0.4	
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	8	84	0.37	
Water Trucks[2]						4
Grading						Default+4
Graders	Graders	1	8	148	0.41	
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	2	7	84	0.37	
Rubber Tired Dozers	Rubber Tired Dozers	1	8	367	0.4	
Water Trucks[2]						4
Building Construction						Default+4
Crane[1]	Cranes	1	1	367	0.29	
Forklifts	Forklifts	1	6	82	0.2	
Generator Sets	Generator Sets	1	8	14	0.74	
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	6	84	0.37	
Welders	Welders	3	8	46	0.45	
Aerial Lifts	Aerial Lifts	1	6	46	0.31	
Water Trucks[2]						4
Painting						**Default**
Aerial lift	Aerial Lifts	1	6	46	0.31	
Air Compressors	Air Compressors	1	6	37	0.48	
Finishing/Landscaping						**Default**
Forklift	Forklifts	1	6	82	0.20	
Plate Compactors	Plate Compactors	1	8	8	0.43	
Rollers	Rollers	1	8	36	0.38	
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	8	84	0.37	
Paving						**Default**
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	1	8	84	0.37	
Pavers	Pavers	1	6	81	0.42	
Paving Equipment	Paving Equipment	1	8	89	0.36	
Rollers	Rollers	1	7	36	0.38	
Cement and Mortar Mixers	Cement and Mortar Mixers	1	6	10	0.56	

[1] The average hours/day was adjusted for equipment used for only a portion of the construction phase.

[2] Assume 4 water truck trips per truck per day.

Average Daily Emission Rates: Mitigation Measure AIR-2.1 from LRDP

On-site Exhaust Emissions[1]	DPM				PM2.5				Construction Duration per Year		
Year	Annual PM10 Exhaust Emissions (lbs/yr)	Average Daily Emissions (lbs/day)	Average Emission Rate (lbs/hr)	Average Emission Rate (g/s)	Annual PM2.5 Exhaust Emissions (lbs/yr)	Average Daily Emissions (lbs/day)	Average Emission Rate (lbs/hr)	Average Emission Rate (g/s)	Planned Work Days day/yr	Total Work Days days/yr	Scalar[2]
2023 Make Ready	10.46	0.10	1.20E-02	1.51E-03	9.70	0.09	1.11E-02	1.40E-03	109	260	0.42
2023	4.55	0.11	1.32E-02	1.67E-03	4.31	0.10	1.25E-02	1.58E-03	43	260	0.17
2024	49.37	0.19	2.36E-02	2.97E-03	45.60	0.17	2.18E-02	2.74E-03	262	262	1.00
2025	41.70	0.19	2.39E-02	3.01E-03	38.58	0.18	2.21E-02	2.79E-03	218	261	0.84

Hauling Exhaust Emissions[1]	DPM					PM2.5				
Year	Annual PM10 Exhaust Emissions (lbs/yr)	Hauling Emissions w/in 1,000 ft (lbs/yr)	Average Daily Emissions (lbs/day)	Average Emission Rate (lbs/hr)	Average Emission Rate (g/s)	Annual PM10 Exhaust Emissions (lbs/yr)	Hauling Emissions w/in 1,000 ft (lbs/yr)	Average Daily Emissions (lbs/day)	Average Emission Rate (lbs/hr)	Average Emission Rate (g/s)
2023 Make Ready	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2023	1.5990	1.00E-01	2.32E-03	2.91E-04	3.66E-05	1.5990	1.00E-01	2.32E-03	2.91E-04	3.66E-05
2024	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2025	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Note: Emissions evenly distributed over 367 modeled volume sources.

Hauling Length (miles) [3]	20.0	Weighted Average (mi)
Haul Length within 1,000 ft of Site (mile) [4]	1.25	mi
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) [5]	8	hours

[1] DPM emissions taken as PM_{10} exhaust emissions (CalEEMod average annual emissions).

[2] Construction duration scalars determined for each year of construction to adjust receptor exposures to the exposure durations for each modeled construction year (used in risk calculation in App C).

[3] Weighted Average haul length for demolition and soil haul.

[4] Emissions from CalEEMod offsite average annual emissions, which is based on total haul truck trip distances, are adjusted to evaluate local emissions from the 1.25-mile route within 1,000 of the project site.

[5] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App B - Air Dispersion Model Output Files).

Annual Construction Emissions

Make Ready Work

		Exhaust PM10	Exhaust PM2.5
Onsite	**2023**		
Fugtive Dust			
Off-Road		10.46	9.70E+00
Total		10.46	9.70E+00
Offsite			
Hauling			
Vendor			
Worker			
Total			

Demolition

		Exhaust PM10	Exhaust PM2.5
Onsite	**2023**		
Off-Road		2.007	1.91E+00
Total		2.007	1.91E+00
Offsite			
Hauling			
Vendor			
Worker			
Total		**0.026**	**0.026**

Demolition Hauling

		Exhaust PM10	Exhaust PM2.5
Onsite	**2023**		
Off-Road		0	0
Total		**0**	**0**
Offsite			
Hauling			
Vendor			
Worker			
Total		**0.181**	**0.181**

Site Preparation

		Exhaust PM10	Exhaust PM2.5
Onsite	**2023**		
Fugtive Dust		0	0
Off-Road		0.388	0.388
Total		0.388	0.388
Offsite			
Hauling			
Vendor			
Worker			
Total		**0.013**	**0.013**

Grading				
Onsite		**2023**		
	Off-Road		0.185	0.185
	Total		0.185	0.185
Offsite				
	Hauling			
	Vendor			
	Worker			
	Total		**0.005**	**0.005**

Site Prep Haul				
			Exhaust PM10	Exhaust PM2.5
Onsite		**2023**		
	Off-Road		0	0
	Total		**0**	**0**
Offsite				
	Hauling			
	Vendor			
	Worker			
	Total		**1.323**	**1.323**

Building Construction				
			Exhaust PM10	Exhaust PM2.5
Onsite		**2023**		
	Off-Road		1.969	1.818
	Total		1.969	1.818
Offsite				
	Hauling			
	Vendor			
	Worker			
	Total		**0.051**	**0.051**
Onsite		**2024**		
	Off-Road		49.37	45.6
	Total		49.37	45.6
Offsite				
	Hauling			
	Vendor			
	Worker			
	Total			
Onsite		**2025**		
	Off-Road		36.67	33.89
	Total		36.67	33.89
Offsite				
	Hauling			
	Vendor			
	Worker			
	Total			

Architectural Coatings			
Onsite	**2025**		
Archit. Coating		0	0
Off-Road		0.313	0.288
Total		0.313	0.288
Offsite			
Hauling			
Vendor			
Worker			
Total			

Landscaping			
		Exhaust PM10	Exhaust PM2.5
Onsite	**2025**		
Off-Road		3.457	3.217
Total		3.457	3.217
Offsite			
Hauling			
Vendor			
Worker			
Total			

Paving			
		Exhaust PM10	Exhaust PM2.5
Onsite	**2025**		
Off-Road		1.258	1.182
Paving		0	0
Total		1.258	1.182
Offsite			
Hauling			
Vendor			
Worker			
Total			

UCB Academic Replacement Bldg Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	UCB Academic Replacement Bldg
Lead Agency	UC Berkeley
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	44.2
Location	37.870941014596525, -122.26267880322364
County	Alameda
City	Berkeley
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1585
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
University/College (4yr)	1.00	Student	0.78	78,000	17,846	17,846	—	5 story bldg
Other Non-Asphalt Surfaces	36.6	1000sqft	0.84	0.00	0.00	0.00	—	hardscape

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.44	1.20	9.99	12.6	0.02	0.36	0.47	0.83	0.33	0.12	0.45	1,880
Mit.	1.10	0.92	6.93	13.0	0.02	0.23	0.47	0.70	0.21	0.12	0.33	1,880
% Reduced	24%	23%	31%	-4%	—	37%	—	16%	37%	—	27%	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.46	85.4	57.4	49.3	0.11	2.34	7.32	9.67	2.17	2.97	5.14	14,873
Mit.	4.82	84.9	43.3	47.5	0.11	1.66	7.32	8.98	1.54	2.97	4.51	14,873
% Reduced	25%	1%	25%	4%	—	29%	—	7%	29%	—	12%	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.79	2.89	5.85	6.25	0.01	0.25	0.32	0.57	0.23	0.12	0.34	1,167
Mit.	0.65	2.77	4.09	6.47	0.01	0.15	0.32	0.47	0.14	0.12	0.25	1,167
% Reduced	18%	4%	30%	-4%	—	39%	—	17%	39%	—	26%	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.14	0.53	1.07	1.14	< 0.005	0.04	0.06	0.10	0.04	0.02	0.06	193
Mit.	0.12	0.51	0.75	1.18	< 0.005	0.03	0.06	0.09	0.03	0.02	0.05	193

% Reduced	18%	4%	30%	-4%	—	39%	—	17%	39%	—	26%	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.79	0.66	5.02	6.39	0.01	0.20	0.15	0.35	0.18	0.03	0.22	987
2024	1.10	0.92	7.48	8.72	0.01	0.27	0.38	0.66	0.25	0.10	0.35	1,297
2025	1.44	1.20	9.99	12.6	0.02	0.36	0.47	0.83	0.33	0.12	0.45	1,880
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2023	6.46	5.08	57.4	49.3	0.11	2.34	7.32	9.67	2.17	2.97	5.14	14,873
2024	1.10	0.92	7.48	8.72	0.01	0.27	0.38	0.66	0.25	0.10	0.35	1,297
2025	2.21	85.4	16.1	20.8	0.03	0.60	0.65	1.24	0.55	0.16	0.71	3,120
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.76	0.63	5.85	6.07	0.01	0.25	0.32	0.57	0.23	0.12	0.34	1,167
2024	0.79	0.66	5.36	6.25	0.01	0.20	0.26	0.46	0.18	0.07	0.25	929
2025	0.72	2.89	5.05	6.21	0.01	0.17	0.24	0.42	0.16	0.06	0.22	931
Annual	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.14	0.11	1.07	1.11	< 0.005	0.04	0.06	0.10	0.04	0.02	0.06	193
2024	0.14	0.12	0.98	1.14	< 0.005	0.04	0.05	0.08	0.03	0.01	0.05	154
2025	0.13	0.53	0.92	1.13	< 0.005	0.03	0.04	0.08	0.03	0.01	0.04	154

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.48	0.42	3.77	6.42	0.01	0.10	0.15	0.24	0.09	0.03	0.12	987
2024	0.91	0.76	5.71	9.04	0.01	0.19	0.38	0.57	0.17	0.10	0.27	1,297
2025	1.10	0.92	6.93	13.0	0.02	0.23	0.47	0.70	0.21	0.12	0.33	1,880
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.82	3.73	43.3	47.5	0.11	1.66	7.32	8.98	1.54	2.97	4.51	14,873
2024	0.91	0.76	5.71	9.04	0.01	0.19	0.38	0.57	0.17	0.10	0.27	1,297
2025	1.56	84.9	9.84	21.6	0.03	0.32	0.65	0.97	0.30	0.16	0.46	3,120
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.51	0.43	4.08	5.89	0.01	0.15	0.32	0.47	0.14	0.12	0.25	1,167
2024	0.65	0.54	4.09	6.47	0.01	0.14	0.26	0.40	0.12	0.07	0.19	929
2025	0.57	2.77	3.68	6.46	0.01	0.11	0.24	0.36	0.11	0.06	0.17	931
Annual	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.09	0.08	0.74	1.08	< 0.005	0.03	0.06	0.09	0.03	0.02	0.05	193
2024	0.12	0.10	0.75	1.18	< 0.005	0.02	0.05	0.07	0.02	0.01	0.03	154
2025	0.10	0.51	0.67	1.18	< 0.005	0.02	0.04	0.07	0.02	0.01	0.03	154

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	17.0	16.9	0.02	0.76	—	0.76	0.70	—	0.70	2,502
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.10	0.93	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	137
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	22.7
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.55	0.00	0.00	0.01	0.01	0.00	0.00	0.00	124
Vendor	0.01	< 0.005	0.14	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	100
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	6.86
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.50
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	1.13
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.91
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Demolition (2023) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.43	2.74	14.7	0.02	0.10	—	0.10	0.10	—	0.10	2,502
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.15	0.81	< 0.005	0.01	—	0.01	0.01	—	0.01	137
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	22.7
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.55	0.00	0.00	0.01	0.01	0.00	0.00	0.00	124
Vendor	0.01	< 0.005	0.14	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	100
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	6.86
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.50
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	1.13
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.91
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Demolition (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	17.0	16.9	0.02	0.76	—	0.76	0.70	—	0.70	2,502
Demolition	—	—	—	—	—	—	0.20	0.20	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.86	1.85	< 0.005	0.08	—	0.08	0.08	—	0.08	274
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.34	0.34	< 0.005	0.02	—	0.02	0.01	—	0.01	45.4
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.55	0.00	0.00	0.01	0.01	0.00	0.00	0.00	124
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.33	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	260
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.06	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	13.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	28.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	2.27
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.72

3.4. Demolition (2023) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	17.0	16.9	0.02	0.76	—	0.76	0.70	—	0.70	2,502
Demolition	—	—	—	—	—	—	0.20	0.20	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.86	1.85	< 0.005	0.08	—	0.08	0.08	—	0.08	274
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.34	0.34	< 0.005	0.02	—	0.02	0.01	—	0.01	45.4
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.55	0.00	0.00	0.01	0.01	0.00	0.00	0.00	124
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.33	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	260

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.06	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	13.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	28.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	2.27
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.72

3.5. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.84	1.54	15.1	13.7	0.02	0.72	—	0.72	0.66	—	0.66	2,070
Dust From Material Movement	—	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.37	< 0.005	0.02	—	0.02	0.02	—	0.02	56.7
Dust From Material Movement	—	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.39
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.33	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	74.4
Vendor	0.01	< 0.005	0.14	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	100
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	2.06
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	0.34
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.45
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.6. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.19	1.01	11.9	0.02	0.04	—	0.04	0.04	—	0.04	2,070
Dust From Material Movement	—	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.03	0.33	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	56.7
Dust From Material Movement	—	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.39
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.33	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	74.4

Vendor	0.01	< 0.005	0.14	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	100
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	2.06
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	0.34
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.45
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.84	1.54	15.1	13.7	0.02	0.72	—	0.72	0.66	—	0.66	2,070
Dust From Material Movement	—	—	—	—	—	—	2.47	2.47	—	1.18	1.18	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.37	< 0.005	0.02	—	0.02	0.02	—	0.02	56.7

Dust From Material Movement	—	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.39
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.33	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	74.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.57	0.15	9.53	3.61	0.05	0.13	0.53	0.66	0.13	0.18	0.31	7,597
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	2.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	< 0.005	0.26	0.10	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	208
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	0.34
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	34.5

3.8. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.84	1.54	15.1	13.7	0.02	0.72	—	0.72	0.66	—	0.66	2,070
Dust From Material Movement	—	—	—	—	—	—	2.47	2.47	—	1.18	1.18	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.37	< 0.005	0.02	—	0.02	0.02	—	0.02	56.7
Dust From Material Movement	—	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.39
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.33	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	74.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.57	0.15	9.53	3.61	0.05	0.13	0.53	0.66	0.13	0.18	0.31	7,597
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	2.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	< 0.005	0.26	0.10	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	208
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	0.34
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	34.5

3.9. Grading (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.78	17.5	16.3	0.02	0.83	—	0.83	0.77	—	0.77	2,462
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.19	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	27.0
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.47
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.44	0.00	0.00	0.01	0.01	0.00	0.00	0.00	99.2
Vendor	0.01	< 0.005	0.14	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	100
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	1.10
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.10
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	0.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.18
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Grading (2023) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.23	1.20	14.2	0.02	0.05	—	0.05	0.05	—	0.05	2,462
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	27.0
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.47
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.44	0.00	0.00	0.01	0.01	0.00	0.00	0.00	99.2
Vendor	0.01	< 0.005	0.14	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	100
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	1.10
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.10
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	0.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.18
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	0.97	7.74	8.77	0.01	0.31	—	0.31	0.28	—	0.28	1,297
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.02	0.20	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	33.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.46
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.14	1.45	0.00	0.00	0.02	0.02	0.00	0.00	0.00	325
Vendor	0.03	0.02	0.57	0.25	< 0.005	0.01	0.02	0.03	0.01	0.01	0.01	426
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	8.34
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	10.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	1.38
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.80
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.12. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.81	5.84	9.09	0.01	0.21	—	0.21	0.20	—	0.20	1,297
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.23	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	33.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.46
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.14	1.45	0.00	0.00	0.02	0.02	0.00	0.00	0.00	325
Vendor	0.03	0.02	0.57	0.25	< 0.005	0.01	0.02	0.03	0.01	0.01	0.01	426
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	8.34
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	10.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	1.38

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.80
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	7.48	8.72	0.01	0.27	—	0.27	0.25	—	0.25	1,297
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	7.48	8.72	0.01	0.27	—	0.27	0.25	—	0.25	1,297
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	5.36	6.25	0.01	0.20	—	0.20	0.18	—	0.18	929
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	0.98	1.14	< 0.005	0.04	—	0.04	0.03	—	0.03	154
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.14. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	5.71	9.04	0.01	0.19	—	0.19	0.17	—	0.17	1,297
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	5.71	9.04	0.01	0.19	—	0.19	0.17	—	0.17	1,297
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.54	4.09	6.47	0.01	0.14	—	0.14	0.12	—	0.12	929
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.75	1.18	< 0.005	0.02	—	0.02	0.02	—	0.02	154
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.15. Building Construction (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.04	0.86	7.20	8.66	0.01	0.24	—	0.24	0.22	—	0.22	1,297
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.04	0.86	7.20	8.66	0.01	0.24	—	0.24	0.22	—	0.22	1,297
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.51	4.30	5.17	0.01	0.14	—	0.14	0.13	—	0.13	774
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.78	0.94	< 0.005	0.03	—	0.03	0.02	—	0.02	128
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.16. Building Construction (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86	0.72	5.59	9.00	0.01	0.17	—	0.17	0.16	—	0.16	1,297
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86	0.72	5.59	9.00	0.01	0.17	—	0.17	0.16	—	0.16	1,297
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.43	3.34	5.37	0.01	0.10	—	0.10	0.09	—	0.09	774
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.61	0.98	< 0.005	0.02	—	0.02	0.02	—	0.02	128
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.17. Paving (2025) - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.49	4.63	6.50	0.01	0.20	—	0.20	0.19	—	0.19	995
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.36	< 0.005	0.01	—	0.01	0.01	—	0.01	54.5
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.03
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.18. Paving (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.27	0.24	1.49	6.89	0.01	0.06	—	0.06	0.06	—	0.06	995
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	54.5
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.03
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.19. Architectural Coating (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.42	1.72	< 0.005	0.03	—	0.03	0.03	—	0.03	245

Architectural Coatings	—	83.5	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	6.71
Architectural Coatings	—	2.29	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.11
Architectural Coatings	—	0.42	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.20. Architectural Coating (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.42	1.72	< 0.005	0.03	—	0.03	0.03	—	0.03	245

Architectural Coatings	—	83.5	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	6.71
Architectural Coatings	—	2.29	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.11
Architectural Coatings	—	0.42	—	—	—	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.21. Trenching (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.34	2.79	3.89	0.01	0.12	—	0.12	0.11	—	0.11	583
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.40	0.34	2.79	3.89	0.01	0.12	—	0.12	0.11	—	0.11	583
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.46	0.64	< 0.005	0.02	—	0.02	0.02	—	0.02	95.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	15.9
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.22. Trenching (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.21	1.34	4.03	0.01	0.06	—	0.06	0.05	—	0.05	583
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.21	1.34	4.03	0.01	0.06	—	0.06	0.05	—	0.05	583
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.03	0.22	0.66	< 0.005	0.01	—	0.01	0.01	—	0.01	95.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.04	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	15.9
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—

3.23. Trenching (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.60	4.97	5.62	0.01	0.20	—	0.20	0.18	—	0.18	825
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.60	4.97	5.62	0.01	0.20	—	0.20	0.18	—	0.18	825
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.22	0.18	1.48	1.68	< 0.005	0.06	—	0.06	0.05	—	0.05	247
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.27	0.31	< 0.005	0.01	—	0.01	0.01	—	0.01	40.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.77	0.00	0.00	0.01	0.01	0.00	0.00	0.00	161
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.66	0.00	0.00	0.01	0.01	0.00	0.00	0.00	149
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.19	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	44.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	7.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.24. Trenching (2023) - Mitigated

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	11/1/2023	11/28/2023	5.00	20.0	—
Demo Haul	Demolition	11/1/2023	12/26/2023	5.00	40.0	—
Site Preparation	Site Preparation	11/29/2023	12/12/2023	5.00	10.0	—
Site Prep Haul	Site Preparation	11/29/2023	12/12/2023	5.00	10.0	—
Grading	Grading	12/13/2023	12/18/2023	5.00	4.00	—
Building Construction	Building Construction	12/19/2023	11/1/2025	5.00	489	—
Paving	Paving	10/5/2025	11/1/2025	5.00	20.0	—
Architectural Coating	Architectural Coating	10/19/2025	11/1/2025	5.00	10.0	—

Landscaping	Trenching	8/10/2025	11/1/2025	5.00	60.0	—
Make Ready	Trenching	6/1/2023	10/31/2023	5.00	109	—

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	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Cranes	Diesel	Average	1.00	1.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Building Construction	Aerial Lifts	Diesel	Average	1.00	6.00	46.0	0.31
Architectural Coating	Aerial Lifts	Diesel	Average	1.00	6.00	46.0	0.31
Landscaping	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Landscaping	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Landscaping	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Landscaping	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demo Haul	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Demo Haul	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demo Haul	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Prep Haul	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Prep Haul	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Prep Haul	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Make Ready	Concrete/Industrial Saws	Diesel	Average	1.00	6.00	33.0	0.73
Make Ready	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Make Ready	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Make Ready	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Make Ready	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37

5.2.2. Mitigated

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

Demolition	Tractors/Loaders/Backh	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	7.00	367	0.40
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	8.00	148	0.41
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	7.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	1.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Tier 4 Final	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Building Construction	Aerial Lifts	Diesel	Average	1.00	6.00	46.0	0.31
Architectural Coating	Aerial Lifts	Diesel	Average	1.00	6.00	46.0	0.31
Landscaping	Forklifts	Diesel	Tier 4 Final	1.00	6.00	82.0	0.20
Landscaping	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43

Landscaping	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Landscaping	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Demo Haul	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Demo Haul	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demo Haul	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Prep Haul	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Prep Haul	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Prep Haul	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Make Ready	Concrete/Industrial Saws	Diesel	Average	1.00	6.00	33.0	0.73
Make Ready	Excavators	Diesel	Tier 4 Final	2.00	8.00	36.0	0.38
Make Ready	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Make Ready	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Make Ready	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	6.00	84.0	0.37

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	12.5	13.8	LDA,LDT1,LDT2
Demolition	Vendor	4.00	7.30	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	0.00	—	HHDT
Site Preparation	—	—	—	—

Site Preparation	Worker	7.50	13.8	LDA,LDT1,LDT2
Site Preparation	Vendor	4.00	7.30	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	13.8	LDA,LDT1,LDT2
Grading	Vendor	4.00	7.30	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	32.8	13.8	LDA,LDT1,LDT2
Building Construction	Vendor	17.0	7.30	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	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	6.55	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
Demo Haul	—	—	—	—
Demo Haul	Worker	12.5	13.8	LDA,LDT1,LDT2
Demo Haul	Vendor	0.00	7.30	HHDT,MHDT

Demo Haul	Hauling	3.42	20.0	HHDT
Demo Haul	Onsite truck	—	—	HHDT
Site Prep Haul	—	—	—	—
Site Prep Haul	Worker	7.50	13.8	LDA,LDT1,LDT2
Site Prep Haul	Vendor	0.00	7.30	HHDT,MHDT
Site Prep Haul	Hauling	100	20.0	HHDT
Site Prep Haul	Onsite truck	—	—	HHDT
Landscaping	—	—	—	—
Landscaping	Worker	10.0	13.8	LDA,LDT1,LDT2
Landscaping	Vendor	—	7.30	HHDT,MHDT
Landscaping	Hauling	0.00	20.0	HHDT
Landscaping	Onsite truck	—	—	HHDT
Make Ready	—	—	—	—
Make Ready	Worker	15.0	13.8	LDA,LDT1,LDT2
Make Ready	Vendor	—	7.30	HHDT,MHDT
Make Ready	Hauling	0.00	20.0	HHDT
Make Ready	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	13.8	LDA,LDT1,LDT2
Demolition	Vendor	4.00	7.30	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	0.00	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	13.8	LDA,LDT1,LDT2

Site Preparation	Vendor	4.00	7.30	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	13.8	LDA,LDT1,LDT2
Grading	Vendor	4.00	7.30	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	32.8	13.8	LDA,LDT1,LDT2
Building Construction	Vendor	17.0	7.30	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	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	6.55	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
Demo Haul	—	—	—	—
Demo Haul	Worker	12.5	13.8	LDA,LDT1,LDT2
Demo Haul	Vendor	0.00	7.30	HHDT,MHDT
Demo Haul	Hauling	3.42	20.0	HHDT

Demo Haul	Onsite truck	—	—	HHDT
Site Prep Haul	—	—	—	—
Site Prep Haul	Worker	7.50	13.8	LDA,LDT1,LDT2
Site Prep Haul	Vendor	0.00	7.30	HHDT,MHDT
Site Prep Haul	Hauling	100	20.0	HHDT
Site Prep Haul	Onsite truck	—	—	HHDT
Landscaping	—	—	—	—
Landscaping	Worker	10.0	13.8	LDA,LDT1,LDT2
Landscaping	Vendor	—	7.30	HHDT,MHDT
Landscaping	Hauling	0.00	20.0	HHDT
Landscaping	Onsite truck	—	—	HHDT
Make Ready	—	—	—	—
Make Ready	Worker	15.0	13.8	LDA,LDT1,LDT2
Make Ready	Vendor	—	7.30	HHDT,MHDT
Make Ready	Hauling	0.00	20.0	HHDT
Make Ready	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

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	0.00	0.00	118,648	39,549	2,198

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 (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Demo Haul	0.00	0.00	0.00	545	—
Site Preparation	0.00	0.00	9.38	0.00	—
Site Prep Haul	600	7,400	0.00	0.00	—
Grading	0.00	0.00	4.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.84

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
University/College (4yr)	0.00	0%
Other Non-Asphalt Surfaces	0.84	0%

5.8. Construction Electricity Consumption and Emissions Factors

Appendix B. Air Dispersion Model Output

Control Pathway

Dispersion Options

Titles

Academic Replacement Building, UC Berkeley
Construction HRA

Dispersion Options

☑ Regulatory Default ☐ Non-Default Options

Dispersion Coefficient

Urban

Population:
Name (Optional):
Roughness Length:

Output Type

☑ Concentration
☐ Total Deposition (Dry & Wet)
☐ Dry Deposition
☐ Wet Deposition

Plume Depletion

☐ Dry Removal
☐ Wet Removal

Output Warnings

☐ No Output Warnings
☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

Averaging Time Options

Hours ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 ☐ 8 ☐ 12 ☐ 24

☐ Month ☑ Period ☐ Annual

Exponential Decay

Half Life of 4 hrs will be used

Terrain Height Options

☐ Flat ☑ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☑ Yes ☐ No

Default Height = 1.50 m

Control Pathway

Optional Files

Re-Start File	Init File	Multi-Year Analyses	Event Input File	Error Listing File
☐	☐	☐	☐	■

Detailed Error Listing File

Filename: UCB_012.err

Source Pathway - Source Inputs

Source Pathway - Source Inputs

Polygon Area Sources

Source Type: AREA POLY

Source: PAREA1 (Make Ready)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
77.03	4.15	0.00425	1.93	24	565023.42	4191635.97
		0.00425			565024.35	4191637.59
		0.00425			565021.56	4191645.71
		0.00425			565018.78	4191647.33
		0.00425			565017.16	4191662.87
		0.00425			565012.52	4191662.41
		0.00425			565011.82	4191667.98
		0.00425			564994.66	4191687.00
		0.00425			564992.57	4191701.38
		0.00425			564988.86	4191704.62
		0.00425			564985.38	4191711.35
		0.00425			564983.29	4191710.19
		0.00425			564987.00	4191703.00
		0.00425			564989.78	4191699.29
		0.00425			564991.41	4191687.23
		0.00425			565008.34	4191667.98
		0.00425			565009.96	4191660.55
		0.00425			565010.20	4191659.16
		0.00425			565015.30	4191659.39
		0.00425			565016.46	4191645.94
		0.00425			565019.94	4191644.32
		0.00425			565021.79	4191639.91
		0.00425			565021.10	4191636.20
		0.00425			565023.19	4191636.66

Source Pathway - Source Inputs

Source Type: AREA POLY

Source: PAREA2 (Academic Replacement Building)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
72.22	4.15	0.00020	1.93	23	564902.91	4191761.16
		0.00020			564909.59	4191763.83
		0.00020			564971.43	4191781.63
		0.00020			564971.88	4191780.30
		0.00020			564968.99	4191770.95
		0.00020			564986.34	4191714.22
		0.00020			564987.67	4191712.44
		0.00020			564993.90	4191715.11
		0.00020			564997.91	4191704.66
		0.00020			564993.68	4191699.09
		0.00020			564988.12	4191697.54
		0.00020			564986.34	4191701.32
		0.00020			564945.85	4191698.65
		0.00020			564945.85	4191693.75
		0.00020			564932.05	4191692.20
		0.00020			564931.83	4191697.31
		0.00020			564924.05	4191697.54
		0.00020			564919.82	4191692.20
		0.00020			564916.48	4191696.65
		0.00020			564919.60	4191699.98
		0.00020			564911.36	4191750.04
		0.00020			564913.59	4191754.71
		0.00020			564911.36	4191760.27

Source Pathway - Source Inputs

Line Volume Sources

Source Type: LINE VOLUME

Source: SLINE1 (haul route)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
5.49	1.00000		564920.83	4191700.07	73.32	4.15
			564908.73	4191679.91	72.61	4.15
			564898.65	4191669.83	73.17	4.15
			564884.54	4191662.77	72.58	4.15
			564870.43	4191662.77	72.48	4.15
			564853.29	4191665.79	72.29	4.15
			564837.16	4191672.85	71.31	4.15
			564827.08	4191681.92	70.57	4.15
			564816.00	4191692.00	70.42	4.15
			564798.86	4191722.24	69.22	4.15
			564789.79	4191725.27	68.97	4.15
			564769.63	4191717.20	69.20	4.15
			564721.24	4191701.07	68.75	4.15
			564682.94	4191682.93	67.05	4.15
			564644.64	4191671.84	65.11	4.15
			564572.06	4191665.79	61.33	4.15
			564573.07	4191601.28	61.42	4.15
			564537.79	4191505.52	60.77	4.15
			564560.97	4191423.87	60.79	4.15
			564575.08	4191302.91	59.22	4.15
			564406.75	4191276.70	54.18	4.15
			564399.69	4191387.58	55.03	4.15
			564383.56	4191582.13	56.54	4.15
			564381.55	4191672.85	57.15	4.15
			564356.35	4191721.23	57.08	4.15
			564357.35	4191886.55	58.96	4.15
			564550.89	4191918.80	63.52	4.15
			564573.07	4191667.81	61.36	4.15

Source Pathway - Source Inputs

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000001	564919.42	4191697.71	73.00	4.15	0.00272	5.49		2.55	3.26
	L0000002	564916.60	4191693.01	72.88	4.15	0.00272	5.49		2.55	3.26
	L0000003	564913.77	4191688.31	72.86	4.15	0.00272	5.49		2.55	3.26
	L0000004	564910.95	4191683.60	72.85	4.15	0.00272	5.49		2.55	3.26
	L0000005	564907.90	4191679.07	72.86	4.15	0.00272	5.49		2.55	3.26
	L0000006	564904.02	4191675.19	72.85	4.15	0.00272	5.49		2.55	3.26
	L0000007	564900.14	4191671.31	72.86	4.15	0.00272	5.49		2.55	3.26
	L0000008	564895.63	4191668.31	72.82	4.15	0.00272	5.49		2.55	3.26
	L0000009	564890.72	4191665.86	72.75	4.15	0.00272	5.49		2.55	3.26
	L0000010	564885.81	4191663.41	72.70	4.15	0.00272	5.49		2.55	3.26
	L0000011	564880.48	4191662.77	72.55	4.15	0.00272	5.49		2.55	3.26
	L0000012	564874.99	4191662.77	72.44	4.15	0.00272	5.49		2.55	3.26
	L0000013	564869.52	4191662.93	72.40	4.15	0.00272	5.49		2.55	3.26
	L0000014	564864.12	4191663.88	72.32	4.15	0.00272	5.49		2.55	3.26
	L0000015	564858.71	4191664.84	72.22	4.15	0.00272	5.49		2.55	3.26
	L0000016	564853.31	4191665.79	72.12	4.15	0.00272	5.49		2.55	3.26
	L0000017	564848.28	4191667.99	71.94	4.15	0.00272	5.49		2.55	3.26
	L0000018	564843.26	4191670.19	71.75	4.15	0.00272	5.49		2.55	3.26
	L0000019	564838.23	4191672.38	71.55	4.15	0.00272	5.49		2.55	3.26
	L0000020	564833.95	4191675.74	71.29	4.15	0.00272	5.49		2.55	3.26
	L0000021	564829.87	4191679.41	71.00	4.15	0.00272	5.49		2.55	3.26
	L0000022	564825.80	4191683.09	70.76	4.15	0.00272	5.49		2.55	3.26
	L0000023	564821.74	4191686.78	70.59	4.15	0.00272	5.49		2.55	3.26
	L0000024	564817.68	4191690.47	70.44	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000025	564814.41	4191694.79	70.29	4.15	0.00272	5.49		2.55	3.26
	L0000026	564811.71	4191699.57	70.19	4.15	0.00272	5.49		2.55	3.26
	L0000027	564809.00	4191704.34	70.05	4.15	0.00272	5.49		2.55	3.26
	L0000028	564806.30	4191709.11	69.88	4.15	0.00272	5.49		2.55	3.26
	L0000029	564803.60	4191713.89	69.67	4.15	0.00272	5.49		2.55	3.26
	L0000030	564800.89	4191718.66	69.44	4.15	0.00272	5.49		2.55	3.26
	L0000031	564797.56	4191722.68	69.23	4.15	0.00272	5.49		2.55	3.26
	L0000032	564792.36	4191724.41	69.12	4.15	0.00272	5.49		2.55	3.26
	L0000033	564787.21	4191724.23	69.07	4.15	0.00272	5.49		2.55	3.26
	L0000034	564782.11	4191722.20	69.11	4.15	0.00272	5.49		2.55	3.26
	L0000035	564777.02	4191720.16	69.14	4.15	0.00272	5.49		2.55	3.26
	L0000036	564771.93	4191718.12	69.12	4.15	0.00272	5.49		2.55	3.26
	L0000037	564766.77	4191716.25	69.09	4.15	0.00272	5.49		2.55	3.26
	L0000038	564761.57	4191714.52	69.05	4.15	0.00272	5.49		2.55	3.26
	L0000039	564756.36	4191712.78	69.01	4.15	0.00272	5.49		2.55	3.26
	L0000040	564751.16	4191711.05	68.93	4.15	0.00272	5.49		2.55	3.26
	L0000041	564745.95	4191709.31	68.83	4.15	0.00272	5.49		2.55	3.26
	L0000042	564740.75	4191707.58	68.74	4.15	0.00272	5.49		2.55	3.26
	L0000043	564735.54	4191705.84	68.65	4.15	0.00272	5.49		2.55	3.26
	L0000044	564730.34	4191704.11	68.57	4.15	0.00272	5.49		2.55	3.26
	L0000045	564725.13	4191702.37	68.48	4.15	0.00272	5.49		2.55	3.26
	L0000046	564719.99	4191700.48	68.41	4.15	0.00272	5.49		2.55	3.26
	L0000047	564715.03	4191698.13	68.39	4.15	0.00272	5.49		2.55	3.26
	L0000048	564710.07	4191695.78	68.39	4.15	0.00272	5.49		2.55	3.26
	L0000049	564705.11	4191693.43	68.38	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000050	564700.16	4191691.09	68.16	4.15	0.00272	5.49		2.55	3.26
	L0000051	564695.20	4191688.74	67.88	4.15	0.00272	5.49		2.55	3.26
	L0000052	564690.24	4191686.39	67.60	4.15	0.00272	5.49		2.55	3.26
	L0000053	564685.28	4191684.04	67.30	4.15	0.00272	5.49		2.55	3.26
	L0000054	564680.16	4191682.13	66.97	4.15	0.00272	5.49		2.55	3.26
	L0000055	564674.89	4191680.60	66.58	4.15	0.00272	5.49		2.55	3.26
	L0000056	564669.62	4191679.07	66.22	4.15	0.00272	5.49		2.55	3.26
	L0000057	564664.35	4191677.55	65.88	4.15	0.00272	5.49		2.55	3.26
	L0000058	564659.08	4191676.02	65.57	4.15	0.00272	5.49		2.55	3.26
	L0000059	564653.81	4191674.50	65.28	4.15	0.00272	5.49		2.55	3.26
	L0000060	564648.54	4191672.97	64.99	4.15	0.00272	5.49		2.55	3.26
	L0000061	564643.22	4191671.72	64.70	4.15	0.00272	5.49		2.55	3.26
	L0000062	564637.75	4191671.27	64.37	4.15	0.00272	5.49		2.55	3.26
	L0000063	564632.28	4191670.81	64.04	4.15	0.00272	5.49		2.55	3.26
	L0000064	564626.81	4191670.36	63.76	4.15	0.00272	5.49		2.55	3.26
	L0000065	564621.35	4191669.90	63.47	4.15	0.00272	5.49		2.55	3.26
	L0000066	564615.88	4191669.45	63.17	4.15	0.00272	5.49		2.55	3.26
	L0000067	564610.41	4191668.99	62.87	4.15	0.00272	5.49		2.55	3.26
	L0000068	564604.95	4191668.53	62.61	4.15	0.00272	5.49		2.55	3.26
	L0000069	564599.48	4191668.08	62.36	4.15	0.00272	5.49		2.55	3.26
	L0000070	564594.01	4191667.62	62.12	4.15	0.00272	5.49		2.55	3.26
	L0000071	564588.54	4191667.17	61.86	4.15	0.00272	5.49		2.55	3.26
	L0000072	564583.08	4191666.71	61.63	4.15	0.00272	5.49		2.55	3.26
	L0000073	564577.61	4191666.26	61.50	4.15	0.00272	5.49		2.55	3.26
	L0000074	564572.14	4191665.80	61.37	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000075	564572.14	4191660.39	61.38	4.15	0.00272	5.49		2.55	3.26
	L0000076	564572.23	4191654.90	61.49	4.15	0.00272	5.49		2.55	3.26
	L0000077	564572.31	4191649.42	61.60	4.15	0.00272	5.49		2.55	3.26
	L0000078	564572.40	4191643.93	61.71	4.15	0.00272	5.49		2.55	3.26
	L0000079	564572.49	4191638.45	61.83	4.15	0.00272	5.49		2.55	3.26
	L0000080	564572.57	4191632.96	61.94	4.15	0.00272	5.49		2.55	3.26
	L0000081	564572.66	4191627.48	62.02	4.15	0.00272	5.49		2.55	3.26
	L0000082	564572.74	4191621.99	62.05	4.15	0.00272	5.49		2.55	3.26
	L0000083	564572.83	4191616.50	62.08	4.15	0.00272	5.49		2.55	3.26
	L0000084	564572.91	4191611.02	62.12	4.15	0.00272	5.49		2.55	3.26
	L0000085	564573.00	4191605.53	62.15	4.15	0.00272	5.49		2.55	3.26
	L0000086	564572.64	4191600.12	62.16	4.15	0.00272	5.49		2.55	3.26
	L0000087	564570.74	4191594.98	62.08	4.15	0.00272	5.49		2.55	3.26
	L0000088	564568.85	4191589.83	62.00	4.15	0.00272	5.49		2.55	3.26
	L0000089	564566.95	4191584.68	61.93	4.15	0.00272	5.49		2.55	3.26
	L0000090	564565.05	4191579.53	61.85	4.15	0.00272	5.49		2.55	3.26
	L0000091	564563.16	4191574.38	61.77	4.15	0.00272	5.49		2.55	3.26
	L0000092	564561.26	4191569.23	61.69	4.15	0.00272	5.49		2.55	3.26
	L0000093	564559.36	4191564.09	61.62	4.15	0.00272	5.49		2.55	3.26
	L0000094	564557.47	4191558.94	61.57	4.15	0.00272	5.49		2.55	3.26
	L0000095	564555.57	4191553.79	61.53	4.15	0.00272	5.49		2.55	3.26
	L0000096	564553.67	4191548.64	61.49	4.15	0.00272	5.49		2.55	3.26
	L0000097	564551.78	4191543.49	61.44	4.15	0.00272	5.49		2.55	3.26
	L0000098	564549.88	4191538.35	61.40	4.15	0.00272	5.49		2.55	3.26
	L0000099	564547.98	4191533.20	61.33	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000100	564546.09	4191528.05	61.24	4.15	0.00272	5.49		2.55	3.26
	L0000101	564544.19	4191522.90	61.15	4.15	0.00272	5.49		2.55	3.26
	L0000102	564542.29	4191517.75	61.06	4.15	0.00272	5.49		2.55	3.26
	L0000103	564540.40	4191512.61	60.95	4.15	0.00272	5.49		2.55	3.26
	L0000104	564538.50	4191507.46	60.84	4.15	0.00272	5.49		2.55	3.26
	L0000105	564538.72	4191502.23	60.80	4.15	0.00272	5.49		2.55	3.26
	L0000106	564540.22	4191496.95	60.79	4.15	0.00272	5.49		2.55	3.26
	L0000107	564541.72	4191491.67	60.78	4.15	0.00272	5.49		2.55	3.26
	L0000108	564543.22	4191486.39	60.78	4.15	0.00272	5.49		2.55	3.26
	L0000109	564544.72	4191481.12	60.77	4.15	0.00272	5.49		2.55	3.26
	L0000110	564546.21	4191475.84	60.76	4.15	0.00272	5.49		2.55	3.26
	L0000111	564547.71	4191470.56	60.77	4.15	0.00272	5.49		2.55	3.26
	L0000112	564549.21	4191465.28	60.76	4.15	0.00272	5.49		2.55	3.26
	L0000113	564550.71	4191460.01	60.75	4.15	0.00272	5.49		2.55	3.26
	L0000114	564552.21	4191454.73	60.73	4.15	0.00272	5.49		2.55	3.26
	L0000115	564553.71	4191449.45	60.71	4.15	0.00272	5.49		2.55	3.26
	L0000116	564555.21	4191444.17	60.68	4.15	0.00272	5.49		2.55	3.26
	L0000117	564556.70	4191438.89	60.69	4.15	0.00272	5.49		2.55	3.26
	L0000118	564558.20	4191433.62	60.71	4.15	0.00272	5.49		2.55	3.26
	L0000119	564559.70	4191428.34	60.73	4.15	0.00272	5.49		2.55	3.26
	L0000120	564561.07	4191423.04	60.76	4.15	0.00272	5.49		2.55	3.26
	L0000121	564561.70	4191417.59	60.77	4.15	0.00272	5.49		2.55	3.26
	L0000122	564562.34	4191412.14	60.78	4.15	0.00272	5.49		2.55	3.26
	L0000123	564562.98	4191406.69	60.76	4.15	0.00272	5.49		2.55	3.26
	L0000124	564563.61	4191401.24	60.73	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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SLINE1	L0000125	564564.25	4191395.79	60.71	4.15	0.00272	5.49		2.55	3.26
	L0000126	564564.88	4191390.34	60.68	4.15	0.00272	5.49		2.55	3.26
	L0000127	564565.52	4191384.89	60.65	4.15	0.00272	5.49		2.55	3.26
	L0000128	564566.15	4191379.44	60.57	4.15	0.00272	5.49		2.55	3.26
	L0000129	564566.79	4191373.99	60.47	4.15	0.00272	5.49		2.55	3.26
	L0000130	564567.43	4191368.54	60.37	4.15	0.00272	5.49		2.55	3.26
	L0000131	564568.06	4191363.09	60.25	4.15	0.00272	5.49		2.55	3.26
	L0000132	564568.70	4191357.64	60.13	4.15	0.00272	5.49		2.55	3.26
	L0000133	564569.33	4191352.19	60.01	4.15	0.00272	5.49		2.55	3.26
	L0000134	564569.97	4191346.74	59.92	4.15	0.00272	5.49		2.55	3.26
	L0000135	564570.60	4191341.29	59.83	4.15	0.00272	5.49		2.55	3.26
	L0000136	564571.24	4191335.84	59.75	4.15	0.00272	5.49		2.55	3.26
	L0000137	564571.88	4191330.39	59.66	4.15	0.00272	5.49		2.55	3.26
	L0000138	564572.51	4191324.95	59.58	4.15	0.00272	5.49		2.55	3.26
	L0000139	564573.15	4191319.50	59.51	4.15	0.00272	5.49		2.55	3.26
	L0000140	564573.78	4191314.05	59.46	4.15	0.00272	5.49		2.55	3.26
	L0000141	564574.42	4191308.60	59.41	4.15	0.00272	5.49		2.55	3.26
	L0000142	564575.06	4191303.15	59.37	4.15	0.00272	5.49		2.55	3.26
	L0000143	564569.90	4191302.10	59.27	4.15	0.00272	5.49		2.55	3.26
	L0000144	564564.48	4191301.26	59.18	4.15	0.00272	5.49		2.55	3.26
	L0000145	564559.05	4191300.42	59.05	4.15	0.00272	5.49		2.55	3.26
	L0000146	564553.63	4191299.57	58.90	4.15	0.00272	5.49		2.55	3.26
	L0000147	564548.21	4191298.73	58.75	4.15	0.00272	5.49		2.55	3.26
	L0000148	564542.79	4191297.88	58.60	4.15	0.00272	5.49		2.55	3.26
	L0000149	564537.37	4191297.04	58.44	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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SLINE1	L0000150	564531.95	4191296.20	58.26	4.15	0.00272	5.49		2.55	3.26
	L0000151	564526.53	4191295.35	58.09	4.15	0.00272	5.49		2.55	3.26
	L0000152	564521.11	4191294.51	57.91	4.15	0.00272	5.49		2.55	3.26
	L0000153	564515.69	4191293.66	57.74	4.15	0.00272	5.49		2.55	3.26
	L0000154	564510.26	4191292.82	57.54	4.15	0.00272	5.49		2.55	3.26
	L0000155	564504.84	4191291.98	57.34	4.15	0.00272	5.49		2.55	3.26
	L0000156	564499.42	4191291.13	57.13	4.15	0.00272	5.49		2.55	3.26
	L0000157	564494.00	4191290.29	56.93	4.15	0.00272	5.49		2.55	3.26
	L0000158	564488.58	4191289.44	56.73	4.15	0.00272	5.49		2.55	3.26
	L0000159	564483.16	4191288.60	56.55	4.15	0.00272	5.49		2.55	3.26
	L0000160	564477.74	4191287.76	56.36	4.15	0.00272	5.49		2.55	3.26
	L0000161	564472.32	4191286.91	56.17	4.15	0.00272	5.49		2.55	3.26
	L0000162	564466.90	4191286.07	55.99	4.15	0.00272	5.49		2.55	3.26
	L0000163	564461.48	4191285.22	55.84	4.15	0.00272	5.49		2.55	3.26
	L0000164	564456.05	4191284.38	55.73	4.15	0.00272	5.49		2.55	3.26
	L0000165	564450.63	4191283.54	55.61	4.15	0.00272	5.49		2.55	3.26
	L0000166	564445.21	4191282.69	55.49	4.15	0.00272	5.49		2.55	3.26
	L0000167	564439.79	4191281.85	55.37	4.15	0.00272	5.49		2.55	3.26
	L0000168	564434.37	4191281.00	55.26	4.15	0.00272	5.49		2.55	3.26
	L0000169	564428.95	4191280.16	55.15	4.15	0.00272	5.49		2.55	3.26
	L0000170	564423.53	4191279.32	55.03	4.15	0.00272	5.49		2.55	3.26
	L0000171	564418.11	4191278.47	54.92	4.15	0.00272	5.49		2.55	3.26
	L0000172	564412.69	4191277.63	54.78	4.15	0.00272	5.49		2.55	3.26
	L0000173	564407.26	4191276.78	54.62	4.15	0.00272	5.49		2.55	3.26
	L0000174	564406.43	4191281.65	54.63	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000175	564406.08	4191287.13	54.66	4.15	0.00272	5.49		2.55	3.26
	L0000176	564405.73	4191292.61	54.69	4.15	0.00272	5.49		2.55	3.26
	L0000177	564405.39	4191298.08	54.72	4.15	0.00272	5.49		2.55	3.26
	L0000178	564405.04	4191303.56	54.75	4.15	0.00272	5.49		2.55	3.26
	L0000179	564404.69	4191309.03	54.78	4.15	0.00272	5.49		2.55	3.26
	L0000180	564404.34	4191314.51	54.81	4.15	0.00272	5.49		2.55	3.26
	L0000181	564403.99	4191319.98	54.84	4.15	0.00272	5.49		2.55	3.26
	L0000182	564403.64	4191325.46	54.87	4.15	0.00272	5.49		2.55	3.26
	L0000183	564403.29	4191330.93	54.91	4.15	0.00272	5.49		2.55	3.26
	L0000184	564402.95	4191336.41	54.94	4.15	0.00272	5.49		2.55	3.26
	L0000185	564402.60	4191341.88	54.97	4.15	0.00272	5.49		2.55	3.26
	L0000186	564402.25	4191347.36	55.00	4.15	0.00272	5.49		2.55	3.26
	L0000187	564401.90	4191352.83	55.03	4.15	0.00272	5.49		2.55	3.26
	L0000188	564401.55	4191358.31	55.07	4.15	0.00272	5.49		2.55	3.26
	L0000189	564401.20	4191363.78	55.10	4.15	0.00272	5.49		2.55	3.26
	L0000190	564400.86	4191369.26	55.13	4.15	0.00272	5.49		2.55	3.26
	L0000191	564400.51	4191374.73	55.16	4.15	0.00272	5.49		2.55	3.26
	L0000192	564400.16	4191380.21	55.19	4.15	0.00272	5.49		2.55	3.26
	L0000193	564399.81	4191385.69	55.23	4.15	0.00272	5.49		2.55	3.26
	L0000194	564399.39	4191391.16	55.27	4.15	0.00272	5.49		2.55	3.26
	L0000195	564398.94	4191396.62	55.32	4.15	0.00272	5.49		2.55	3.26
	L0000196	564398.49	4191402.09	55.36	4.15	0.00272	5.49		2.55	3.26
	L0000197	564398.03	4191407.56	55.41	4.15	0.00272	5.49		2.55	3.26
	L0000198	564397.58	4191413.03	55.45	4.15	0.00272	5.49		2.55	3.26
	L0000199	564397.13	4191418.49	55.50	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000200	564396.67	4191423.96	55.56	4.15	0.00272	5.49		2.55	3.26
	L0000201	564396.22	4191429.43	55.61	4.15	0.00272	5.49		2.55	3.26
	L0000202	564395.77	4191434.90	55.66	4.15	0.00272	5.49		2.55	3.26
	L0000203	564395.31	4191440.36	55.72	4.15	0.00272	5.49		2.55	3.26
	L0000204	564394.86	4191445.83	55.76	4.15	0.00272	5.49		2.55	3.26
	L0000205	564394.41	4191451.30	55.80	4.15	0.00272	5.49		2.55	3.26
	L0000206	564393.95	4191456.77	55.84	4.15	0.00272	5.49		2.55	3.26
	L0000207	564393.50	4191462.24	55.88	4.15	0.00272	5.49		2.55	3.26
	L0000208	564393.05	4191467.70	55.92	4.15	0.00272	5.49		2.55	3.26
	L0000209	564392.59	4191473.17	55.96	4.15	0.00272	5.49		2.55	3.26
	L0000210	564392.14	4191478.64	56.01	4.15	0.00272	5.49		2.55	3.26
	L0000211	564391.69	4191484.11	56.05	4.15	0.00272	5.49		2.55	3.26
	L0000212	564391.23	4191489.57	56.09	4.15	0.00272	5.49		2.55	3.26
	L0000213	564390.78	4191495.04	56.14	4.15	0.00272	5.49		2.55	3.26
	L0000214	564390.33	4191500.51	56.19	4.15	0.00272	5.49		2.55	3.26
	L0000215	564389.87	4191505.98	56.23	4.15	0.00272	5.49		2.55	3.26
	L0000216	564389.42	4191511.44	56.27	4.15	0.00272	5.49		2.55	3.26
	L0000217	564388.97	4191516.91	56.31	4.15	0.00272	5.49		2.55	3.26
	L0000218	564388.51	4191522.38	56.35	4.15	0.00272	5.49		2.55	3.26
	L0000219	564388.06	4191527.85	56.39	4.15	0.00272	5.49		2.55	3.26
	L0000220	564387.61	4191533.31	56.43	4.15	0.00272	5.49		2.55	3.26
	L0000221	564387.15	4191538.78	56.45	4.15	0.00272	5.49		2.55	3.26
	L0000222	564386.70	4191544.25	56.46	4.15	0.00272	5.49		2.55	3.26
	L0000223	564386.25	4191549.72	56.48	4.15	0.00272	5.49		2.55	3.26
	L0000224	564385.79	4191555.19	56.49	4.15	0.00272	5.49		2.55	3.26

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000225	564385.34	4191560.65	56.50	4.15	0.00272	5.49		2.55	3.26
	L0000226	564384.89	4191566.12	56.52	4.15	0.00272	5.49		2.55	3.26
	L0000227	564384.44	4191571.59	56.55	4.15	0.00272	5.49		2.55	3.26
	L0000228	564383.98	4191577.06	56.57	4.15	0.00272	5.49		2.55	3.26
	L0000229	564383.55	4191582.52	56.60	4.15	0.00272	5.49		2.55	3.26
	L0000230	564383.43	4191588.01	56.64	4.15	0.00272	5.49		2.55	3.26
	L0000231	564383.31	4191593.49	56.67	4.15	0.00272	5.49		2.55	3.26
	L0000232	564383.19	4191598.98	56.71	4.15	0.00272	5.49		2.55	3.26
	L0000233	564383.06	4191604.46	56.75	4.15	0.00272	5.49		2.55	3.26
	L0000234	564382.94	4191609.95	56.80	4.15	0.00272	5.49		2.55	3.26
	L0000235	564382.82	4191615.43	56.85	4.15	0.00272	5.49		2.55	3.26
	L0000236	564382.70	4191620.92	56.89	4.15	0.00272	5.49		2.55	3.26
	L0000237	564382.58	4191626.41	56.94	4.15	0.00272	5.49		2.55	3.26
	L0000238	564382.46	4191631.89	56.98	4.15	0.00272	5.49		2.55	3.26
	L0000239	564382.33	4191637.38	57.01	4.15	0.00272	5.49		2.55	3.26
	L0000240	564382.21	4191642.86	57.05	4.15	0.00272	5.49		2.55	3.26
	L0000241	564382.09	4191648.35	57.09	4.15	0.00272	5.49		2.55	3.26
	L0000242	564381.97	4191653.83	57.12	4.15	0.00272	5.49		2.55	3.26
	L0000243	564381.85	4191659.32	57.16	4.15	0.00272	5.49		2.55	3.26
	L0000244	564381.72	4191664.80	57.20	4.15	0.00272	5.49		2.55	3.26
	L0000245	564381.60	4191670.29	57.23	4.15	0.00272	5.49		2.55	3.26
	L0000246	564380.20	4191675.44	57.24	4.15	0.00272	5.49		2.55	3.26
	L0000247	564377.66	4191680.31	57.23	4.15	0.00272	5.49		2.55	3.26
	L0000248	564375.13	4191685.17	57.21	4.15	0.00272	5.49		2.55	3.26
	L0000249	564372.59	4191690.04	57.18	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000250	564370.06	4191694.90	57.16	4.15	0.00272	5.49		2.55	3.26
	L0000251	564367.52	4191699.77	57.14	4.15	0.00272	5.49		2.55	3.26
	L0000252	564364.99	4191704.64	57.13	4.15	0.00272	5.49		2.55	3.26
	L0000253	564362.46	4191709.50	57.11	4.15	0.00272	5.49		2.55	3.26
	L0000254	564359.92	4191714.37	57.09	4.15	0.00272	5.49		2.55	3.26
	L0000255	564357.39	4191719.23	57.06	4.15	0.00272	5.49		2.55	3.26
	L0000256	564356.36	4191724.47	57.06	4.15	0.00272	5.49		2.55	3.26
	L0000257	564356.40	4191729.95	57.09	4.15	0.00272	5.49		2.55	3.26
	L0000258	564356.43	4191735.44	57.13	4.15	0.00272	5.49		2.55	3.26
	L0000259	564356.47	4191740.92	57.16	4.15	0.00272	5.49		2.55	3.26
	L0000260	564356.50	4191746.41	57.19	4.15	0.00272	5.49		2.55	3.26
	L0000261	564356.53	4191751.90	57.23	4.15	0.00272	5.49		2.55	3.26
	L0000262	564356.57	4191757.38	57.28	4.15	0.00272	5.49		2.55	3.26
	L0000263	564356.60	4191762.87	57.34	4.15	0.00272	5.49		2.55	3.26
	L0000264	564356.63	4191768.36	57.40	4.15	0.00272	5.49		2.55	3.26
	L0000265	564356.67	4191773.84	57.45	4.15	0.00272	5.49		2.55	3.26
	L0000266	564356.70	4191779.33	57.51	4.15	0.00272	5.49		2.55	3.26
	L0000267	564356.73	4191784.82	57.58	4.15	0.00272	5.49		2.55	3.26
	L0000268	564356.77	4191790.30	57.66	4.15	0.00272	5.49		2.55	3.26
	L0000269	564356.80	4191795.79	57.75	4.15	0.00272	5.49		2.55	3.26
	L0000270	564356.83	4191801.27	57.83	4.15	0.00272	5.49		2.55	3.26
	L0000271	564356.87	4191806.76	57.91	4.15	0.00272	5.49		2.55	3.26
	L0000272	564356.90	4191812.25	58.00	4.15	0.00272	5.49		2.55	3.26
	L0000273	564356.93	4191817.73	58.08	4.15	0.00272	5.49		2.55	3.26
	L0000274	564356.97	4191823.22	58.16	4.15	0.00272	5.49		2.55	3.26

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE1	L0000275	564357.00	4191828.71	58.25	4.15	0.00272	5.49		2.55	3.26
	L0000276	564357.03	4191834.19	58.33	4.15	0.00272	5.49		2.55	3.26
	L0000277	564357.07	4191839.68	58.41	4.15	0.00272	5.49		2.55	3.26
	L0000278	564357.10	4191845.16	58.50	4.15	0.00272	5.49		2.55	3.26
	L0000279	564357.13	4191850.65	58.60	4.15	0.00272	5.49		2.55	3.26
	L0000280	564357.17	4191856.14	58.70	4.15	0.00272	5.49		2.55	3.26
	L0000281	564357.20	4191861.62	58.80	4.15	0.00272	5.49		2.55	3.26
	L0000282	564357.23	4191867.11	58.90	4.15	0.00272	5.49		2.55	3.26
	L0000283	564357.27	4191872.60	59.01	4.15	0.00272	5.49		2.55	3.26
	L0000284	564357.30	4191878.08	59.10	4.15	0.00272	5.49		2.55	3.26
	L0000285	564357.33	4191883.57	59.18	4.15	0.00272	5.49		2.55	3.26
	L0000286	564359.83	4191886.96	59.26	4.15	0.00272	5.49		2.55	3.26
	L0000287	564365.24	4191887.86	59.33	4.15	0.00272	5.49		2.55	3.26
	L0000288	564370.65	4191888.76	59.39	4.15	0.00272	5.49		2.55	3.26
	L0000289	564376.06	4191889.67	59.45	4.15	0.00272	5.49		2.55	3.26
	L0000290	564381.47	4191890.57	59.52	4.15	0.00272	5.49		2.55	3.26
	L0000291	564386.88	4191891.47	59.58	4.15	0.00272	5.49		2.55	3.26
	L0000292	564392.30	4191892.37	59.67	4.15	0.00272	5.49		2.55	3.26
	L0000293	564397.71	4191893.27	59.76	4.15	0.00272	5.49		2.55	3.26
	L0000294	564403.12	4191894.18	59.85	4.15	0.00272	5.49		2.55	3.26
	L0000295	564408.53	4191895.08	59.94	4.15	0.00272	5.49		2.55	3.26
	L0000296	564413.94	4191895.98	60.03	4.15	0.00272	5.49		2.55	3.26
	L0000297	564419.36	4191896.88	60.11	4.15	0.00272	5.49		2.55	3.26
	L0000298	564424.77	4191897.78	60.20	4.15	0.00272	5.49		2.55	3.26
	L0000299	564430.18	4191898.69	60.29	4.15	0.00272	5.49		2.55	3.26

Source Pathway - Source Inputs

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SLINE1	L0000300	564435.59	4191899.59	60.38	4.15	0.00272	5.49		2.55	3.26
	L0000301	564441.00	4191900.49	60.48	4.15	0.00272	5.49		2.55	3.26
	L0000302	564446.41	4191901.39	60.58	4.15	0.00272	5.49		2.55	3.26
	L0000303	564451.83	4191902.29	60.68	4.15	0.00272	5.49		2.55	3.26
	L0000304	564457.24	4191903.20	60.78	4.15	0.00272	5.49		2.55	3.26
	L0000305	564462.65	4191904.10	60.88	4.15	0.00272	5.49		2.55	3.26
	L0000306	564468.06	4191905.00	60.99	4.15	0.00272	5.49		2.55	3.26
	L0000307	564473.47	4191905.90	61.09	4.15	0.00272	5.49		2.55	3.26
	L0000308	564478.88	4191906.80	61.19	4.15	0.00272	5.49		2.55	3.26
	L0000309	564484.30	4191907.71	61.31	4.15	0.00272	5.49		2.55	3.26
	L0000310	564489.71	4191908.61	61.51	4.15	0.00272	5.49		2.55	3.26
	L0000311	564495.12	4191909.51	61.71	4.15	0.00272	5.49		2.55	3.26
	L0000312	564500.53	4191910.41	61.93	4.15	0.00272	5.49		2.55	3.26
	L0000313	564505.94	4191911.31	62.14	4.15	0.00272	5.49		2.55	3.26
	L0000314	564511.35	4191912.21	62.37	4.15	0.00272	5.49		2.55	3.26
	L0000315	564516.77	4191913.12	62.61	4.15	0.00272	5.49		2.55	3.26
	L0000316	564522.18	4191914.02	62.85	4.15	0.00272	5.49		2.55	3.26
	L0000317	564527.59	4191914.92	63.08	4.15	0.00272	5.49		2.55	3.26
	L0000318	564533.00	4191915.82	63.32	4.15	0.00272	5.49		2.55	3.26
	L0000319	564538.41	4191916.72	63.51	4.15	0.00272	5.49		2.55	3.26
	L0000320	564543.83	4191917.63	63.70	4.15	0.00272	5.49		2.55	3.26
	L0000321	564549.24	4191918.53	63.89	4.15	0.00272	5.49		2.55	3.26
	L0000322	564551.23	4191915.01	63.83	4.15	0.00272	5.49		2.55	3.26
	L0000323	564551.71	4191909.54	63.65	4.15	0.00272	5.49		2.55	3.26
	L0000324	564552.19	4191904.08	63.58	4.15	0.00272	5.49		2.55	3.26

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SLINE1	L0000325	564552.67	4191898.61	63.58	4.15	0.00272	5.49		2.55	3.26
	L0000326	564553.16	4191893.15	63.58	4.15	0.00272	5.49		2.55	3.26
	L0000327	564553.64	4191887.68	63.58	4.15	0.00272	5.49		2.55	3.26
	L0000328	564554.12	4191882.22	63.59	4.15	0.00272	5.49		2.55	3.26
	L0000329	564554.61	4191876.75	63.59	4.15	0.00272	5.49		2.55	3.26
	L0000330	564555.09	4191871.29	63.62	4.15	0.00272	5.49		2.55	3.26
	L0000331	564555.57	4191865.82	63.65	4.15	0.00272	5.49		2.55	3.26
	L0000332	564556.05	4191860.36	63.68	4.15	0.00272	5.49		2.55	3.26
	L0000333	564556.54	4191854.89	63.71	4.15	0.00272	5.49		2.55	3.26
	L0000334	564557.02	4191849.43	63.73	4.15	0.00272	5.49		2.55	3.26
	L0000335	564557.50	4191843.96	63.76	4.15	0.00272	5.49		2.55	3.26
	L0000336	564557.99	4191838.50	63.77	4.15	0.00272	5.49		2.55	3.26
	L0000337	564558.47	4191833.03	63.80	4.15	0.00272	5.49		2.55	3.26
	L0000338	564558.95	4191827.57	63.83	4.15	0.00272	5.49		2.55	3.26
	L0000339	564559.43	4191822.10	63.87	4.15	0.00272	5.49		2.55	3.26
	L0000340	564559.92	4191816.64	63.90	4.15	0.00272	5.49		2.55	3.26
	L0000341	564560.40	4191811.17	63.88	4.15	0.00272	5.49		2.55	3.26
	L0000342	564560.88	4191805.71	63.83	4.15	0.00272	5.49		2.55	3.26
	L0000343	564561.37	4191800.24	63.78	4.15	0.00272	5.49		2.55	3.26
	L0000344	564561.85	4191794.78	63.73	4.15	0.00272	5.49		2.55	3.26
	L0000345	564562.33	4191789.31	63.67	4.15	0.00272	5.49		2.55	3.26
	L0000346	564562.81	4191783.85	63.61	4.15	0.00272	5.49		2.55	3.26
	L0000347	564563.30	4191778.38	63.48	4.15	0.00272	5.49		2.55	3.26
	L0000348	564563.78	4191772.92	63.34	4.15	0.00272	5.49		2.55	3.26
	L0000349	564564.26	4191767.45	63.20	4.15	0.00272	5.49		2.55	3.26

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SLINE1	L0000350	564564.75	4191761.99	63.06	4.15	0.00272	5.49		2.55	3.26
	L0000351	564565.23	4191756.52	62.92	4.15	0.00272	5.49		2.55	3.26
	L0000352	564565.71	4191751.06	62.77	4.15	0.00272	5.49		2.55	3.26
	L0000353	564566.19	4191745.59	62.61	4.15	0.00272	5.49		2.55	3.26
	L0000354	564566.68	4191740.13	62.44	4.15	0.00272	5.49		2.55	3.26
	L0000355	564567.16	4191734.66	62.28	4.15	0.00272	5.49		2.55	3.26
	L0000356	564567.64	4191729.20	62.12	4.15	0.00272	5.49		2.55	3.26
	L0000357	564568.13	4191723.73	61.95	4.15	0.00272	5.49		2.55	3.26
	L0000358	564568.61	4191718.26	61.83	4.15	0.00272	5.49		2.55	3.26
	L0000359	564569.09	4191712.80	61.74	4.15	0.00272	5.49		2.55	3.26
	L0000360	564569.57	4191707.33	61.64	4.15	0.00272	5.49		2.55	3.26
	L0000361	564570.06	4191701.87	61.54	4.15	0.00272	5.49		2.55	3.26
	L0000362	564570.54	4191696.40	61.44	4.15	0.00272	5.49		2.55	3.26
	L0000363	564571.02	4191690.94	61.35	4.15	0.00272	5.49		2.55	3.26
	L0000364	564571.51	4191685.47	61.36	4.15	0.00272	5.49		2.55	3.26
	L0000365	564571.99	4191680.01	61.37	4.15	0.00272	5.49		2.55	3.26
	L0000366	564572.47	4191674.54	61.38	4.15	0.00272	5.49		2.55	3.26
	L0000367	564572.95	4191669.08	61.39	4.15	0.00272	5.49		2.55	3.26

Source Pathway

Building Downwash Information

Option not in use

Emission Rate Units for Output

For Concentration

Unit Factor:	1E6
Emission Unit Label:	GRAMS/SEC
Concentration Unit Label:	MICROGRAMS/M**3

Source Groups

Source Group ID:	List of Sources in Group (Source Range or Single Sources)
MakeRead	PAREA1
Haul	SLINE1
Academic Replacement Building	PAREA2

Variable Emissions

Hour-of-Day / Day-of-Week Emission Rate Variation

Scenario: WorkHours

Source ID:	**PAREA1**							
Weekdays								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	1.00	1.00	1.00	1.00	0.50
	Day	13 - 18	0.50	1.00	1.00	1.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Saturday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Source ID:	**PAREA2**							
Weekdays								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	1.00	1.00	1.00	1.00	0.50
	Day	13 - 18	0.50	1.00	1.00	1.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Saturday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Source ID:	**SLINE1**							
Weekdays								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	1.00	1.00	1.00	1.00	0.50
	Day	13 - 18	0.50	1.00	1.00	1.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Saturday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00

Receptor Pathway

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Discrete Receptors

Discrete Cartesian Receptors

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	564568.28	4192138.36	UCART2	70.18	
2	564578.28	4192138.36	UCART2	70.80	
3	564588.28	4192138.36	UCART2	71.30	
4	564568.28	4192148.36	UCART2	70.56	
5	564578.28	4192148.36	UCART2	71.18	
6	564588.28	4192148.36	UCART2	71.69	
7	564608.28	4192148.36	UCART2	72.67	
8	564618.28	4192148.36	UCART2	73.19	
9	564628.28	4192148.36	UCART2	73.72	
10	564638.28	4192148.36	UCART2	74.30	
11	564648.28	4192148.36	UCART2	74.88	
12	564568.28	4192158.36	UCART2	71.10	
13	564578.28	4192158.36	UCART2	71.71	
14	564588.28	4192158.36	UCART2	72.20	
15	564608.28	4192158.36	UCART2	73.17	
16	564618.28	4192158.36	UCART2	73.71	
17	564628.28	4192158.36	UCART2	74.26	
18	564638.28	4192158.36	UCART2	74.87	
19	564648.28	4192158.36	UCART2	75.48	
20	564658.28	4192158.36	UCART2	76.14	
21	564668.28	4192158.36	UCART2	76.84	
22	564678.28	4192158.36	UCART2	77.54	
23	564688.28	4192158.36	UCART2	78.08	
24	564698.28	4192158.36	UCART2	78.62	
25	564568.28	4192168.36	UCART2	71.85	
26	564578.28	4192168.36	UCART2	72.45	
27	564588.28	4192168.36	UCART2	72.90	
28	564608.28	4192168.36	UCART2	73.81	
29	564618.28	4192168.36	UCART2	74.38	
30	564628.28	4192168.36	UCART2	74.96	

31	564638.28	4192168.36	UCART2	75.63
32	564648.28	4192168.36	UCART2	76.30
33	564658.28	4192168.36	UCART2	76.96
34	564668.28	4192168.36	UCART2	77.62
35	564678.28	4192168.36	UCART2	78.28
36	564688.28	4192168.36	UCART2	78.88
37	564698.28	4192168.36	UCART2	79.49
38	564708.28	4192168.36	UCART2	80.06
39	564718.28	4192168.36	UCART2	80.61
40	564588.28	4192178.36	UCART2	73.60
41	564608.28	4192178.36	UCART2	74.45
42	564618.28	4192178.36	UCART2	75.06
43	564628.28	4192178.36	UCART2	75.66
44	564638.28	4192178.36	UCART2	76.39
45	564648.28	4192178.36	UCART2	77.12
46	564658.28	4192178.36	UCART2	77.79
47	564668.28	4192178.36	UCART2	78.40
48	564678.28	4192178.36	UCART2	79.01
49	564688.28	4192178.36	UCART2	79.68
50	564698.28	4192178.36	UCART2	80.35
51	564708.28	4192178.36	UCART2	80.92
52	564718.28	4192178.36	UCART2	81.44
53	564758.28	4192178.36	UCART2	84.10
54	564768.28	4192178.36	UCART2	84.97
55	564778.28	4192178.36	UCART2	85.88
56	564788.28	4192178.36	UCART2	86.91
57	564628.28	4192188.36	UCART2	76.49
58	564638.28	4192188.36	UCART2	77.24
59	564648.28	4192188.36	UCART2	78.00
60	564658.28	4192188.36	UCART2	78.67
61	564668.28	4192188.36	UCART2	79.25
62	564678.28	4192188.36	UCART2	79.84
63	564688.28	4192188.36	UCART2	80.57
64	564698.28	4192188.36	UCART2	81.29
65	564708.28	4192188.36	UCART2	81.86
66	564718.28	4192188.36	UCART2	82.35
67	564768.28	4192188.36	UCART2	85.69
68	564778.28	4192188.36	UCART2	86.59

69	564668.28	4192198.36	UCART2	80.30	
70	564678.28	4192198.36	UCART2	80.93	
71	564688.28	4192198.36	UCART2	81.69	
72	564698.28	4192198.36	UCART2	82.44	
73	564708.28	4192198.36	UCART2	83.02	
74	564718.28	4192198.36	UCART2	83.50	
75	564768.28	4192198.36	UCART2	86.63	
76	564778.28	4192198.36	UCART2	87.50	
77	564363.67	4191910.20	UCART3	59.64	6.10
78	564373.67	4191910.20	UCART3	59.72	6.10
79	564383.67	4191910.20	UCART3	59.79	6.10
80	564393.67	4191910.20	UCART3	59.93	6.10
81	564403.67	4191910.20	UCART3	60.09	6.10
82	564413.67	4191910.20	UCART3	60.25	6.10
83	564363.67	4191920.20	UCART3	59.86	6.10
84	564373.67	4191920.20	UCART3	59.93	6.10
85	564383.67	4191920.20	UCART3	60.00	6.10
86	564393.67	4191920.20	UCART3	60.15	6.10
87	564403.67	4191920.20	UCART3	60.33	6.10
88	564413.67	4191920.20	UCART3	60.50	6.10
89	564423.67	4191920.20	UCART3	60.66	6.10
90	564433.67	4191920.20	UCART3	60.81	6.10
91	564443.67	4191920.20	UCART3	60.98	6.10
92	564453.67	4191920.20	UCART3	61.16	6.10
93	564463.67	4191920.20	UCART3	61.32	6.10
94	564353.67	4191930.20	UCART3	60.05	6.10
95	564363.67	4191930.20	UCART3	60.07	6.10
96	564373.67	4191930.20	UCART3	60.14	6.10
97	564383.67	4191930.20	UCART3	60.21	6.10
98	564393.67	4191930.20	UCART3	60.37	6.10
99	564403.67	4191930.20	UCART3	60.57	6.10
100	564413.67	4191930.20	UCART3	60.75	6.10
101	564423.67	4191930.20	UCART3	60.92	6.10
102	564433.67	4191930.20	UCART3	61.08	6.10
103	564443.67	4191930.20	UCART3	61.26	6.10
104	564453.67	4191930.20	UCART3	61.44	6.10
105	564463.67	4191930.20	UCART3	61.61	6.10
106	564373.67	4191940.20	UCART3	60.38	6.10

107	564383.67	4191940.20	UCART3	60.46	6.10
108	564393.67	4191940.20	UCART3	60.64	6.10
109	564403.67	4191940.20	UCART3	60.85	6.10
110	564413.67	4191940.20	UCART3	61.05	6.10
111	564423.67	4191940.20	UCART3	61.23	6.10
112	564433.67	4191940.20	UCART3	61.40	6.10
113	564443.67	4191940.20	UCART3	61.58	6.10
114	564453.67	4191940.20	UCART3	61.76	6.10
115	564433.67	4191950.20	UCART3	61.83	6.10
116	564443.67	4191950.20	UCART3	61.99	6.10
117	564453.67	4191950.20	UCART3	62.14	6.10
118	564433.67	4191960.20	UCART3	62.25	6.10
119	564443.67	4191960.20	UCART3	62.39	6.10
120	564453.67	4191960.20	UCART3	62.52	6.10
121	564423.67	4191970.20	UCART3	62.40	6.10
122	564433.67	4191970.20	UCART3	62.61	6.10
123	564443.67	4191970.20	UCART3	62.74	6.10
124	564453.67	4191970.20	UCART3	62.86	6.10
125	564423.67	4191980.20	UCART3	62.56	6.10
126	564433.67	4191980.20	UCART3	62.75	6.10
127	564443.67	4191980.20	UCART3	62.92	6.10
128	564453.67	4191980.20	UCART3	63.08	6.10
129	564423.67	4191990.20	UCART3	62.72	6.10
130	564433.67	4191990.20	UCART3	62.90	6.10
131	564443.67	4191990.20	UCART3	63.10	6.10
132	564453.67	4191990.20	UCART3	63.31	6.10
133	564497.71	4192021.37	UCART2	65.50	6.10
134	564507.89	4192022.30	UCART2	65.77	6.10
135	564521.60	4192024.33	UCART2	66.23	6.10
136	564495.30	4192028.22	UCART2	65.66	6.10
137	564505.30	4192028.22	UCART2	65.85	6.10
138	564515.30	4192028.78	UCART2	66.13	6.10
139	564495.30	4192038.22	UCART2	65.97	6.10
140	564505.30	4192038.22	UCART2	66.11	6.10
141	564515.30	4192038.22	UCART2	66.33	6.10
142	564495.30	4192048.22	UCART2	66.29	6.10
143	564505.30	4192048.22	UCART2	66.38	6.10
144	564515.30	4192048.22	UCART2	66.56	6.10

145	564515.30	4192058.22	UCART2	66.78	6.10
146	564424.01	4191707.83	UCART2	57.87	6.10
147	564434.01	4191707.83	UCART2	57.99	6.10
148	564444.01	4191707.83	UCART2	58.20	6.10
149	564454.01	4191707.83	UCART2	58.47	6.10
150	564424.01	4191717.83	UCART2	57.86	6.10
151	564434.01	4191717.83	UCART2	57.94	6.10
152	564444.01	4191717.83	UCART2	58.16	6.10
153	564454.01	4191717.83	UCART2	58.43	6.10
154	564424.01	4191727.83	UCART2	57.98	6.10
155	564434.01	4191727.83	UCART2	58.08	6.10
156	564444.01	4191727.83	UCART2	58.34	6.10
157	564454.01	4191727.83	UCART2	58.66	6.10
158	564424.01	4191737.83	UCART2	58.17	6.10
159	564434.01	4191737.83	UCART2	58.31	6.10
160	564444.01	4191737.83	UCART2	58.64	6.10
161	564424.01	4191747.83	UCART2	58.36	6.10
162	564434.01	4191747.83	UCART2	58.54	6.10
163	564444.01	4191747.83	UCART2	58.95	6.10
164	564373.78	4192097.34	UCART2	65.72	
165	564383.78	4192097.34	UCART2	65.93	
166	564393.78	4192097.34	UCART2	66.05	
167	564403.78	4192097.34	UCART2	66.16	
168	564413.78	4192097.34	UCART2	66.26	
169	564373.78	4192107.34	UCART2	66.13	
170	564383.78	4192107.34	UCART2	66.36	
171	564393.78	4192107.34	UCART2	66.48	
172	564403.78	4192107.34	UCART2	66.57	
173	564413.78	4192107.34	UCART2	66.64	
174	564353.78	4192117.34	UCART2	65.83	
175	564363.78	4192117.34	UCART2	66.28	
176	564373.78	4192117.34	UCART2	66.54	
177	564383.78	4192117.34	UCART2	66.80	
178	564393.78	4192117.34	UCART2	66.90	
179	564403.78	4192117.34	UCART2	66.98	
180	564413.78	4192117.34	UCART2	67.02	
181	564353.78	4192127.34	UCART2	66.14	
182	564363.78	4192127.34	UCART2	66.60	

183	564373.78	4192127.34	UCART2	66.88	
184	564383.78	4192127.34	UCART2	67.16	
185	564393.78	4192127.34	UCART2	67.27	
186	564403.78	4192127.34	UCART2	67.36	
187	564413.78	4192127.34	UCART2	67.38	
188	564373.78	4192137.34	UCART2	67.18	
189	564383.78	4192137.34	UCART2	67.47	
190	564393.78	4192137.34	UCART2	67.60	
191	564403.78	4192137.34	UCART2	67.70	
192	564413.78	4192137.34	UCART2	67.73	
193	564373.78	4192147.34	UCART2	67.47	
194	564383.78	4192147.34	UCART2	67.78	
195	564393.78	4192147.34	UCART2	67.92	
196	564403.78	4192147.34	UCART2	68.05	
197	564413.78	4192147.34	UCART2	68.09	
198	564373.78	4192157.34	UCART2	67.76	
199	564383.78	4192157.34	UCART2	68.06	
200	564393.78	4192157.34	UCART2	68.22	
201	564403.78	4192157.34	UCART2	68.37	
202	564333.78	4192167.34	UCART2	66.32	
203	564343.78	4192167.34	UCART2	66.81	
204	564353.78	4192167.34	UCART2	67.35	
205	564363.78	4192167.34	UCART2	67.79	
206	564373.78	4192167.34	UCART2	68.05	
207	564383.78	4192167.34	UCART2	68.30	
208	564393.78	4192167.34	UCART2	68.49	
209	564403.78	4192167.34	UCART2	68.67	
210	564363.78	4192177.34	UCART2	68.12	
211	564373.78	4192177.34	UCART2	68.33	
212	564383.78	4192177.34	UCART2	68.54	
213	564393.78	4192177.34	UCART2	68.76	
214	564403.78	4192177.34	UCART2	68.98	
215	564403.78	4192187.34	UCART2	69.32	
216	564568.28	4192138.36	UCART2	70.18	6.10
217	564578.28	4192138.36	UCART2	70.80	6.10
218	564588.28	4192138.36	UCART2	71.30	6.10
219	564568.28	4192148.36	UCART2	70.56	6.10
220	564578.28	4192148.36	UCART2	71.18	6.10

221	564588.28	4192148.36	UCART2	71.69	6.10
222	564608.28	4192148.36	UCART2	72.67	6.10
223	564618.28	4192148.36	UCART2	73.19	6.10
224	564628.28	4192148.36	UCART2	73.72	6.10
225	564638.28	4192148.36	UCART2	74.30	6.10
226	564648.28	4192148.36	UCART2	74.88	6.10
227	564568.28	4192158.36	UCART2	71.10	6.10
228	564578.28	4192158.36	UCART2	71.71	6.10
229	564588.28	4192158.36	UCART2	72.20	6.10
230	564608.28	4192158.36	UCART2	73.17	6.10
231	564618.28	4192158.36	UCART2	73.71	6.10
232	564628.28	4192158.36	UCART2	74.26	6.10
233	564638.28	4192158.36	UCART2	74.87	6.10
234	564648.28	4192158.36	UCART2	75.48	6.10
235	564658.28	4192158.36	UCART2	76.14	6.10
236	564668.28	4192158.36	UCART2	76.84	6.10
237	564678.28	4192158.36	UCART2	77.54	6.10
238	564688.28	4192158.36	UCART2	78.08	6.10
239	564698.28	4192158.36	UCART2	78.62	6.10
240	564568.28	4192168.36	UCART2	71.85	6.10
241	564578.28	4192168.36	UCART2	72.45	6.10
242	564588.28	4192168.36	UCART2	72.90	6.10
243	564608.28	4192168.36	UCART2	73.81	6.10
244	564618.28	4192168.36	UCART2	74.38	6.10
245	564628.28	4192168.36	UCART2	74.96	6.10
246	564638.28	4192168.36	UCART2	75.63	6.10
247	564648.28	4192168.36	UCART2	76.30	6.10
248	564658.28	4192168.36	UCART2	76.96	6.10
249	564668.28	4192168.36	UCART2	77.62	6.10
250	564678.28	4192168.36	UCART2	78.28	6.10
251	564688.28	4192168.36	UCART2	78.88	6.10
252	564698.28	4192168.36	UCART2	79.49	6.10
253	564708.28	4192168.36	UCART2	80.06	6.10
254	564718.28	4192168.36	UCART2	80.61	6.10
255	564588.28	4192178.36	UCART2	73.60	6.10
256	564608.28	4192178.36	UCART2	74.45	6.10
257	564618.28	4192178.36	UCART2	75.06	6.10
258	564628.28	4192178.36	UCART2	75.66	6.10

259	564638.28	4192178.36	UCART2	76.39	6.10
260	564648.28	4192178.36	UCART2	77.12	6.10
261	564658.28	4192178.36	UCART2	77.79	6.10
262	564668.28	4192178.36	UCART2	78.40	6.10
263	564678.28	4192178.36	UCART2	79.01	6.10
264	564688.28	4192178.36	UCART2	79.68	6.10
265	564698.28	4192178.36	UCART2	80.35	6.10
266	564708.28	4192178.36	UCART2	80.92	6.10
267	564718.28	4192178.36	UCART2	81.44	6.10
268	564758.28	4192178.36	UCART2	84.10	6.10
269	564768.28	4192178.36	UCART2	84.97	6.10
270	564778.28	4192178.36	UCART2	85.88	6.10
271	564788.28	4192178.36	UCART2	86.91	6.10
272	564628.28	4192188.36	UCART2	76.49	6.10
273	564638.28	4192188.36	UCART2	77.24	6.10
274	564648.28	4192188.36	UCART2	78.00	6.10
275	564658.28	4192188.36	UCART2	78.67	6.10
276	564668.28	4192188.36	UCART2	79.25	6.10
277	564678.28	4192188.36	UCART2	79.84	6.10
278	564688.28	4192188.36	UCART2	80.57	6.10
279	564698.28	4192188.36	UCART2	81.29	6.10
280	564708.28	4192188.36	UCART2	81.86	6.10
281	564718.28	4192188.36	UCART2	82.35	6.10
282	564768.28	4192188.36	UCART2	85.69	6.10
283	564778.28	4192188.36	UCART2	86.59	6.10
284	564668.28	4192198.36	UCART2	80.30	6.10
285	564678.28	4192198.36	UCART2	80.93	6.10
286	564688.28	4192198.36	UCART2	81.69	6.10
287	564698.28	4192198.36	UCART2	82.44	6.10
288	564708.28	4192198.36	UCART2	83.02	6.10
289	564718.28	4192198.36	UCART2	83.50	6.10
290	564768.28	4192198.36	UCART2	86.63	6.10
291	564778.28	4192198.36	UCART2	87.50	6.10
292	564343.78	4192097.34	UCART2	64.69	6.10
293	564353.78	4192097.34	UCART2	65.13	6.10
294	564363.78	4192097.34	UCART2	65.51	6.10
295	564373.78	4192097.34	UCART2	65.72	6.10
296	564383.78	4192097.34	UCART2	65.93	6.10

297	564393.78	4192097.34	UCART2	66.05	6.10
298	564403.78	4192097.34	UCART2	66.16	6.10
299	564413.78	4192097.34	UCART2	66.26	6.10
300	564343.78	4192107.34	UCART2	64.99	6.10
301	564353.78	4192107.34	UCART2	65.48	6.10
302	564363.78	4192107.34	UCART2	65.89	6.10
303	564373.78	4192107.34	UCART2	66.13	6.10
304	564383.78	4192107.34	UCART2	66.36	6.10
305	564393.78	4192107.34	UCART2	66.48	6.10
306	564403.78	4192107.34	UCART2	66.57	6.10
307	564413.78	4192107.34	UCART2	66.64	6.10
308	564343.78	4192117.34	UCART2	65.29	6.10
309	564353.78	4192117.34	UCART2	65.83	6.10
310	564363.78	4192117.34	UCART2	66.28	6.10
311	564373.78	4192117.34	UCART2	66.54	6.10
312	564383.78	4192117.34	UCART2	66.80	6.10
313	564393.78	4192117.34	UCART2	66.90	6.10
314	564403.78	4192117.34	UCART2	66.98	6.10
315	564413.78	4192117.34	UCART2	67.02	6.10
316	564343.78	4192127.34	UCART2	65.58	6.10
317	564353.78	4192127.34	UCART2	66.14	6.10
318	564363.78	4192127.34	UCART2	66.60	6.10
319	564373.78	4192127.34	UCART2	66.88	6.10
320	564383.78	4192127.34	UCART2	67.16	6.10
321	564393.78	4192127.34	UCART2	67.27	6.10
322	564403.78	4192127.34	UCART2	67.36	6.10
323	564413.78	4192127.34	UCART2	67.38	6.10
324	564333.78	4192137.34	UCART2	65.39	6.10
325	564343.78	4192137.34	UCART2	65.85	6.10
326	564353.78	4192137.34	UCART2	66.41	6.10
327	564363.78	4192137.34	UCART2	66.88	6.10
328	564373.78	4192137.34	UCART2	67.18	6.10
329	564383.78	4192137.34	UCART2	67.47	6.10
330	564393.78	4192137.34	UCART2	67.60	6.10
331	564403.78	4192137.34	UCART2	67.70	6.10
332	564413.78	4192137.34	UCART2	67.73	6.10
333	564333.78	4192147.34	UCART2	65.65	6.10
334	564343.78	4192147.34	UCART2	66.13	6.10

335	564353.78	4192147.34	UCART2	66.69	6.10
336	564363.78	4192147.34	UCART2	67.16	6.10
337	564373.78	4192147.34	UCART2	67.47	6.10
338	564383.78	4192147.34	UCART2	67.78	6.10
339	564393.78	4192147.34	UCART2	67.92	6.10
340	564403.78	4192147.34	UCART2	68.05	6.10
341	564413.78	4192147.34	UCART2	68.09	6.10
342	564333.78	4192157.34	UCART2	65.96	6.10
343	564343.78	4192157.34	UCART2	66.45	6.10
344	564353.78	4192157.34	UCART2	67.00	6.10
345	564363.78	4192157.34	UCART2	67.47	6.10
346	564373.78	4192157.34	UCART2	67.76	6.10
347	564383.78	4192157.34	UCART2	68.06	6.10
348	564393.78	4192157.34	UCART2	68.22	6.10
349	564403.78	4192157.34	UCART2	68.37	6.10
350	564333.78	4192167.34	UCART2	66.32	6.10
351	564343.78	4192167.34	UCART2	66.81	6.10
352	564353.78	4192167.34	UCART2	67.35	6.10
353	564363.78	4192167.34	UCART2	67.79	6.10
354	564373.78	4192167.34	UCART2	68.05	6.10
355	564383.78	4192167.34	UCART2	68.30	6.10
356	564393.78	4192167.34	UCART2	68.49	6.10
357	564403.78	4192167.34	UCART2	68.67	6.10
358	564333.78	4192177.34	UCART2	66.68	6.10
359	564343.78	4192177.34	UCART2	67.17	6.10
360	564353.78	4192177.34	UCART2	67.71	6.10
361	564363.78	4192177.34	UCART2	68.12	6.10
362	564373.78	4192177.34	UCART2	68.33	6.10
363	564383.78	4192177.34	UCART2	68.54	6.10
364	564393.78	4192177.34	UCART2	68.76	6.10
365	564403.78	4192177.34	UCART2	68.98	6.10
366	564403.78	4192187.34	UCART2	69.32	6.10
367	564363.67	4191910.20	UCART3	59.64	9.10
368	564373.67	4191910.20	UCART3	59.72	9.10
369	564383.67	4191910.20	UCART3	59.79	9.10
370	564393.67	4191910.20	UCART3	59.93	9.10
371	564403.67	4191910.20	UCART3	60.09	9.10
372	564413.67	4191910.20	UCART3	60.25	9.10

373	564363.67	4191920.20	UCART3	59.86	9.10
374	564373.67	4191920.20	UCART3	59.93	9.10
375	564383.67	4191920.20	UCART3	60.00	9.10
376	564393.67	4191920.20	UCART3	60.15	9.10
377	564403.67	4191920.20	UCART3	60.33	9.10
378	564413.67	4191920.20	UCART3	60.50	9.10
379	564423.67	4191920.20	UCART3	60.66	9.10
380	564433.67	4191920.20	UCART3	60.81	9.10
381	564443.67	4191920.20	UCART3	60.98	9.10
382	564453.67	4191920.20	UCART3	61.16	9.10
383	564463.67	4191920.20	UCART3	61.32	9.10
384	564353.67	4191930.20	UCART3	60.05	9.10
385	564363.67	4191930.20	UCART3	60.07	9.10
386	564373.67	4191930.20	UCART3	60.14	9.10
387	564383.67	4191930.20	UCART3	60.21	9.10
388	564393.67	4191930.20	UCART3	60.37	9.10
389	564403.67	4191930.20	UCART3	60.57	9.10
390	564413.67	4191930.20	UCART3	60.75	9.10
391	564423.67	4191930.20	UCART3	60.92	9.10
392	564433.67	4191930.20	UCART3	61.08	9.10
393	564443.67	4191930.20	UCART3	61.26	9.10
394	564453.67	4191930.20	UCART3	61.44	9.10
395	564463.67	4191930.20	UCART3	61.61	9.10
396	564373.67	4191940.20	UCART3	60.38	9.10
397	564383.67	4191940.20	UCART3	60.46	9.10
398	564393.67	4191940.20	UCART3	60.64	9.10
399	564403.67	4191940.20	UCART3	60.85	9.10
400	564413.67	4191940.20	UCART3	61.05	9.10
401	564423.67	4191940.20	UCART3	61.23	9.10
402	564433.67	4191940.20	UCART3	61.40	9.10
403	564443.67	4191940.20	UCART3	61.58	9.10
404	564453.67	4191940.20	UCART3	61.76	9.10
405	564433.67	4191950.20	UCART3	61.83	9.10
406	564443.67	4191950.20	UCART3	61.99	9.10
407	564453.67	4191950.20	UCART3	62.14	9.10
408	564433.67	4191960.20	UCART3	62.25	9.10
409	564443.67	4191960.20	UCART3	62.39	9.10
410	564453.67	4191960.20	UCART3	62.52	9.10

411	564423.67	4191970.20	UCART3	62.40	9.10
412	564433.67	4191970.20	UCART3	62.61	9.10
413	564443.67	4191970.20	UCART3	62.74	9.10
414	564453.67	4191970.20	UCART3	62.86	9.10
415	564423.67	4191980.20	UCART3	62.56	9.10
416	564433.67	4191980.20	UCART3	62.75	9.10
417	564443.67	4191980.20	UCART3	62.92	9.10
418	564453.67	4191980.20	UCART3	63.08	9.10
419	564423.67	4191990.20	UCART3	62.72	9.10
420	564433.67	4191990.20	UCART3	62.90	9.10
421	564443.67	4191990.20	UCART3	63.10	9.10
422	564453.67	4191990.20	UCART3	63.31	9.10
423	564497.71	4192021.37	UCART2	65.50	9.10
424	564507.89	4192022.30	UCART2	65.77	9.10
425	564521.60	4192024.33	UCART2	66.23	9.10
426	564495.30	4192028.22	UCART2	65.66	9.10
427	564505.30	4192028.22	UCART2	65.85	9.10
428	564515.30	4192028.78	UCART2	66.13	9.10
429	564495.30	4192038.22	UCART2	65.97	9.10
430	564505.30	4192038.22	UCART2	66.11	9.10
431	564515.30	4192038.22	UCART2	66.33	9.10
432	564495.30	4192048.22	UCART2	66.29	9.10
433	564505.30	4192048.22	UCART2	66.38	9.10
434	564515.30	4192048.22	UCART2	66.56	9.10
435	564515.30	4192058.22	UCART2	66.78	9.10
436	564803.06	4192186.80	UCART1	89.14	
437	564813.06	4192186.80	UCART1	90.43	
438	564823.06	4192186.80	UCART1	91.73	
439	564833.06	4192186.80	UCART1	93.02	
440	564843.06	4192186.80	UCART1	94.32	
441	564782.48	4192212.27	UCART1	89.24	
442	564803.06	4192196.80	UCART1	90.11	
443	564813.06	4192196.80	UCART1	91.41	
444	564823.06	4192196.80	UCART1	92.70	
445	564833.06	4192196.80	UCART1	94.13	
446	564843.06	4192196.80	UCART1	95.58	
447	564853.06	4192196.80	UCART1	96.78	
448	564863.06	4192196.80	UCART1	97.69	

449	564873.06	4192196.80	UCART1	98.59	
450	564803.06	4192206.80	UCART1	91.09	
451	564813.06	4192206.80	UCART1	92.38	
452	564823.06	4192206.80	UCART1	93.67	
453	564833.06	4192206.80	UCART1	95.24	
454	564843.06	4192206.80	UCART1	96.83	
455	564853.06	4192206.80	UCART1	98.12	
456	564863.06	4192206.80	UCART1	99.06	
457	564873.06	4192206.80	UCART1	99.99	
458	564803.06	4192216.80	UCART1	92.06	
459	564813.06	4192216.80	UCART1	93.35	
460	564823.06	4192216.80	UCART1	94.64	
461	564833.06	4192216.80	UCART1	96.35	
462	564843.06	4192216.80	UCART1	98.09	
463	564853.06	4192216.80	UCART1	99.47	
464	564863.06	4192216.80	UCART1	100.43	
465	564873.06	4192216.80	UCART1	101.38	
466	564863.06	4192226.80	UCART1	101.70	
467	564873.06	4192226.80	UCART1	102.72	
468	564803.06	4192186.80	UCART1	89.14	6.10
469	564813.06	4192186.80	UCART1	90.43	6.10
470	564782.48	4192212.27	UCART1	89.24	6.10
471	564803.06	4192196.80	UCART1	90.11	6.10
472	564813.06	4192196.80	UCART1	91.41	6.10
473	564803.06	4192206.80	UCART1	91.09	6.10
474	564813.06	4192206.80	UCART1	92.38	6.10
475	564803.06	4192216.80	UCART1	92.06	6.10
476	564813.06	4192216.80	UCART1	93.35	6.10
477	564823.06	4192216.80	UCART1	94.64	6.10
478	564833.06	4192216.80	UCART1	96.35	6.10
479	564843.06	4192216.80	UCART1	98.09	6.10
480	564853.06	4192216.80	UCART1	99.47	6.10
481	564863.06	4192216.80	UCART1	100.43	6.10
482	564873.06	4192216.80	UCART1	101.38	6.10
483	564863.06	4192226.80	UCART1	101.70	6.10
484	564873.06	4192226.80	UCART1	102.72	6.10
485	564478.16	4191929.64	UCART1	61.79	
486	564488.16	4191929.64	UCART1	62.04	

487	564498.16	4191929.64	UCART1	62.48
488	564508.16	4191929.64	UCART1	62.91
489	564518.16	4191929.64	UCART1	63.26
490	564478.16	4191939.64	UCART1	62.09
491	564488.16	4191939.64	UCART1	62.36
492	564498.16	4191939.64	UCART1	62.84
493	564508.16	4191939.64	UCART1	63.32
494	564518.16	4191939.64	UCART1	63.63
495	564478.16	4191949.64	UCART1	62.50
496	564488.16	4191949.64	UCART1	62.80
497	564498.16	4191949.64	UCART1	63.31
498	564508.16	4191949.64	UCART1	63.82
499	564518.16	4191949.64	UCART1	64.09
500	564478.16	4191959.64	UCART1	62.92
501	564488.16	4191959.64	UCART1	63.25
502	564498.16	4191959.64	UCART1	63.78
503	564508.16	4191959.64	UCART1	64.32
504	564518.16	4191959.64	UCART1	64.54
505	564478.16	4191969.64	UCART1	63.31
506	564488.16	4191969.64	UCART1	63.67
507	564498.16	4191969.64	UCART1	64.23
508	564508.16	4191969.64	UCART1	64.79
509	564518.16	4191969.64	UCART1	64.96
510	564478.16	4191979.64	UCART1	63.56
511	564488.16	4191979.64	UCART1	63.91
512	564498.16	4191979.64	UCART1	64.44
513	564508.16	4191979.64	UCART1	64.96
514	564518.16	4191979.64	UCART1	65.19
515	564478.16	4191989.64	UCART1	63.82
516	564488.16	4191989.64	UCART1	64.15
517	564498.16	4191989.64	UCART1	64.65
518	564508.16	4191989.64	UCART1	65.14
519	564518.16	4191989.64	UCART1	65.42
520	564478.16	4191999.64	UCART1	64.08
521	564488.16	4191999.64	UCART1	64.40
522	564498.16	4191999.64	UCART1	64.86
523	564508.16	4191999.64	UCART1	65.31
524	564518.16	4191999.64	UCART1	65.65

525	564478.16	4191929.64	UCART1	61.79	6.10
526	564488.16	4191929.64	UCART1	62.04	6.10
527	564498.16	4191929.64	UCART1	62.48	6.10
528	564508.16	4191929.64	UCART1	62.91	6.10
529	564518.16	4191929.64	UCART1	63.26	6.10
530	564478.16	4191939.64	UCART1	62.09	6.10
531	564488.16	4191939.64	UCART1	62.36	6.10
532	564498.16	4191939.64	UCART1	62.84	6.10
533	564508.16	4191939.64	UCART1	63.32	6.10
534	564518.16	4191939.64	UCART1	63.63	6.10
535	564478.16	4191949.64	UCART1	62.50	6.10
536	564488.16	4191949.64	UCART1	62.80	6.10
537	564498.16	4191949.64	UCART1	63.31	6.10
538	564508.16	4191949.64	UCART1	63.82	6.10
539	564518.16	4191949.64	UCART1	64.09	6.10
540	564478.16	4191959.64	UCART1	62.92	6.10
541	564488.16	4191959.64	UCART1	63.25	6.10
542	564498.16	4191959.64	UCART1	63.78	6.10
543	564508.16	4191959.64	UCART1	64.32	6.10
544	564518.16	4191959.64	UCART1	64.54	6.10
545	564478.16	4191969.64	UCART1	63.31	6.10
546	564488.16	4191969.64	UCART1	63.67	6.10
547	564498.16	4191969.64	UCART1	64.23	6.10
548	564508.16	4191969.64	UCART1	64.79	6.10
549	564518.16	4191969.64	UCART1	64.96	6.10
550	564478.16	4191979.64	UCART1	63.56	6.10
551	564488.16	4191979.64	UCART1	63.91	6.10
552	564498.16	4191979.64	UCART1	64.44	6.10
553	564508.16	4191979.64	UCART1	64.96	6.10
554	564518.16	4191979.64	UCART1	65.19	6.10
555	564478.16	4191989.64	UCART1	63.82	6.10
556	564488.16	4191989.64	UCART1	64.15	6.10
557	564498.16	4191989.64	UCART1	64.65	6.10
558	564508.16	4191989.64	UCART1	65.14	6.10
559	564518.16	4191989.64	UCART1	65.42	6.10
560	564478.16	4191999.64	UCART1	64.08	6.10
561	564488.16	4191999.64	UCART1	64.40	6.10
562	564498.16	4191999.64	UCART1	64.86	6.10

563	564508.16	4191999.64	UCART1	65.31	6.10
564	564518.16	4191999.64	UCART1	65.65	6.10
565	564478.16	4191929.64	UCART1	61.79	12.20
566	564488.16	4191929.64	UCART1	62.04	12.20
567	564498.16	4191929.64	UCART1	62.48	12.20
568	564508.16	4191929.64	UCART1	62.91	12.20
569	564518.16	4191929.64	UCART1	63.26	12.20
570	564478.16	4191939.64	UCART1	62.09	12.20
571	564488.16	4191939.64	UCART1	62.36	12.20
572	564498.16	4191939.64	UCART1	62.84	12.20
573	564508.16	4191939.64	UCART1	63.32	12.20
574	564518.16	4191939.64	UCART1	63.63	12.20
575	564478.16	4191949.64	UCART1	62.50	12.20
576	564488.16	4191949.64	UCART1	62.80	12.20
577	564498.16	4191949.64	UCART1	63.31	12.20
578	564508.16	4191949.64	UCART1	63.82	12.20
579	564518.16	4191949.64	UCART1	64.09	12.20
580	564478.16	4191959.64	UCART1	62.92	12.20
581	564488.16	4191959.64	UCART1	63.25	12.20
582	564498.16	4191959.64	UCART1	63.78	12.20
583	564508.16	4191959.64	UCART1	64.32	12.20
584	564518.16	4191959.64	UCART1	64.54	12.20
585	564478.16	4191969.64	UCART1	63.31	12.20
586	564488.16	4191969.64	UCART1	63.67	12.20
587	564498.16	4191969.64	UCART1	64.23	12.20
588	564508.16	4191969.64	UCART1	64.79	12.20
589	564518.16	4191969.64	UCART1	64.96	12.20
590	564478.16	4191979.64	UCART1	63.56	12.20
591	564488.16	4191979.64	UCART1	63.91	12.20
592	564498.16	4191979.64	UCART1	64.44	12.20
593	564508.16	4191979.64	UCART1	64.96	12.20
594	564518.16	4191979.64	UCART1	65.19	12.20
595	564478.16	4191989.64	UCART1	63.82	12.20
596	564488.16	4191989.64	UCART1	64.15	12.20
597	564498.16	4191989.64	UCART1	64.65	12.20
598	564508.16	4191989.64	UCART1	65.14	12.20
599	564518.16	4191989.64	UCART1	65.42	12.20
600	564478.16	4191999.64	UCART1	64.08	12.20

601	564488.16	4191999.64	UCART1	64.40	12.20
602	564498.16	4191999.64	UCART1	64.86	12.20
603	564508.16	4191999.64	UCART1	65.31	12.20
604	564518.16	4191999.64	UCART1	65.65	12.20
605	564593.83	4191256.57	UCART1	59.41	
606	564613.83	4191256.57	UCART1	60.09	
607	564633.83	4191256.57	UCART1	61.01	
608	564653.83	4191256.57	UCART1	61.71	
609	564673.83	4191256.57	UCART1	62.34	
610	564693.83	4191256.57	UCART1	62.91	
611	564713.83	4191256.57	UCART1	63.48	
612	564733.83	4191256.57	UCART1	64.19	
613	564753.83	4191256.57	UCART1	64.92	
614	564773.83	4191256.57	UCART1	65.50	
615	564604.45	4191224.19	UCART1	59.63	
616	564624.45	4191224.19	UCART1	60.33	
617	564633.83	4191276.57	UCART1	61.10	
618	564653.83	4191276.57	UCART1	61.82	
619	564673.83	4191276.57	UCART1	62.47	
620	564693.83	4191276.57	UCART1	63.06	
621	564713.83	4191276.57	UCART1	63.67	
622	564733.83	4191276.57	UCART1	64.41	
623	564753.83	4191276.57	UCART1	65.16	
624	564773.83	4191276.57	UCART1	65.72	
625	564604.45	4191244.19	UCART1	59.74	
626	564624.45	4191244.19	UCART1	60.51	
627	564633.83	4191296.57	UCART1	61.26	
628	564653.83	4191296.57	UCART1	61.95	
629	564673.83	4191296.57	UCART1	62.59	
630	564693.83	4191296.57	UCART1	63.20	
631	564713.83	4191296.57	UCART1	63.85	
632	564733.83	4191296.57	UCART1	64.61	
633	564753.83	4191296.57	UCART1	65.36	
634	564773.83	4191296.57	UCART1	65.93	
635	564691.00	4191309.85	UCART1	63.28	
636	564713.83	4191316.57	UCART1	64.13	
637	564733.83	4191316.57	UCART1	64.81	
638	564753.83	4191316.57	UCART1	65.53	

639	564773.83	4191316.57	UCART1	66.11
640	564773.83	4191336.57	UCART1	66.57
641	564733.83	4191356.57	UCART1	65.64
642	564753.83	4191356.57	UCART1	66.28
643	564742.98	4191347.75	UCART1	65.74
644	564793.83	4191356.57	UCART1	68.15
645	564813.83	4191356.57	UCART1	68.76
646	564733.83	4191376.57	UCART1	66.13
647	564753.83	4191376.57	UCART1	66.80
648	564779.93	4191378.60	UCART1	68.43
649	564793.83	4191376.57	UCART1	68.96
650	564813.83	4191376.57	UCART1	69.43
651	564733.83	4191396.57	UCART1	66.63
652	564753.83	4191396.57	UCART1	67.28
653	564773.83	4191396.57	UCART1	68.37
654	564793.83	4191396.57	UCART1	69.30
655	564813.83	4191396.57	UCART1	69.79
656	564985.97	4191392.27	UCART1	74.56
657	564993.83	4191396.57	UCART1	74.86
658	565013.83	4191396.57	UCART1	75.64
659	565033.83	4191396.57	UCART1	76.35
660	565053.83	4191396.57	UCART1	76.70
661	565073.83	4191396.57	UCART1	77.20
662	564439.77	4191300.01	UCART1	55.44
663	564459.77	4191300.01	UCART1	55.85
664	564723.66	4191401.31	UCART1	66.37
665	564743.32	4191384.70	UCART1	66.65
666	564751.46	4191408.77	UCART1	67.49
667	564795.53	4191406.74	UCART1	69.36
668	564808.74	4191405.38	UCART1	69.79
669	564847.39	4191421.32	UCART1	71.07
670	564913.83	4191416.57	UCART1	73.47
671	564981.67	4191417.83	UCART1	75.15
672	564993.83	4191416.57	UCART1	75.47
673	565013.83	4191416.57	UCART1	76.31
674	565033.83	4191416.57	UCART1	77.02
675	565053.83	4191416.57	UCART1	77.33
676	565073.83	4191416.57	UCART1	77.82

677	565133.83	4191416.57	UCART1	78.66
678	565153.83	4191416.57	UCART1	79.05
679	564439.77	4191320.01	UCART1	55.47
680	564459.77	4191320.01	UCART1	55.87
681	564479.77	4191320.01	UCART1	56.61
682	564499.77	4191320.01	UCART1	57.49
683	564519.77	4191320.01	UCART1	58.30
684	564539.77	4191320.01	UCART1	58.91
685	564559.77	4191320.01	UCART1	59.34
686	564833.83	4191436.57	UCART1	71.11
687	564913.83	4191436.57	UCART1	73.81
688	564933.83	4191436.57	UCART1	74.67
689	564973.83	4191436.57	UCART1	75.55
690	564993.83	4191436.57	UCART1	76.17
691	565013.83	4191436.57	UCART1	76.95
692	565053.83	4191436.57	UCART1	78.14
693	565073.83	4191436.57	UCART1	78.60
694	565113.83	4191436.57	UCART1	79.13
695	565133.83	4191436.57	UCART1	79.47
696	565153.83	4191436.57	UCART1	79.74
697	564439.77	4191340.01	UCART1	55.68
698	564459.77	4191340.01	UCART1	56.18
699	564479.77	4191340.01	UCART1	56.88
700	564499.77	4191340.01	UCART1	57.67
701	564519.77	4191340.01	UCART1	58.50
702	564539.77	4191340.01	UCART1	59.32
703	564559.77	4191340.01	UCART1	59.71
704	564933.83	4191456.57	UCART1	75.04
705	564949.42	4191452.50	UCART1	75.46
706	564973.83	4191456.57	UCART1	76.22
707	564993.83	4191456.57	UCART1	76.82
708	565013.83	4191456.57	UCART1	77.45
709	565093.83	4191456.57	UCART1	79.52
710	565133.83	4191456.57	UCART1	80.21
711	565153.83	4191456.57	UCART1	80.43
712	565173.83	4191456.57	UCART1	80.60
713	565193.83	4191456.57	UCART1	80.78
714	565213.83	4191456.57	UCART1	81.05

715	564439.77	4191360.01	UCART1	55.84	
716	564459.77	4191360.01	UCART1	56.41	
717	564479.77	4191360.01	UCART1	57.09	
718	564499.77	4191360.01	UCART1	57.83	
719	564519.77	4191360.01	UCART1	58.68	
720	564539.77	4191360.01	UCART1	59.63	
721	564553.67	4191355.27	UCART1	59.87	
722	565084.82	4191479.57	UCART1	79.90	
723	565173.83	4191476.57	UCART1	81.26	
724	565193.83	4191476.57	UCART1	81.54	
725	565213.83	4191476.57	UCART1	81.89	
726	564419.77	4191380.01	UCART1	55.61	
727	564479.77	4191380.01	UCART1	57.21	
728	564499.77	4191380.01	UCART1	57.97	
729	565173.83	4191496.57	UCART1	81.93	
730	565193.83	4191496.57	UCART1	82.26	
731	565213.83	4191496.57	UCART1	82.62	
732	564419.77	4191400.01	UCART1	55.80	
733	564439.77	4191400.01	UCART1	56.21	
734	564459.77	4191400.01	UCART1	56.84	
735	564479.77	4191400.01	UCART1	57.55	
736	564413.04	4191414.79	UCART1	55.80	6.10
737	564433.04	4191414.79	UCART1	56.27	6.10
738	564453.04	4191414.79	UCART1	56.87	6.10
739	564473.04	4191414.79	UCART1	57.58	6.10
740	564493.04	4191414.79	UCART1	58.35	6.10
741	564513.04	4191414.79	UCART1	59.16	6.10
742	564533.04	4191414.79	UCART1	60.02	6.10
743	564433.04	4191434.79	UCART1	56.60	6.10
744	564453.04	4191434.79	UCART1	57.22	6.10
745	564473.04	4191434.79	UCART1	57.96	6.10
746	564493.04	4191434.79	UCART1	58.77	6.10
747	564513.04	4191434.79	UCART1	59.50	6.10
748	564533.04	4191434.79	UCART1	60.20	6.10
749	564433.04	4191454.79	UCART1	56.81	6.10
750	564453.04	4191454.79	UCART1	57.44	6.10
751	564473.04	4191454.79	UCART1	58.19	6.10
752	564493.04	4191454.79	UCART1	58.99	6.10

753	564513.04	4191454.79	UCART1	59.68	6.10
754	564533.04	4191454.79	UCART1	60.31	6.10
755	564433.04	4191474.79	UCART1	56.92	6.10
756	564453.04	4191474.79	UCART1	57.55	6.10
757	564473.04	4191474.79	UCART1	58.27	6.10
758	564413.04	4191494.79	UCART1	56.54	6.10
759	564433.04	4191494.79	UCART1	56.89	6.10
760	564413.04	4191514.79	UCART1	56.72	6.10
761	564433.04	4191514.79	UCART1	57.04	6.10
762	564453.04	4191514.79	UCART1	57.58	6.10
763	564473.04	4191514.79	UCART1	58.48	6.10
764	564493.04	4191514.79	UCART1	59.52	6.10
765	564513.04	4191514.79	UCART1	60.23	6.10
766	564413.04	4191534.79	UCART1	56.96	6.10
767	564433.04	4191534.79	UCART1	57.42	6.10
768	564453.04	4191534.79	UCART1	58.02	6.10
769	564473.04	4191534.79	UCART1	58.87	6.10
770	564493.04	4191534.79	UCART1	59.83	6.10
771	564513.04	4191534.79	UCART1	60.56	6.10
772	564413.04	4191554.79	UCART1	57.08	6.10
773	564433.04	4191554.79	UCART1	57.64	6.10
774	564453.04	4191554.79	UCART1	58.24	6.10
775	564473.04	4191554.79	UCART1	58.95	6.10
776	564493.04	4191554.79	UCART1	59.75	6.10
777	564513.04	4191554.79	UCART1	60.54	6.10
778	564533.04	4191554.79	UCART1	61.06	6.10
779	564413.04	4191574.79	UCART1	57.18	6.10
780	564433.04	4191574.79	UCART1	57.77	6.10
781	564453.04	4191574.79	UCART1	58.38	6.10
782	564473.04	4191574.79	UCART1	58.97	6.10
783	564493.04	4191574.79	UCART1	59.60	6.10
784	564513.04	4191574.79	UCART1	60.36	6.10
785	564533.04	4191574.79	UCART1	60.95	6.10
786	564413.04	4191594.79	UCART1	57.28	6.10
787	564433.04	4191594.79	UCART1	57.79	6.10
788	564533.04	4191594.79	UCART1	60.56	6.10
789	564414.62	4191612.58	UCART1	57.35	6.10
790	564434.62	4191612.58	UCART1	57.79	6.10

791	564454.62	4191612.58	UCART1	58.46	6.10
792	564474.62	4191612.58	UCART1	59.00	6.10
793	564494.62	4191612.58	UCART1	59.44	6.10
794	564514.62	4191612.58	UCART1	59.93	6.10
795	564534.62	4191612.58	UCART1	60.56	6.10
796	564554.62	4191612.58	UCART1	61.19	6.10
797	564414.62	4191632.58	UCART1	57.39	6.10
798	564434.62	4191632.58	UCART1	57.80	6.10
799	564454.62	4191632.58	UCART1	58.49	6.10
800	564474.62	4191632.58	UCART1	59.05	6.10
801	564494.62	4191632.58	UCART1	59.49	6.10
802	564514.62	4191632.58	UCART1	59.95	6.10
803	564534.62	4191632.58	UCART1	60.60	6.10
804	564554.62	4191632.58	UCART1	61.10	6.10
805	564534.62	4191652.58	UCART1	60.62	6.10
806	564554.62	4191652.58	UCART1	61.01	6.10

Plant Boundary Receptors

Receptor Groups

Record Number	Group ID	Group Description
1	UCART2	
2	UCART3	
3	UCART1	

Meteorology Pathway

Met Input Data

Surface Met Data

Filename: ..\!Met_Data\Oakland_1.8m\KOAK_2013.SFC

Format Type: Default AERMET format

Profile Met Data

Filename: ..\!Met_Data\Oakland_1.8m\KOAK_2013.PFL

Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 1.80 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2013			OAKLAND/WSO AP
Upper Air		2013			OAKLAND/WSO AP

Data Period

Data Period to Process

Start Date: 1/1/2013 Start Hour: 1 End Date: 1/1/2014 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

Model Output, 2013 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE PERIOD (8784 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAUL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
564553.67	4191355.27	3.97647	565084.82	4191479.57	0.49404
565173.83	4191476.57	0.40317	565193.83	4191476.57	0.38419
565213.83	4191476.57	0.36547	564419.77	4191380.01	5.47463
564479.77	4191380.01	3.10178	564499.77	4191380.01	2.88607
565173.83	4191496.57	0.42046	565193.83	4191496.57	0.39861
565213.83	4191496.57	0.37749 MER Location	564419.77	4191400.01	5.35414
564439.77	4191400.01	4.21536	564459.77	4191400.01	3.46836
564479.77	4191400.01	3.02094	564413.04	4191414.79	4.18554
564433.04	4191414.79	3.19964	564453.04	4191414.79	2.72994
564473.04	4191414.79	2.46308	564493.04	4191414.79	2.32600
564513.04	4191414.79	2.31103	564533.04	4191414.79	2.47555
564433.04	4191434.79	3.12882	564453.04	4191434.79	2.68772
564473.04	4191434.79	2.43963	564493.04	4191434.79	2.32017
564513.04	4191434.79	2.33756	564533.04	4191434.79	2.56343
564433.04	4191454.79	3.08313	564453.04	4191454.79	2.66551
564473.04	4191454.79	2.43668	564493.04	4191454.79	2.34545
564513.04	4191454.79	2.41013	564533.04	4191454.79	2.72916
564433.04	4191474.79	3.05451	564453.04	4191474.79	2.65499
564473.04	4191474.79	2.44506	564413.04	4191494.79	3.77852
564433.04	4191494.79	3.04755	564413.04	4191514.79	3.69075
564433.04	4191514.79	3.00868	564453.04	4191514.79	2.64291
564473.04	4191514.79	2.43210	564493.04	4191514.79	2.38206
564513.04	4191514.79	2.57534	564413.04	4191534.79	3.58751
564433.04	4191534.79	2.93124	564453.04	4191534.79	2.58348
564473.04	4191534.79	2.38896	564493.04	4191534.79	2.32850
564513.04	4191534.79	2.49131	564413.04	4191554.79	3.50678
564433.04	4191554.79	2.87472	564453.04	4191554.79	2.54506
564473.04	4191554.79	2.36692	564493.04	4191554.79	2.30830
564513.04	4191554.79	2.41591	564533.04	4191554.79	2.83914
564413.04	4191574.79	3.43234	564433.04	4191574.79	2.83549
564453.04	4191574.79	2.51803	564473.04	4191574.79	2.35162
564493.04	4191574.79	2.30450	564513.04	4191574.79	2.36973
564533.04	4191574.79	2.66080	564413.04	4191594.79	3.39710
564433.04	4191594.79	2.82887	564533.04	4191594.79	2.59122

Model Output, 2013 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (8784 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
MAKEREAD	1ST HIGHEST VALUE IS	1.42587 AT (565213.83, 4191496.57, 82.62, 82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	1.37744 AT (565193.83, 4191496.57, 82.26, 82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	1.29591 AT (565173.83, 4191496.57, 81.93, 81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	1.08821 AT (565213.83, 4191476.57, 81.89, 81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	1.03030 AT (565193.83, 4191476.57, 81.54, 81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.95824 AT (565173.83, 4191476.57, 81.26, 81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.83787 AT (565213.83, 4191456.57, 81.05, 81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.78703 AT (565193.83, 4191456.57, 80.78, 80.78, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.73277 AT (565173.83, 4191456.57, 80.60, 80.60, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.67953 AT (565084.82, 4191479.57, 79.90, 79.90, 1.50)	DC	
Acad Bldg	1ST HIGHEST VALUE IS	0.69829 AT (565213.83, 4191496.57, 82.62, 82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.67140 AT (565193.83, 4191496.57, 82.26, 82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.63906 AT (565173.83, 4191496.57, 81.93, 81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.56286 AT (565213.83, 4191476.57, 81.89, 81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.53799 AT (565193.83, 4191476.57, 81.54, 81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.51173 AT (565173.83, 4191476.57, 81.26, 81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.45875 AT (565213.83, 4191456.57, 81.05, 81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.43857 AT (565193.83, 4191456.57, 80.78, 80.78, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.41904 AT (565173.83, 4191456.57, 80.60, 80.60, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.41889 AT (565084.82, 4191479.57, 79.90, 79.90, 1.50)	DC	
HAUL	1ST HIGHEST VALUE IS	5.77472 AT (564459.77, 4191300.01, 55.85, 55.85, 1.50)	DC	
	2ND HIGHEST VALUE IS	5.67898 AT (564439.77, 4191300.01, 55.44, 55.44, 1.50)	DC	
	3RD HIGHEST VALUE IS	5.57434 AT (564559.77, 4191320.01, 59.34, 59.34, 1.50)	DC	
	4TH HIGHEST VALUE IS	5.47463 AT (564419.77, 4191380.01, 55.61, 55.61, 1.50)	DC	
	5TH HIGHEST VALUE IS	5.35414 AT (564419.77, 4191400.01, 55.80, 55.80, 1.50)	DC	
	6TH HIGHEST VALUE IS	4.92761 AT (564518.16, 4191929.64, 63.26, 63.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	4.91653 AT (564439.77, 4191320.01, 55.47, 55.47, 1.50)	DC	
	8TH HIGHEST VALUE IS	4.78176 AT (564539.77, 4191320.01, 58.91, 58.91, 1.50)	DC	
	9TH HIGHEST VALUE IS	4.63613 AT (564559.77, 4191340.01, 59.71, 59.71, 1.50)	DC	
	10TH HIGHEST VALUE IS	4.62957 AT (564508.16, 4191929.64, 62.91, 62.91, 1.50)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART

Model Output, 2014 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE PERIOD (8784 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAUL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
564553.67	4191355.27	4.06205	565084.82	4191479.57	0.46668
565173.83	4191476.57	0.38794	565193.83	4191476.57	0.36983
565213.83	4191476.57	0.35157	564419.77	4191380.01	5.22667
564479.77	4191380.01	2.98590	564499.77	4191380.01	2.81860
565173.83	4191496.57	0.40416	565193.83	4191496.57	0.38259
565213.83	4191496.57	0.36143 MEIR Location	564419.77	4191400.01	5.10084
564439.77	4191400.01	3.99622	564459.77	4191400.01	3.29577
564479.77	4191400.01	2.89693	564413.04	4191414.79	3.99795
564433.04	4191414.79	3.04943	564453.04	4191414.79	2.61370
564473.04	4191414.79	2.37507	564493.04	4191414.79	2.26867
564513.04	4191414.79	2.29509	564533.04	4191414.79	2.50259
564433.04	4191434.79	2.98165	564453.04	4191434.79	2.57433
564473.04	4191434.79	2.35533	564493.04	4191434.79	2.26768
564513.04	4191434.79	2.32561	564533.04	4191434.79	2.59838
564433.04	4191454.79	2.93987	564453.04	4191454.79	2.55633
564473.04	4191454.79	2.35797	564493.04	4191454.79	2.29974
564513.04	4191454.79	2.40258	564533.04	4191454.79	2.78202
564433.04	4191474.79	2.91619	564453.04	4191474.79	2.55135
564473.04	4191474.79	2.37329	564413.04	4191494.79	3.60536
564433.04	4191494.79	2.91392	564413.04	4191514.79	3.52455
564433.04	4191514.79	2.88252	564453.04	4191514.79	2.55306
564473.04	4191514.79	2.38104	564493.04	4191514.79	2.37886
564513.04	4191514.79	2.64626	564413.04	4191534.79	3.43002
564433.04	4191534.79	2.81500	564453.04	4191534.79	2.50406
564473.04	4191534.79	2.34998	564493.04	4191534.79	2.34389
564513.04	4191534.79	2.55946	564413.04	4191554.79	3.35655
564433.04	4191554.79	2.76594	564453.04	4191554.79	2.47344
564473.04	4191554.79	2.33499	564493.04	4191554.79	2.32430
564513.04	4191554.79	2.46629	564533.04	4191554.79	2.90234
564413.04	4191574.79	3.28734	564433.04	4191574.79	2.73273
564453.04	4191574.79	2.45211	564473.04	4191574.79	2.32142
564493.04	4191574.79	2.30834	564513.04	4191574.79	2.40419
564533.04	4191574.79	2.71917	564413.04	4191594.79	3.25473
564433.04	4191594.79	2.72928	564533.04	4191594.79	2.64023

Model Output, 2014 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (8784 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
MAKEREAD	1ST HIGHEST VALUE IS	1.49046 AT (565213.83, 4191496.57, 82.62, 82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	1.37998 AT (565193.83, 4191496.57, 82.26, 82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	1.21573 AT (565173.83, 4191496.57, 81.93, 81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	1.08578 AT (565213.83, 4191476.57, 81.89, 81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.96560 AT (565193.83, 4191476.57, 81.54, 81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.82363 AT (565173.83, 4191476.57, 81.26, 81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.78459 AT (565213.83, 4191456.57, 81.05, 81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.67942 AT (565193.83, 4191456.57, 80.78, 80.78, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.57201 AT (565173.83, 4191456.57, 80.60, 80.60, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.48486 AT (564973.83, 4191456.57, 76.22, 76.22, 1.50)	DC	
Acad Bldg	1ST HIGHEST VALUE IS	0.71638 AT (565213.83, 4191496.57, 82.62, 82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.65903 AT (565193.83, 4191496.57, 82.26, 82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.59033 AT (565173.83, 4191496.57, 81.93, 81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.55130 AT (565213.83, 4191476.57, 81.89, 81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.49674 AT (565193.83, 4191476.57, 81.54, 81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.43784 AT (565173.83, 4191476.57, 81.26, 81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.42355 AT (565213.83, 4191456.57, 81.05, 81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.39251 AT (564554.62, 4191652.58, 61.01, 61.01, 6.10)	DC	
	9TH HIGHEST VALUE IS	0.38085 AT (564554.62, 4191632.58, 61.10, 61.10, 6.10)	DC	
	10TH HIGHEST VALUE IS	0.37632 AT (565193.83, 4191456.57, 80.78, 80.78, 1.50)	DC	
HAUL	1ST HIGHEST VALUE IS	5.61762 AT (564459.77, 4191300.01, 55.85, 55.85, 1.50)	DC	
	2ND HIGHEST VALUE IS	5.55730 AT (564439.77, 4191300.01, 55.44, 55.44, 1.50)	DC	
	3RD HIGHEST VALUE IS	5.38535 AT (564559.77, 4191320.01, 59.34, 59.34, 1.50)	DC	
	4TH HIGHEST VALUE IS	5.22667 AT (564419.77, 4191380.01, 55.61, 55.61, 1.50)	DC	
	5TH HIGHEST VALUE IS	5.10084 AT (564419.77, 4191400.01, 55.80, 55.80, 1.50)	DC	
	6TH HIGHEST VALUE IS	5.03694 AT (564518.16, 4191929.64, 63.26, 63.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	4.78055 AT (564439.77, 4191320.01, 55.47, 55.47, 1.50)	DC	
	8TH HIGHEST VALUE IS	4.75282 AT (564508.16, 4191929.64, 62.91, 62.91, 1.50)	DC	
	9TH HIGHEST VALUE IS	4.67783 AT (564559.77, 4191340.01, 59.71, 59.71, 1.50)	DC	
	10TH HIGHEST VALUE IS	4.66085 AT (564539.77, 4191320.01, 58.91, 58.91, 1.50)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART

Model Output, 2015 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE PERIOD (8784 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAUL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
564553.67	4191355.27	3.92694	565084.82	4191479.57	0.47304
565173.83	4191476.57	0.38974	565193.83	4191476.57	0.37201
565213.83	4191476.57	0.35437	564419.77	4191380.01	5.09482
564479.77	4191380.01	2.97347	564499.77	4191380.01	2.79736
565173.83	4191496.57	0.40715	565193.83	4191496.57	0.38648
565213.83	4191496.57	0.36636 MEIR Location	564419.77	4191400.01	4.97766
564439.77	4191400.01	3.94884	564459.77	4191400.01	3.28715
564479.77	4191400.01	2.89957	564413.04	4191414.79	3.88418
564433.04	4191414.79	2.99977	564453.04	4191414.79	2.58197
564473.04	4191414.79	2.35586	564493.04	4191414.79	2.25479
564513.04	4191414.79	2.27141	564533.04	4191414.79	2.45450
564433.04	4191434.79	2.93241	564453.04	4191434.79	2.54211
564473.04	4191434.79	2.33554	564493.04	4191434.79	2.25558
564513.04	4191434.79	2.30495	564533.04	4191434.79	2.54823
564433.04	4191454.79	2.88973	564453.04	4191454.79	2.52186
564473.04	4191454.79	2.33408	564493.04	4191454.79	2.28317
564513.04	4191454.79	2.38507	564533.04	4191454.79	2.72605
564433.04	4191474.79	2.86399	564453.04	4191474.79	2.51358
564473.04	4191474.79	2.34399	564413.04	4191494.79	3.51153
564433.04	4191494.79	2.85929	564413.04	4191514.79	3.43259
564433.04	4191514.79	2.82490	564453.04	4191514.79	2.50751
564473.04	4191514.79	2.33840	564493.04	4191514.79	2.32667
564513.04	4191514.79	2.56148	564413.04	4191534.79	3.33912
564433.04	4191534.79	2.75391	564453.04	4191534.79	2.45297
564473.04	4191534.79	2.29884	564493.04	4191534.79	2.28273
564513.04	4191534.79	2.46120	564413.04	4191554.79	3.26633
564433.04	4191554.79	2.70170	564453.04	4191554.79	2.41674
564473.04	4191554.79	2.27598	564493.04	4191554.79	2.25184
564513.04	4191554.79	2.37385	564533.04	4191554.79	2.77008
564413.04	4191574.79	3.19810	564433.04	4191574.79	2.66447
564453.04	4191574.79	2.38931	564473.04	4191574.79	2.25654
564493.04	4191574.79	2.23464	564513.04	4191574.79	2.31849
564533.04	4191574.79	2.60235	564413.04	4191594.79	3.16511
564433.04	4191594.79	2.65661	564533.04	4191594.79	2.53543

Model Output, 2015 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (8784 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
MAKEREAD	1ST HIGHEST VALUE IS	1.35323 AT (565213.83, 4191496.57, 82.62, 82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	1.28819 AT (565193.83, 4191496.57, 82.26, 82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	1.19388 AT (565173.83, 4191496.57, 81.93, 81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	1.01889 AT (565213.83, 4191476.57, 81.89, 81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.95224 AT (565193.83, 4191476.57, 81.54, 81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.87620 AT (565173.83, 4191476.57, 81.26, 81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.77656 AT (565213.83, 4191456.57, 81.05, 81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.72206 AT (565193.83, 4191456.57, 80.78, 80.78, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.71860 AT (564933.83, 4191456.57, 75.04, 75.04, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.67531 AT (564833.83, 4191436.57, 71.11, 71.11, 1.50)	DC	
Acad Bldg	1ST HIGHEST VALUE IS	0.65922 AT (565213.83, 4191496.57, 82.62, 82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.62607 AT (565193.83, 4191496.57, 82.26, 82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.58845 AT (565173.83, 4191496.57, 81.93, 81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.52562 AT (565213.83, 4191476.57, 81.89, 81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.49681 AT (565193.83, 4191476.57, 81.54, 81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.46721 AT (565173.83, 4191476.57, 81.26, 81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.42501 AT (565213.83, 4191456.57, 81.05, 81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.41143 AT (564833.83, 4191436.57, 71.11, 71.11, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.40228 AT (565193.83, 4191456.57, 80.78, 80.78, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.38989 AT (564751.46, 4191408.77, 67.49, 67.49, 1.50)	DC	
HAUL	1ST HIGHEST VALUE IS	5.46203 AT (564459.77, 4191300.01, 55.85, 55.85, 1.50)	DC	
	2ND HIGHEST VALUE IS	5.36712 AT (564439.77, 4191300.01, 55.44, 55.44, 1.50)	DC	
	3RD HIGHEST VALUE IS	5.33527 AT (564559.77, 4191320.01, 59.34, 59.34, 1.50)	DC	
	4TH HIGHEST VALUE IS	5.09482 AT (564419.77, 4191380.01, 55.61, 55.61, 1.50)	DC	
	5TH HIGHEST VALUE IS	4.97766 AT (564419.77, 4191400.01, 55.80, 55.80, 1.50)	DC	
	6TH HIGHEST VALUE IS	4.71815 AT (564518.16, 4191929.64, 63.26, 63.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	4.63868 AT (564439.77, 4191320.01, 55.47, 55.47, 1.50)	DC	
	8TH HIGHEST VALUE IS	4.57785 AT (564539.77, 4191320.01, 58.91, 58.91, 1.50)	DC	
	9TH HIGHEST VALUE IS	4.53688 AT (564559.77, 4191340.01, 59.71, 59.71, 1.50)	DC	
	10TH HIGHEST VALUE IS	4.44478 AT (564508.16, 4191929.64, 62.91, 62.91, 1.50)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART

Model Output, 2016 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE PERIOD (8808 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAUL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
564553.67	4191355.27	3.70518	565084.82	4191479.57	0.47387
565173.83	4191476.57	0.39270	565193.83	4191476.57	0.37440
565213.83	4191476.57	0.35594	564419.77	4191380.01	4.78976
564479.77	4191380.01	2.82876	564499.77	4191380.01	2.66792
565173.83	4191496.57	0.40838	565193.83	4191496.57	0.38663
565213.83	**4191496.57**	**0.36526 MEIR Location**	564419.77	4191400.01	4.67682
564439.77	4191400.01	3.72128	564459.77	4191400.01	3.10440
564479.77	4191400.01	2.74484	564413.04	4191414.79	3.66693
564433.04	4191414.79	2.83595	564453.04	4191414.79	2.44454
564473.04	4191414.79	2.23019	564493.04	4191414.79	2.13426
564513.04	4191414.79	2.15385	564533.04	4191414.79	2.32695
564433.04	4191434.79	2.77177	564453.04	4191434.79	2.40478
564473.04	4191434.79	2.20777	564493.04	4191434.79	2.13015
564513.04	4191434.79	2.17994	564533.04	4191434.79	2.41292
564433.04	4191454.79	2.73263	564453.04	4191454.79	2.38628
564473.04	4191454.79	2.20625	564493.04	4191454.79	2.15347
564513.04	4191454.79	2.24504	564533.04	4191454.79	2.57716
564433.04	4191474.79	2.71167	564453.04	4191474.79	2.38189
564473.04	4191474.79	2.21897	564413.04	4191494.79	3.32480
564433.04	4191494.79	2.71190	564413.04	4191514.79	3.25489
564433.04	4191514.79	2.68515	564453.04	4191514.79	2.38878
564473.04	4191514.79	2.23174	564493.04	4191514.79	2.22377
564513.04	4191514.79	2.45276	564413.04	4191534.79	3.17201
564433.04	4191534.79	2.62431	564453.04	4191534.79	2.34447
564473.04	4191534.79	2.20530	564493.04	4191534.79	2.19942
564513.04	4191534.79	2.37599	564413.04	4191554.79	3.10895
564433.04	4191554.79	2.58068	564453.04	4191554.79	2.31751
564473.04	4191554.79	2.19381	564493.04	4191554.79	2.18125
564513.04	4191554.79	2.29923	564533.04	4191554.79	2.64831
564413.04	4191574.79	3.04989	564433.04	4191574.79	2.55202
564453.04	4191574.79	2.29927	564473.04	4191574.79	2.18263
564493.04	4191574.79	2.16879	564513.04	4191574.79	2.24170
564533.04	4191574.79	2.50077	564413.04	4191594.79	3.02480
564433.04	4191594.79	2.55139	564533.04	4191594.79	2.43409

Model Output, 2016 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (8808 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)				OF TYPE	NETWORK GRID-ID
MAKEREAD	1ST HIGHEST VALUE IS	1.53406 AT	565213.83,	4191496.57,	82.62,	82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	1.45861 AT	565193.83,	4191496.57,	82.26,	82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	1.34763 AT	565173.83,	4191496.57,	81.93,	81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	1.15969 AT	565213.83,	4191476.57,	81.89,	81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	1.08177 AT	565193.83,	4191476.57,	81.54,	81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.99006 AT	565173.83,	4191476.57,	81.26,	81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.88726 AT	565213.83,	4191456.57,	81.05,	81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.82166 AT	565193.83,	4191456.57,	80.78,	80.78, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.80598 AT	565084.82,	4191479.57,	79.90,	79.90, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.75594 AT	565173.83,	4191456.57,	80.60,	80.60, 1.50)	DC	
Acad Bldg	1ST HIGHEST VALUE IS	0.76074 AT	565213.83,	4191496.57,	82.62,	82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.72514 AT	565193.83,	4191496.57,	82.26,	82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.68288 AT	565173.83,	4191496.57,	81.93,	81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.61298 AT	565213.83,	4191476.57,	81.89,	81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.58092 AT	565193.83,	4191476.57,	81.54,	81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.54606 AT	565173.83,	4191476.57,	81.26,	81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.50040 AT	565213.83,	4191456.57,	81.05,	81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.47364 AT	565193.83,	4191456.57,	80.78,	80.78, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.44618 AT	565173.83,	4191456.57,	80.60,	80.60, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.44153 AT	565084.82,	4191479.57,	79.90,	79.90, 1.50)	DC	
HAUL	1ST HIGHEST VALUE IS	5.08566 AT	564459.77,	4191300.01,	55.85,	55.85, 1.50)	DC	
	2ND HIGHEST VALUE IS	5.05746 AT	564439.77,	4191300.01,	55.44,	55.44, 1.50)	DC	
	3RD HIGHEST VALUE IS	4.81893 AT	564559.77,	4191320.01,	59.34,	59.34, 1.50)	DC	
	4TH HIGHEST VALUE IS	4.78976 AT	564419.77,	4191380.01,	55.61,	55.61, 1.50)	DC	
	5TH HIGHEST VALUE IS	4.67682 AT	564419.77,	4191400.01,	55.80,	55.80, 1.50)	DC	
	6TH HIGHEST VALUE IS	4.58726 AT	564518.16,	4191929.64,	63.26,	63.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	4.42426 AT	564439.77,	4191320.01,	55.47,	55.47, 1.50)	DC	
	8TH HIGHEST VALUE IS	4.32359 AT	564508.16,	4191929.64,	62.91,	62.91, 1.50)	DC	
	9TH HIGHEST VALUE IS	4.22207 AT	564559.77,	4191340.01,	59.71,	59.71, 1.50)	DC	
	10TH HIGHEST VALUE IS	4.20542 AT	564539.77,	4191320.01,	58.91,	58.91, 1.50)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART

Model Output, 2017 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE PERIOD (8784 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAUL ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
564553.67	4191355.27	3.74284	565084.82	4191479.57	0.46448
565173.83	4191476.57	0.38278	565193.83	4191476.57	0.36479
565213.83	4191476.57	0.34678	564419.77	4191380.01	4.86005
564479.77	4191380.01	2.84877	564499.77	4191380.01	2.68226
565173.83	4191496.57	0.39885	565193.83	4191496.57	0.37768
565213.83	4191496.57	0.35698 MEIR Location	564419.77	4191400.01	4.74803
564439.77	4191400.01	3.77539	564459.77	4191400.01	3.14257
564479.77	4191400.01	2.77196	564413.04	4191414.79	3.72989
564433.04	4191414.79	2.87776	564453.04	4191414.79	2.47640
564473.04	4191414.79	2.25703	564493.04	4191414.79	2.16030
564513.04	4191414.79	2.17998	564533.04	4191414.79	2.34900
564433.04	4191434.79	2.81238	564453.04	4191434.79	2.43619
564473.04	4191434.79	2.23443	564493.04	4191434.79	2.15660
564513.04	4191434.79	2.21048	564533.04	4191434.79	2.44003
564433.04	4191454.79	2.77158	564453.04	4191454.79	2.41589
564473.04	4191454.79	2.23074	564493.04	4191454.79	2.17703
564513.04	4191454.79	2.27186	564533.04	4191454.79	2.60934
564433.04	4191474.79	2.74807	564453.04	4191474.79	2.40826
564473.04	4191474.79	2.23935	564413.04	4191494.79	3.37528
564433.04	4191494.79	2.74502	564413.04	4191514.79	3.30100
564433.04	4191514.79	2.71396	564453.04	4191514.79	2.40537
564473.04	4191514.79	2.23823	564493.04	4191514.79	2.22114
564513.04	4191514.79	2.43376	564413.04	4191534.79	3.21352
564433.04	4191534.79	2.64869	564453.04	4191534.79	2.35670
564473.04	4191534.79	2.20638	564493.04	4191534.79	2.18705
564513.04	4191534.79	2.35266	564413.04	4191554.79	3.14673
564433.04	4191554.79	2.60237	564453.04	4191554.79	2.32745
564473.04	4191554.79	2.19199	564493.04	4191554.79	2.16764
564513.04	4191554.79	2.27299	564533.04	4191554.79	2.64559
564413.04	4191574.79	3.08505	564433.04	4191574.79	2.57196
564453.04	4191574.79	2.30768	564473.04	4191574.79	2.17909
564493.04	4191574.79	2.15308	564513.04	4191574.79	2.22573
564533.04	4191574.79	2.49246	564413.04	4191594.79	3.05773
564433.04	4191594.79	2.56993	564533.04	4191594.79	2.43537

Model Output, 2017 Met Data
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM PERIOD (8784 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
MAKEREAD	1ST HIGHEST VALUE IS	1.48552 AT (565213.83, 4191496.57, 82.62, 82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	1.41831 AT (565193.83, 4191496.57, 82.26, 82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	1.31462 AT (565173.83, 4191496.57, 81.93, 81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	1.12378 AT (565213.83, 4191476.57, 81.89, 81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	1.04876 AT (565193.83, 4191476.57, 81.54, 81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.96053 AT (565173.83, 4191476.57, 81.26, 81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.85627 AT (565213.83, 4191456.57, 81.05, 81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.79167 AT (565193.83, 4191456.57, 80.78, 80.78, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.77658 AT (565084.82, 4191479.57, 79.90, 79.90, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.72641 AT (565173.83, 4191456.57, 80.60, 80.60, 1.50)	DC	
Acad Bldg	1ST HIGHEST VALUE IS	0.73117 AT (565213.83, 4191496.57, 82.62, 82.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	0.69658 AT (565193.83, 4191496.57, 82.26, 82.26, 1.50)	DC	
	3RD HIGHEST VALUE IS	0.65434 AT (565173.83, 4191496.57, 81.93, 81.93, 1.50)	DC	
	4TH HIGHEST VALUE IS	0.58664 AT (565213.83, 4191476.57, 81.89, 81.89, 1.50)	DC	
	5TH HIGHEST VALUE IS	0.55374 AT (565193.83, 4191476.57, 81.54, 81.54, 1.50)	DC	
	6TH HIGHEST VALUE IS	0.51760 AT (565173.83, 4191476.57, 81.26, 81.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	0.47480 AT (565213.83, 4191456.57, 81.05, 81.05, 1.50)	DC	
	8TH HIGHEST VALUE IS	0.44626 AT (565193.83, 4191456.57, 80.78, 80.78, 1.50)	DC	
	9TH HIGHEST VALUE IS	0.41805 AT (565084.82, 4191479.57, 79.90, 79.90, 1.50)	DC	
	10TH HIGHEST VALUE IS	0.41724 AT (565173.83, 4191456.57, 80.60, 80.60, 1.50)	DC	
HAUL	1ST HIGHEST VALUE IS	5.08627 AT (564459.77, 4191300.01, 55.85, 55.85, 1.50)	DC	
	2ND HIGHEST VALUE IS	5.05296 AT (564439.77, 4191300.01, 55.44, 55.44, 1.50)	DC	
	3RD HIGHEST VALUE IS	4.95022 AT (564559.77, 4191320.01, 59.34, 59.34, 1.50)	DC	
	4TH HIGHEST VALUE IS	4.86005 AT (564419.77, 4191380.01, 55.61, 55.61, 1.50)	DC	
	5TH HIGHEST VALUE IS	4.74803 AT (564419.77, 4191400.01, 55.80, 55.80, 1.50)	DC	
	6TH HIGHEST VALUE IS	4.45717 AT (564518.16, 4191929.64, 63.26, 63.26, 1.50)	DC	
	7TH HIGHEST VALUE IS	4.42452 AT (564439.77, 4191320.01, 55.47, 55.47, 1.50)	DC	
	8TH HIGHEST VALUE IS	4.28964 AT (564559.77, 4191340.01, 59.71, 59.71, 1.50)	DC	
	9TH HIGHEST VALUE IS	4.26102 AT (564539.77, 4191320.01, 58.91, 58.91, 1.50)	DC	
	10TH HIGHEST VALUE IS	4.19546 AT (564508.16, 4191929.64, 62.91, 62.91, 1.50)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART

Appendix C. Construction Risk Calculations

Table C1
Residential MER Concentrations for Risk Calculations

Contaminant	Source		Model Output [1] ($\mu g/m^3$)	Emission Rates [2] (g/s)	MEIR Conc. ($\mu g/m^3$)	Total MEIR Conc. Annual Average ($\mu g/m^3$)
(a)	(b)		(c)	(d)	(e)	(f)
Residential Receptors			**LRDP MM AIR-2.1**			
DPM	2023 MakeReady	On-Site Emissions	1.46	1.51E-03	2.20E-03	2.20E-03
		Truck Route	0.37	0.00E+00	0.00E+00	
	2023	On-Site Emissions	0.71	1.67E-03	1.19E-03	1.20E-03
		Truck Route	0.37	3.66E-05	1.34E-05	
	2024	On-Site Emissions	0.71	2.97E-03	2.12E-03	2.12E-03
		Truck Route	0.37	0.00E+00	0.00E+00	
	2025	On-Site Emissions	0.71	3.01E-03	2.15E-03	2.15E-03
		Truck Route	0.37	0.00E+00	0.00E+00	
PM2.5	2023 MakeReady	On-Site Emissions	1.46	1.40E-03	2.04E-03	2.04E-03
		Truck Route	0.37	0.00E+00	0.00E+00	
	2023	On-Site Emissions	0.71	1.58E-03	1.12E-03	1.14E-03
		Truck Route	0.37	3.66E-05	1.34E-05	
	2024	On-Site Emissions	0.71	2.74E-03	1.95E-03	1.95E-03
		Truck Route	0.37	0.00E+00	0.00E+00	
	2025	On-Site Emissions	0.71	2.79E-03	1.99E-03	1.99E-03
		Truck Route	0.37	0.00E+00	0.00E+00	
					Max PM2.5	0.002

	Met Data Average Output	AERMOD Output for each year of Met Data				
		2013	2014	2015	2016	2017
Make Ready	1.45783	1.42587	1.49046	1.35323	1.53406	1.48552
Acad Rep Bldg	0.71316	0.69829	0.71638	0.65922	0.76074	0.73117
Truck Route	0.36550	0.37749	0.36143	0.36636	0.36526	0.35698

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 565213.83 E, 4191496.57 N [(3)]

Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations

[1] Model Output at the MEIR and maximum exposed school receptor, based on unit emission rates for sources (1 g/s).

[2] From Emission Rate Calculations (Appendix A - Construction Emissions).

[3] In general, the MEIR and maximum exposed school receptor locations are the receptor location associated with the maximum predicted AERMOD concentrations from off-road equipment operating at the construction site (i.e., on-site emissions). The calculated emission rates from the off-road equipment (on-site emissions) are approximately 2 orders of magnitude higher than the calculated emission rates for off-site truck hauling (see Appendix A). Therefore, the maximum pollutant concentrations associated with the off-road equipment produce the highest overall pollutant concentrations at the MEIR and maximum exposed school receptor and, consequently, highest calculated health risks.

Table C2
Residential MER Health Risk Calculations

Source		MEIR Conc. ($\mu g/m^3$)	Weight Fraction	Contaminant	URF $(\mu g/m^3)^{-1}$	CPF $(mg/kg/day)^{-1}$	Dose (by age bin) 3rd Trimester (mg/kg-day)	Dose (by age bin) 0 < 2 years (mg/kg-day)	Dose (by age bin) 2 < 9 years (mg/kg-day)	Carcinogenic Risks (by age bin) 3rd Trimester per million	Carcinogenic Risks (by age bin) 0 < 2 years per million	Carcinogenic Risks (by age bin) 2 < 9 years per million	**Total Cancer Risk** per million	**Chronic Hazards** [3] REL ($\mu g/m^3$)	**Chronic Hazards** [3] RESP
(a)		(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
Residential Receptors - LRDP MM AIR-2.1															
2023 Make Ready	On & Off-Site Emissions	2.20E-03	1.0E+00	DPM	3.0E-04	1.1E+00	7.63E-07	2.30E-06		2.43E-02	4.97E-02		0.1		4.41E-04
2023		1.20E-03						1.26E-06			2.65E-02		0.0		2.40E-04
2024		2.12E-03						2.21E-06			2.82E-01		0.3		4.23E-04
2025		2.15E-03						2.25E-06	1.77E-06		1.91E-01	9.76E-03	0.2		4.30E-04
												Total	**0.6**		**0.002**

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 565213.83 E, 4191496.57 N

		3rd Trimester	0 < 2 years	2 < 9 years
	OEHHA age bin			
	exposure year(s)	2023	2023-2025	2025
Dose Exposure Factors:	exposure frequency (days/year)	350	350	350
	inhalation rate (L/kg-day) [1]	361	1090	861
	inhalation absorption factor	1	1	1
	conversion factor (mg/µg; m^3/L)	1.0E-06	1.0E-06	1.0E-06
Risk Calculation Factors:	age sensitivity factor	10	10	3
	averaging time (years)	70	70	70
	per million	1.0E+06	1.0E+06	1.0E+06
	fraction of time at home	0.85	0.85	0.72

exposure durations per age bin		exposure durations (year)		
Construction Year	Const Duration [2]	3rd Trimester	0 < 2 years	2 < 9 years
2023 Make Ready	0.42	0.25	0.17	
2023	0.17		0.17	
2024	1.0		1.00	
2025	0.84		0.67	0.17
Total	2.42	0.25	2.0	0.17

[1] Inhalation rate taken as the 95th percentile breathing rates (OEHHA, 2015).

[2] Construction durations determined for each year to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.