
# Bayer Healthcare LLC Development Agreement Amendment Project

## Draft Subsequent Environmental Impact Report

SCH# 2020100559

*prepared by*

**City of Berkeley**
Department of Planning & Development
1947 Center Street, 2nd Floor
Berkeley, California 94704
Contact: Leslie Mendez, Senior Planner

*prepared with the assistance of*

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

**May 2021**

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

# Bayer Healthcare LLC Development Agreement Amendment Project

Draft Subsequent Environmental Impact Report

SCH# 2020100559

*prepared by*

**City of Berkeley**
Department of Planning & Development
1947 Center Street, 2nd Floor
Berkeley, California 94704
Contact: Leslie Mendez, Senior Planner

*prepared with the assistance of*

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

**May 2021**

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

*This report prepared on 50 percent recycled paper with 50 percent post-consumer content*

# Table of Contents

## Tables

## Figures

## Appendices

*This page intentionally left blank.*

# Executive Summary

This document is a Subsequent Environmental Impact Report (Subsequent EIR) to the City of Berkeley Miles Inc./Cutter Biological Long Range Plan EIR ("1991 EIR"), State Clearinghouse #90030029, analyzing the environmental effects of the proposed Bayer HealthCare LLC Development Agreement (DA) Amendment Project ("proposed project" or "proposed amended DA"). This section summarizes the characteristics of the proposed project, alternatives to the proposed project, and the environmental impacts and mitigation measures associated with the proposed project.

## Project Synopsis

### Lead Agency

City of Berkeley
Planning and Development Department
1947 Center Street, 2nd Floor
Berkeley, California 94704
Contact: Leslie Mendez, (510) 981-7426, LMendez@cityofberkeley.info

### Project Proponent

Bayer HealthCare LLC
800 Dwight Way
Berkeley, California 94710

### Project Description

The Bayer Campus (project site) consists of approximately 46 acres generally bounded by the Union Pacific Railroad to the west, Dwight Way to the north, Seventh Street to the east, and Grayson Street to the south. The site comprises two primary areas: the North Properties at 800 Dwight Way, which includes 31.9 acres north of Carleton Street; and the South Properties at 801 Grayson Street, which includes 14.4 acres south of Carleton Street. The Bayer campus currently develops and produces commercial biopharmaceuticals that are distributed globally. Bayer's existing 30-year Development Agreement (DA) with the City of Berkeley, covering the North Properties, was approved in 1992 and is set to expire in 2022. Because Bayer acquired the South Properties after the 1999 major amendment to the 1992 DA, the South Properties are not included in the original DA's project area.

The proposed project would include the following amendments to the existing DA:

- Extend the DA duration an additional 30 years until February 2052
- Add the South Properties to be covered by the DA
- Allow buildout of a conceptual development plan, which proposes to rearrange the campus layout through proposed phased demolition of nine existing buildings; construction of approximately twelve new buildings for production, laboratory, and administrative uses; and replacement of surface parking with two new parking structures and new underground parking facilities

Additional detail about the proposed project is included in Section 2, *Project Description*.

# Project Objectives

The applicant's three objectives for the project are as follows:

- Maximize Bayer's ability to attract and retain top talent and partners by ensuring that the Berkeley campus facilities are at the forefront of scientific innovation, and that the campus' physical configuration and design support this goal and facilitate and enhance the site's existing and future ability to support the biotech development and manufacture of medicines that improve patient outcomes.
- Promote health of employees through wellness features, such as open green space, pedestrian and bicycle circulation, and other amenities, and create a unified campus with consistent design principles that creates a sense of place within the campus and that integrates with the surrounding community.
- Maximize the productive utilization of the land areas and current buildings to take new treatments through biotech development and manufacturing, with a priority on commercializing new therapies using new and innovative technologies, and ensure that (1) there is sufficient biotech development space to develop advanced therapies that are tailored to individual patients, with development proceeding at a rate that maximizes the ability to deliver successful therapies to patients in a timely manner; (2) there is sufficient biological research and manufacturing capacity to support the production of sufficient quantities of medicine through the numerous phases of clinical trials that are required to prove safety, purity, and efficacy for human use; (3) there is sufficient space to scale up proven medicines for commercial lunch in quantities sufficient to meet worldwide demand; (4) the development plan retains flexibility to take advantage of unforeseen opportunities and challenges; and (5) there is an efficient site configuration that maximizes open space needs and other amenities benefiting employees and the community.

# Alternatives

As required by *CEQA Guidelines §*15126.6, this section of the Subsequent EIR examines a range of reasonable alternatives to the proposed project. The following alternative is evaluated in this Subsequent EIR:

- Alternative 1: No Project Alternative/No New Construction Alternative
- Alternative 2: No Project/ Zoning Conformance Alternative
- Alternative 3: Reduced Parking Alternative

Alternative 3 was determined to be environmentally superior to the proposed project.

Refer to Section 6, *Alternatives*, for the complete alternatives analysis.

# Areas of Known Controversy

The Subsequent EIR scoping process identified several areas of known controversy for the proposed project including transportation, greenhouse gas (GHG) emissions, hazardous materials, and research ethics. Responses to the Notice of Preparation of a Draft Subsequent EIR and input received at the EIR scoping meeting held by the City are summarized in Section 1, *Introduction*.

## Issues to be Resolved

There are no issues to be resolved that have been identified.

## Issues Not Studied in Detail in the Subsequent EIR

As indicated in the Initial Study (Appendix A of this Subsequent EIR), there is no substantial evidence that significant impacts would occur to the following issue areas: Agriculture and Forestry Resources, Energy, Land Use and Planning, Mineral Resources, Noise, Population/Housing, and Wildfire. Impacts related to those issue areas would be less than significant without mitigation. As indicated in the Initial Study, impacts related to Aesthetics, Biological Resources, Geology and Soils, Hydrology and Water Quality, Public Services, and Recreation would be less than significant with mitigation incorporated but further analysis was not required in an EIR. Mitigation measures for those issue areas are listed below in Table ES-1 and will be carried forward into the Mitigation Monitoring and Reporting Program. Impacts related to Air Quality, Cultural Resources, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Noise, Transportation, Utilities and Service Systems, and Tribal Cultural Resources were found to be potentially significant and are addressed in this EIR.

## Summary of Impacts and Mitigation Measures

Table ES-1 summarizes the environmental impacts of the proposed project, proposed mitigation measures, and residual impacts (the impact after application of mitigation, if required). Impacts are categorized as follows:

- **Significant and Unavoidable.** An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per §15093 of the CEQA Guidelines.
- **Less than Significant with Mitigation Incorporated.** An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under §15091 of the CEQA Guidelines.
- **Less than Significant.** An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.
- **No Impact.** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

## Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| **Aesthetics** | | |
| The amended DA includes a proposed parking structure to the south of Dwight Way between Seventh Street and Eighth Street which could present a massive and unvaried façade to the land uses on the east side of Eighth Street. This impact would be less than significant with mitigation incorporated (see Section 1, *Aesthetics,* of the Initial Study). | **Mitigation Measure AES-1: Parking Structure Design (Updated 1991 EIR MM).** The proposed parking structure between Dwight Way, Seventh Street, Eighth Street, and Parker Street shall be designed to maximize visual compatibility with the low-rise, low intensity uses to the north and east, in terms of the parking structure's massing, color, and adjacent landscaping. The Eighth Street façade of the garage shall be articulated to add texture and depth to the structure. A setback as well as landscape and streetscape amenities shall be provided on the perimeter of the parking structure. Stepbacks shall also be provided along Eighth Street. | Less than significant. |
| New and renovated buildings on the project site could generate glare if they have reflective windows or exterior surfaces, especially on western façades toward the setting sun. This impact would be less than significant with mitigation incorporated (see Section 1, *Aesthetics,* of the Initial Study). | **Mitigation Measure AES-2: Glare Reduction (Updated 1991 EIR MM).** For new and renovated buildings along and visible from the western property line, the use of reflective glass or other glazing that would cause glare as the sun sets shall be prohibited. | Less than significant. |
| **Air Quality** | | |
| **Impact AQ-1**. Implementation of the proposed amended DA would not conflict with or obstruct implementation of the 2017 BAAQMD Clean Air Plan. This impact would be less than significant. | None required | Less than significant without mitigation. |
| **Impact AQ-2.** Construction activities under the proposed amended DA would result in the temporary generation of criteria air pollutants, which would affect local air quality. With mitigation, construction emissions would not exceed applicable BAAQMD thresholds. This impact would be less than significant with mitigation incorporated. | **Mitigation Measure AQ-1: Construction Emissions Measures**. Demolition, grading and construction activities shall comply with the current Bay Area Air Quality Management District's basic control measures for reducing construction emissions (Table 8-2, Basic Construction Mitigation Measures Recommended for All Proposed Projects, of the May 2017 BAAQMD CEQA Guidelines or equivalent as updated by BAAQMD).<br>**Mitigation Measure AQ-2: Tier 4 Construction Equipment.** Demolition, grading and construction activities shall utilize at least 90 percent Tier 4 equipment (or better) through 2032 and all Tier 4 equipment (or better) after 2032. If the use of such equipment is not commercial availably, the applicant shall prepare a project-specific air quality assessment to evaluate construction-related criteria air pollutant. If the project-specific air quality assessment finds that construction emissions would exceed any of the applicable BAAQMD thresholds, the air quality assessment shall identify emission reduction measures to reduce emissions below the thresholds and the applicant shall implement the measures. Measures may include, but would not be limited to, some or all of the following, as necessary: | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | ▪ Equip construction equipment with Tier 3 or Tier 4 certified engines or CARB-certified Level 3 diesel particulate filters. All diesel particulate filters shall be kept in working order and maintained in operable condition according to manufacturer's specifications.<br>▪ Minimizing the idling time of diesel-powered construction equipment to two minutes.<br>▪ Use late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.<br>▪ Use low-sulfur fuel or other non-diesel for stationary construction equipment.<br>▪ Use low-emission on-site stationary equipment.<br>▪ Use alternatively-fueled construction equipment (e.g., natural gas, electric).<br>▪ Schedule soil import and/or export to reduce the number of daily haul truck trips.<br>▪ Phase construction activities to reduce daily equipment use.<br>▪ Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time to reduce the amount of disturbed ground surfaces at any one time. | |
| **Impact AQ-3.** The project would expose off-site sensitive receptors to substantial concentrations of TACs during construction or operation. However, the change in exposure compared to baseline conditions would not exceed thresholds. This impact would be less than significant. | None required | Less than significant without mitigation. |
| **Impact AQ-4.** Implementation of the proposed amended DA would not create objectionable odors that could affect a substantial number of people. This impact would be less than significant. | None required | Less than significant without mitigation. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| **Biological Resources** | | |
| Buildout under the proposed amended DA would involve vegetation removal as part of redevelopment of the Bayer Campus over the 30-year period of the amended DA. Impacts to protected nesting birds could occur if active nests are present in vegetation to be removed, or if birds in the vicinity are disturbed. In addition, reflective glass on west-facing facades at new and renovated buildings could result in fatal window collisions by birds. This impact would be less than significant with mitigation incorporated (see Section 4, *Biological Resources*, of the Initial Study). | **Mitigation Measure BIO-1: Nesting Bird Surveys and Avoidance.** Demolition, grading, construction and tree removal activities shall be conducted outside of the migratory bird nesting season (February 1 through August 31) to reduce any potentially significant impact to birds that may be nesting in the project site. If construction and tree removal activities must occur during the migratory bird nesting season, an avian nesting survey of the project site shall be conducted for active nests of protected migratory birds. The avian nesting survey shall be performed by a qualified wildlife biologist within seven days prior to the start of ground or vegetation disturbance or building demolition activities. I The survey will consist of a qualified biologist conducting a visual inspection of the disturbance area plus a 200-foot buffer and vicinity, as is feasible depending on possible access and/or line-of-site constraints, to detect any suitable nesting locations and determine if any nests occur. If an active bird nest is found, the nest shall be flagged and mapped on the construction plans, along with an appropriate no disturbance or protection buffer based on site conditions, which shall be determined by the biologist based on the species sensitivity to disturbance (generally, standard buffers can be 50-250 feet for passerines and 250-500 feet for raptors and special-status species, but site- and species-specific adjustments can be made within the discretion of the biologist, with different buffers established with respect to different levels of disturbance). Work within the nest avoidance buffer shall be prohibited or otherwise restricted per requirements determined by the biologist until the juveniles have fledged. The nest buffer shall be demarcated in the field with flagging and stakes or construction fencing.<br><br>**Mitigation Measure BIO-2: Bird Strike Avoidance.** New structures or structures undergoing exterior renovations shall include the following:<br>▪ One hundred (100) percent of the window area of the west-facing façades of new, expanded, and renovated buildings adjacent to or directly visible from Aquatic Park shall consist of verified bird-safe glazing products, e.g., American Bird Conservancy-endorsed products such as Arnold Glass Ornilux Mikado, Acopian Birdsavers, Bendheim Channel Glass, GlasPro Bird Safe Glass, Guardian Glass SunGuard SN68, Viracon, or others. Alternatively, the reflective or transparent surface area visible to the west-facing frontage of the property shall employ bird-safe glazing treatments, including fritting, netting, permanent stencils, frosted glass, exterior screens, physical grids placed on the exterior of glazing or UV patterns visible to birds. To qualify as bird-safe glazing treatment, vertical elements of the window patterns shall be at least 1/4-inch wide at a | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | maximum spacing of 4 inches, or have horizontal elements at least 1/8-inch wide at a maximum spacing of 2 inches.<br>▪ Automatic shades shall be installed on windows and shall be programmed to operate between 10:00 p.m. and sunrise on new building facades facing the western boundary of the project site. Non-emergency exterior lighting shall be shielded to minimize light emission.<br>▪ Transparent glass shall not be allowed on rooftops of new, expanded, and renovated buildings, including in conjunction with green roofs.<br>▪ The cumulative area of glass façades for newly constructed or expanded buildings facing the project site's westerly boundary shall not exceed 2,250 square feet. | |
| **Cultural Resources** | | |
| **Impact CR-1.** The proposed amended DA would involve renovation of Building B83, which is a historical resource under CEQA. Moreover, there is potential for additional properties which are older than 40 years old to be altered and demolished under the terms of the 30-year DA. Mitigation measures are required to reduce impacts to historical resources. Impacts would be less than significant with mitigation incorporated. | **Mitigation Measure CR-1: Architectural History Evaluation.** Demolition or alteration of a building or structure that is at least 40 years old at the time of permit application and has not previously been evaluated for demolition or renovation within the last five years from the time demolition or alternation is proposed shall be subject to review at the request of the City by a qualified architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards (PQS) in architectural history or history. The qualified architectural historian or historian shall conduct an intensive-level evaluation in accordance with the guidelines and best practices recommended by the State Office of Historic Preservation to identify if the building or structure proposed for demolition or alteration qualifies as a historical resource under CEQA guidelines. Buildings and structures shall be evaluated within their historic context and documented in a technical report and on Department of Parks and Recreation Series 523 forms. The report shall be submitted to the City for review and approval prior to the issuance of a building permit. If no historic resources are identified, no further analysis is warranted. If historic resources are identified, the applicant shall be required to implement Mitigation Measure CR-2.<br>**Mitigation Measure CR-2: Architectural History Mitigation.** For renovations involving Building B83 or historical resources identified through the process described in the architectural history evaluation mitigation measure (CR-1), project activities shall comply with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Standards). During the project planning phase (prior to any construction activities), input shall be sought from a qualified architectural historian or historic architect meeting the *Secretary of the Interior's Professional Qualifications Standards* to ensure project compliance with the Standards for Rehabilitation. This input will ensure the avoidance of any direct/indirect physical changes to historical resources. The findings and recommendations of the architectural historian or | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | historic architect shall be documented in a Standards Project Review Memorandum at the schematic design phase. This memorandum shall analyze all project components for compliance with the Standards for Rehabilitation. The memorandum should recommend design modifications necessary to bring projects into compliance with the Standards for Rehabilitation, which shall be incorporated into project designs to ensure compliance with the Standards. The memorandum shall be submitted to the City for review and approval prior to the issuance of a building permit. | |
| **Impact CR-2.** Records search results indicate that the area is archaeologically sensitive. Buried archaeological resources may exist on the project site, and ground disturbance within the project site has the potential to impact archaeological resources. Mitigation measures are required to reduce impacts to such resources. Impacts would be less than significant with mitigation incorporated. | **Mitigation Measure CR-3: Cultural Resources Desktop Analysis.** Prior to demolition, grading, new construction, or underground work such as utility installation, a cultural resources Desktop Analysis, consisting of a review of existing information regarding cultural resources on a given project site, shall be conducted. The Desktop Analysis shall include, but not be limited to, a review of the project description and extent of proposed ground disturbance, a review of recent cultural resources records on file at the California Historical Resources Information System, and a review of available historic maps and aerial photography. If a project would solely involve the refurbishment of an existing building and no ground disturbance would occur, this measure would not be required. If no resource impacts are identified, no further analysis is warranted. If potential impacts to resources are identified, the applicant shall be required to implement Mitigation Measure CR-4. If the desktop analysis identifies that an area has been subject to a Phase I cultural resources study in the previous five years, Measure CR-4 would not be required. If the Desktop Analysis identifies that no further analysis is warranted, the results will be documented in a memorandum for review and approval by the City prior to issuance of a building permit.<br><br>**Mitigation Measure CR-4: Phase I Archaeological Resources Study.** If the desktop analysis described in Mitigation Measure CR-3 identifies the potential to encounter cultural resources, a Phase I cultural resources study shall be performed by a qualified professional meeting the Secretary of the Interior's (SOI) Professional Qualifications Standards (PQS) for archaeology (National Park Service 1983). The Phase I cultural resources study shall include a pedestrian survey of the project site and sufficient background research and fieldwork to determine whether archaeological resources may be present. Archival research shall include a records search of the California Historical Resources Information System and a Sacred Lands File search with the Native American Heritage Commission. The report will be submitted to the City for review and approval prior to the issuance of a building permit. Recommendations in the Phase I Report must be implemented prior to and/or during construction to avoid or reduce impacts on archaeological resources. | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | Adherence to recommendations included in the Phase I report shall be documented as appropriate for verification by the City. If the Phase I identifies an archaeological site and/or a high likelihood of subsurface deposits, Measure CR-5 shall be implemented.<br><br>**Mitigation Measure CR-5: Extended Phase I Testing.** For any projects proposed within 100 feet of a known archaeological site or in areas that have not been subject to previous archaeological testing, monitoring, or other subsurface investigation, as determined by the Desktop Analysis (Mitigation Measure CR-3) or Phase I Report (Mitigation Measure CR-4), the project applicant shall retain a qualified archaeologist to conduct an Extended Phase I (XPI) study to determine the presence/absence and extent of archaeological resources on the project site. If the boundaries of the archaeological site are already well understood based on previous work and are clearly interpretable as such by a qualified cultural resource professional, or if there is documentation that fill is already present to the depth of the current project, XPI testing will not be required. XPI testing shall include a series of shovel test pits and/or hand augured units and/or mechanical trenching to establish the boundaries of archaeological site(s) on the project site. All archaeological excavation shall be conducted by a qualified archaeologist(s) under the direction of a principal investigator meeting the SOI's PQS for archaeology (National Park Service 1983).The results of the XPI will be documented in a technical report and submitted to the City for review and approval prior to the issuance of a building permit. If the archaeological resource(s) of concern are Native American in origin, the qualified archaeologist shall confer with local California Native American Tribe(s) and, if applicable, a Native American monitor shall be present in accordance with Mitigation Measure TCR-2. Recommendations in the XPI Report shall be implemented for all ground disturbance activities and documented as appropriate for verification by the City.<br><br>**Mitigation Measure CR-6: Archaeological Site Avoidance.** Avoidance will be the preferred treatment measure for an archaeological site identified on the Bayer campus. Any identified archaeological sites will be avoided by project-related construction activities, to the maximum extent feasible to still be able to fulfill the project objectives as determined by Bayer and confirmed by the City. The determination of feasibility will include an assessment of project redesign options, including but not limited to relocation of a proposed building, realignment of utilities, redesign of building plans to build above the existing ground surface and/or to minimize the proposed depth of disturbance, or other options as appropriate for a given project. A barrier (temporary fencing) and flagging will be placed between the work location and any resources within 60 feet of a work location to minimize the | |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | potential for inadvertent impacts. The 60-foot avoidance buffer may be reduced as appropriate if recommended by the qualified archaeologist. If the feasibility of avoidance of an archaeological resource of Native American origin is not immediately apparent, Bayer and the City of Berkeley shall contact consulting Tribes to discuss appropriate treatment of the resource, including the implementation of MM CR-7 and CR-8. If, after a good faith effort at resolution, the City, Bayer, and consulting Tribe conclude that agreement is not possible, MM CR-7 shall be implemented.<br>**Mitigation Measure CR-7: Phase II Site Evaluation.** If the results of the Phase I Report and/or XPI indicate the presence of archaeological resources that cannot be avoided by the project and that have not been adequately evaluated for CRHR listing at the project site, the project applicant shall retain a qualified archaeologist to conduct a Phase II investigation to determine if intact deposits are present and if they may be eligible for the CRHR or qualify as unique archaeological resources. A Phase II evaluation shall include necessary archival research to identify significant historical associations and mapping of surface artifacts, collection of functionally or temporally diagnostic tools and debris, and excavation of a sample of the cultural deposit. The sample excavation will characterize the nature of the site, define the artifact and feature contents, determine horizontal and vertical boundaries, and retrieve representative samples of artifacts and other remains.<br>If the archeologist and, if applicable, a Native American monitor or other interested tribal representative from a locally affiliated Tribe as listed by the Native American Heritage Commission determine it is appropriate, cultural materials collected from the site shall be processed and analyzed in a laboratory according to standard archaeological procedures. The age of the materials shall be determined using radiocarbon dating and/or other appropriate procedures; lithic artifacts, faunal remains, and other cultural materials shall be identified and analyzed according to current professional standards. The significance of the sites shall be evaluated according to the criteria of the CRHR. The results of the investigations shall be presented in a technical report following the standards of the California Office of Historic Preservation publication "Archaeological Resource Management Reports: Recommended Content and Format (1990 or latest edition)." The report shall be submitted to the City for review and approval prior to the issuance of any building or engineering permits that could disturb identified resources. Recommendations in the Phase II report shall be implemented for all ground disturbance activities and documented as appropriate for verification by the City.<br>**Mitigation Measure CR-8: Phase III Data Recovery.** If the Phase II site evaluation identifies resources that meet CRHR significance standards and if the resources cannot be avoided, the project applicant shall incorporate recommendations for | |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | mitigation of archaeological impacts into the final design as per CR-7 above prior to construction. If the resource is significant for its data potential and if recommended by the archaeologist and approved by consulting Tribes if appropriate, Phase III data recovery may be required, including excavation, to exhaust the data potential of significant archaeological sites, and shall be carried out by a qualified archaeologist meeting the SOI standards for archaeology according to a research design reviewed and approved by the City and prepared in advance of fieldwork and using appropriate archaeological field and laboratory methods consistent with the California Office of Historic Preservation Planning Bulletin 5, Guidelines for Archaeological Research Design (1991or the latest edition thereof). Methods of artifact disposition may include curation for historic-era archaeological resources and reburial onsite within a tribal cultural resources easement as identified in TCR-3 for tribal cultural resources. Curation is not appropriate for tribal cultural resources unless agreed to and/or requested by consulting tribes.<br>The final Phase III Data Recovery reports shall be submitted to the City of Berkeley prior to issuance of any building permit for grading or construction. Recommendations contained therein shall be implemented throughout all ground disturbance activities.<br>**Mitigation Measure CR-9: Worker's Environmental Awareness Program.** Prior to any ground disturbing activities, the project applicant shall retain an SOI qualified archaeologist to conduct a Worker's Environmental Awareness Program (WEAP) training. The WEAP training shall be focused on archaeological sensitivity and shall be provided to all construction personnel prior to the commencement of any ground-disturbing activities. The WEAP training shall include a description of the types of cultural material that may be encountered, cultural sensitivity issues, the regulatory environment, and the proper protocol for treatment of the materials in the event of a find. Attendance at the WEAP training shall be documented with a sign-in sheet to be submitted to the City for verification of adherence to this measure. This WEAP training may be presented in tandem with the training required under TCR-1.<br>**Mitigation Measure CR-10: Archaeological Monitoring.** If recommended by the Desktop Analysis, Phase I, XPI, Phase II, or Phase III studies, the project applicant shall retain a qualified archaeologist (Monitor) to observe project-related ground-disturbing activities. The Monitor will have the authority to halt and redirect work if any archaeological resources are identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find must be evaluated for listing in the CRHR. Archaeological monitoring may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as | |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of ground disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance activity moves to a new location within the project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Following the completion of monitoring, a report documenting the monitoring effort shall be prepared and submitted to the City of Berkeley and the Northwest Information Center.<br>**Mitigation Measure CR-11: Unanticipated Discovery of Archaeological Resources.** If archaeological resources are encountered during ground-disturbing activities, whether or not an archaeological monitor is present, work within 60 feet shall be halted. The project applicant shall notify the City and retain an archaeologist meeting the SOI's Professional Qualification Standards for archaeology (National Park Service 1983) to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR eligibility. If the discovery proves to be eligible for the CRHR and impacts cannot be avoided, data recovery excavation may be required. Reports prepared to document and/or evaluate unanticipated discoveries and their treatment shall be submitted to the City of Berkeley for review and approval. Recommendations contained therein shall be implemented throughout the remainder of ground disturbance activities. | |
| **Impact CR-3.** Ground-disturbing activities associated with development under the amended DA could result in damage to or destruction of human burials. However, adherence to existing regulations regarding the discovery of human remains would reduce potential impacts to a less than significant level. | None required | Less than significant without mitigation. |
| **Geology and Soils** | | |
| It is anticipated that most ground disturbance on the North and South Properties during buildout of the amended DA would occur in already disturbed areas that were graded for earlier development on the Bayer Campus or for historic industrial uses, where it is unlikely that intact fossil resources would be encountered. However, construction activities could potentially uncover and disturb paleontological resources beneath the surface. This impact would be less than significant with mitigation incorporated (see Section 7, *Geology and Soils*, of the Initial Study). | **Mitigation Measure GEO-1: Discovery of Paleontological Resources.** If a project would solely involve the refurbishment of an existing building and no ground disturbance would occur, this measure would not be required. Prior to ground-disturbing activities, the project applicant shall retain a qualified paleontologist to provide on-call services in the event of an unanticipated discovery. A qualified paleontologist is defined by the Society of Vertebrate Paleontology (SVP) standards as an individual preferably with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least two years (SVP 2010). Prior to the start of construction, | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | the qualified paleontologist shall conduct a Paleontological Worker Environmental Awareness Program (WEAP), a training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a Qualified Paleontologist shall attend.<br>In accordance with SVP (2010) guidelines, all work shall halt in the immediate vicinity of a find and the qualified paleontologist shall evaluate the discovery. The qualified paleontologist shall determine the significance of the discovery and identify whether additional mitigation or treatment is warranted. Measures may include testing, data recovery, reburial, archival review and/or transfer to the appropriate museum or educational institution, such as the University of California Museum of Paleontology. All testing, data recovery, reburial, archival review or transfer to research institutions related to monitoring discoveries shall be determined by the qualified paleontologist and shall be reported to the City. Work in the area of the discovery may resume after the find is properly documented and authorization is given to resume construction work. | |
| **Greenhouse Gas Emissions** | | |
| **Impact GHG-1**. Project construction and operation would generate temporary and long-term increases in GHG emissions. However, the project's emissions would not exceed the locally applicable, project-specific *de minimis* threshold or stationary threshold in comparison with baseline emissions (existing conditions). Impacts would be less than significant with mitigation incorporated. | **Mitigation Measure GHG-1 Renewable Electricity Resources.** Electricity used at the site shall be sourced from 100 percent renewable energy resources by 2030. Bayer shall submit documentation showing as such to the City every five years, or at intervals required by the City, to ensure compliance. | Less than significant. |
| **Impact GHG-2**. The proposed amended DA would be consistent with the goals of the City's Climate Action Plan, Plan Bay Area 2040, AB 32, CARB Scoping Plan, Executive Order S-3-05, Executive Order B-16-12, Executive Order B-55-18, and SB 32. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. This impact would be less than significant. | None required | Less than significant without mitigation. |
| **Hazards and Hazardous Materials** | | |
| **Impact HAZ-1.** There are known releases of hazardous substances within and adjacent to the project site with potentially localized contamination or concentrations of hazardous substances. Additionally, there are several | **Mitigation Measure HAZ 1: Property Assessment – Phase I and II Environmental Site Assessments (ESA).** The project applicant shall prepare a site-specific Phase I ESA for each development area / Block, in accordance with standard ASTM methodologies, to assess the land use history of the project site. Phase II ESAs (i.e., soil, groundwater, | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| historical uses of the property and adjacent properties that may have resulted in the presence of hazardous materials or wastes in onsite soil, soil vapor, and/or groundwater. Although the project would be required to comply with existing regulations related to known hazardous materials and wastes, unanticipated hazardous materials and wastes could be disturbed during demolition, grading, and other soil or groundwater disturbance under the proposed amended DA. Therefore, workers within the project site could be exposed to hazards materials during construction activities. This impact would be less than significant with mitigation incorporated. | soil vapor subsurface investigations) shall be completed where a building is proposed south of Carleton Street or based on the results of the Phase I ESAs. Specifically, if the Phase I ESAs identify recognized environmental conditions or potential concern areas, a Phase II ESA would be conducted to determine whether the soil, groundwater, and/or soil vapor has concentrations exceeding regulatory screening levels for commercial/industrial land uses.<br>If the Phase II ESA concludes that the site is or may be impacted and could affect the planned development, then an assessment, remediation, or corrective action (e.g., removal of contaminated soil, in-situ treatment, capping, engineering controls) shall be conducted prior to or during construction under the oversight of federal, state, and/or local agencies (e.g., USEPA, DTSC, SFB RWQCB, City of Berkeley TMD, Alameda County DEH) and in full compliance with current and applicable federal and state laws and regulations. Additionally, Voluntary Cleanup Agreements may be used for parcels where remediation or long-term monitoring is necessary.<br>**Mitigation Measure HAZ-2: Regulatory Agency UST Involvement – City of Berkeley TMD and SFB RWQCB.** Because the project site and immediately adjacent properties are associated with open and closed LUST and Cleanup Program cases overseen by the SFB RWQCB, the project applicant shall notify the SFB RWQCB of the following:<br>▪ Development plans for each Block located south of Carleton Street and for Block B North east of Fourth Street<br>▪ Completion of subsequent Phase I ESAs<br>▪ Identification of unanticipated stained or odorous soils during demolition, grading, and/or construction activity<br>▪ Identification of additional underground tanks and associated piping, or other underground features such as railroad spurs or ties, unknown piping, cisterns, wells, waste/burn pits, etc., if encountered<br>Additionally, all onsite UST removals and associated assessment work shall be completed under the direction of the City of Berkeley TMD and/or the SFB RWQCB. To the extent there are any pending LUST and Cleanup Program cases on the project site, the UST closure and agency approval documents shall be reviewed and approved by the City of Berkeley TMD and/or the SFB RWQCB prior to issuance of building permits for grading or any other ground disturbance.<br>Upon identification of stained soil, odorous soil, USTs, or other underground features onsite, City of Berkeley TMD and/or SFB RWQCB could require actions such as: preparation of removal action workplans; obtaining permits for removal of USTs or other underground features; excavation and offsite disposal of soil; assessment of | |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | soil and/or groundwater beneath the excavation; and/or completion of UST removal reports or case closure documents.<br>**Mitigation Measure HAZ-3: Regulatory Agency Subsurface Involvement – ACPWA, SFB RWQCB and City of Berkeley.** The City of Berkeley TMD and the SFB RWQCB shall continue to provide agency oversight of assessment and remediation of the open Cleanup Program case (case #01S0045) on the project site. Additionally, the applicant shall notify the City of Berkeley and SFB RWQCB Cleanup Program project manager of the following:<br>▪ Development plans for Block B North east of Fourth Street and development south of Carleton Street<br>▪ Onsite use of 14 hydraulic elevators that may have contained oils containing PCBs (Farallon, 2020)<br>▪ Onsite use of above-ground storage tanks used to store diesel for generators (Farallon, 2020)<br>▪ Other regulatory UST case listings (City of Berkeley and SFB RWQCB) and assessment work that will be completed under the direction of other regulatory agencies<br>▪ All former environmental documents completed for the site of development disturbance, including this SEIR<br>SFB RWQCB could require actions such as: preparation of subsurface investigation workplans; completion of soil, soil vapor, and/or groundwater subsurface investigations; installation of soil vapor or groundwater monitoring wells; excavation and offsite disposal of soil; completion of human health risk assessments; and/or completion of remediation reports or case closure documents.<br>If groundwater wells or soil vapor monitoring probes are identified within the construction area during demolition, subsurface demolition, or construction at the project site, they will be abandoned/destroyed under permit from the Alameda County Public Works Agency (ACPWA). Demolition activities will be documented in a letter report submitted to the ACPWA and SFB RWQCB within 60 days of the completion of abandonment activities. Abandonment of sub-slab vapor points will be completed with SFB RWQCB approval and demolition activities will be documented in a letter report to SFB RWQCB.<br>The SFB RWQCB non-objection, concurrence, no further action, closure, and/or agency approval documents shall be delivered to and reviewed by the City of Berkeley prior to issuance of any building permit authorizing grading or construction on the site. The SFB RWQCB may determine that City of Berkeley TMD or DTSC may | |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | be best suited to perform the lead agency duties for assessment and/or remediation at the project site, in which case this and other mitigation measures will still apply.<br>**Mitigation Measure HAZ-4: Soil and Groundwater Management Plan.** The project applicant shall implement the recommendations of the Soil and Groundwater Management Plan (SGMP) prepared by Farallon Consulting LLC dated December 28, 2020. The SGMP shall be reviewed by the City of Berkeley Toxics Management Division prior to issuance of permits for grading or other ground disturbance and the report shall be updated if needed. The SGMP recommendations are related to:<br>▪ Management of Unanticipated Subsurface Conditions<br>▪ Health and Safety Requirements<br>▪ Onsite Soil Management<br>▪ Groundwater Management<br>▪ Stormwater Management<br>▪ Soil and Groundwater Management Plan Reporting Requirements<br>Construction workers shall be informed about environmental conditions and measures to mitigate potential risks to the environment, construction workers, and other nearby receptors from potential exposure to hazardous substances that may be associated with unknown conditions or unexpected underground structures, and known contaminated soil or groundwater encountered during construction activities.<br>The SGMP shall be updated and the updated recommendations shall be implemented in the following cases:<br>▪ A change in project site uses;<br>▪ Receipt of additional information pertaining to project site environmental conditions;<br>▪ Updated chemical toxicity information for contaminants detected at the project site based on revised regulatory screening levels; or,<br>▪ New legal or regulatory soil or groundwater management requirements applicable to the project site. | |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| **Impact HAZ-2.** Implementation of the proposed amended DA would include operation of Laboratory, Production, Storage, and manufacturing buildings that could involve the use, storage, disposal, or transportation of hazardous materials, including biohazardous and chemical materials. Upset or accident conditions at the project site could involve the release of hazardous materials into the environment. Required adherence to existing regulations and implementation of mitigation would ensure less than significant impacts concerning hazardous materials. This impact would be less than significant with mitigation incorporated. | **Mitigation Measure HAZ-5: Hazardous Materials Safety Plan (Updated 1991 EIR MM).** The project applicant shall prepare a Hazardous Materials Safety Plan to address potential issues that may be encountered during project operation involving the use, storage, transport, and disposal of biohazardous and chemical materials. The Hazardous Materials Safety Plan shall be updated annually and reviewed by Berkeley's Toxics Management Division. The Plan shall include, but not be limited to, the following information and measures:<br>▪ Documentation of ongoing compliance with all applicable federal, state, and local regulations related to biohazardous safety, storage, transport, and disposal procedures, and emergency response preparedness, including biosafety guidelines published by the NIH and CDC.<br>▪ Documentation that current and future operations would prohibit the use of biohazardous agents within Risk Groups 3 and 4.<br>▪ Documentation of ongoing coordination for emergency preparedness with the City of Berkeley, including preparation of an emergency response plan and an emergency disaster procedures manual for release of hazardous biological materials. The disaster preparedness plan shall include annual training for and coordination with City of Berkeley emergency responders as to the nature of hazards on site, types of organisms likely to be encountered, where to take exposed persons to receive appropriate treatment, and staging semi-annual mock disaster drills.<br>▪ Updates to and continued compliance with the site's Risk Management Prevention Plan (RMPP) for the use of ammonia. The RMPP shall be subject to review and approval by the USEPA.<br>▪ Updates to and continued compliance with the Hazardous Materials Release Response Plan and inventory and Risk Management and Prevention program required by CalEPA. | Less than significant. |
| **Impact HAZ-3.** Implementation of the proposed project would involve facilities that would continue to use, store, transport, dispose, and produce hazardous materials near schools. This could result in hazardous emissions or hazardous materials release near schools. However, this impact would be less than significant with mitigation incorporated. | **Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-4, and HAZ-5.** | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| **Impact HAZ-4.** Implementation of the proposed amended DA would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan with mitigation. This impact would be less than significant with mitigation incorporated. | **Mitigation Measure HAZ-5.** | Less than significant. |
| **Hydrology and Water Quality** | | |
| Operation under the amended DA could result in conflicts with applicable water quality permits or waste discharge requirements. This impact would be less than significant with mitigation incorporated (see Section 10, *Hydrology and Water Quality*, of the Initial Study). | **Mitigation Measure HWQ-1: Best Management Practices (Updated 1991 EIR MM).** The project applicant shall prepare documentation of Best Management Practices to minimize the potential for water pollution. Typical elements of such a document would include addressing the possibility of substituting less toxic compounds in manufacturing and research and development and proper handling of those toxic compounds used.<br>**Mitigation Measure HWQ-2: Source Control (Updated 1991 EIR MM).** The project applicant shall manage pollutants on the project site such that they are not easily mobilized and discharged into stormwater runoff. This shall involve configuring fuel storage under roofed areas and preventing on-site runoff from flowing through these areas. Hazardous materials stored in uncovered areas shall be fully contained or covered such that they do not come into contact with rainfall.<br>**Mitigation Measure HWQ-3: Water Quality Monitoring (Updated 1991 EIR MM).** The project applicant shall perform sampling and testing of stormwater runoff from the project site four times per year. The extent and location of this monitoring will be based upon the degree of source runoff controls implemented. Monitoring shall be used primarily to ensure source controls are working and to detect any additional or accidental pollutants in stormwater runoff.<br>**Mitigation Measure HWQ-4: Pollutant Removal (Updated 1991 EIR MM).** The project applicant shall install systems to remove pollutants before stormwater runoff leaves the project site. This may involve physical removal or chemical or biological treatment depending on the type of pollutants that would be present. Uncovered parking areas shall receive street sweeping monthly to remove pollutants, oils, and greases before they are mobilized by runoff. Storm drains downstream of hazardous materials storage areas shall be equipped with manual shut-off valves. In the event of a spill, these valves shall be immediately closed, and shall remain closed until clean-up has been completed.<br>**Mitigation Measure HWQ-5: Management of Underground Tanks (Updated 1991 EIR MM).** The project applicant shall protect from damage existing wells that monitor potential releases of pollutants from underground tanks and may be required to relocate them if they would be affected by construction. Remediation or excavation | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | of soil contaminated by underground tank releases, if necessary, shall be completed before construction of permanent foundations.<br>**Mitigation Measure HWQ-6: Monitoring and Remediation of Seepage into Aquatic Park (Updated 1991 EIR MM).** The project applicant shall contribute to the funding of (as determined by the City), or perform, periodic groundwater sampling and monitoring where groundwater seeps from the 10- to 12-foot-high embankment along the western edge of the Southern Pacific Railroad. If the City determines that the Bayer Campus' use of hazardous material has contributed to contamination of groundwater seepage which supports the narrow freshwater wetland between the main lagoon at Aquatic Park and the railroad, Bayer shall contribute to the funding of remediation, if necessary. If the City determines that contamination of groundwater seepage originates from properties outside the Bayer Campus, then the project applicant shall not be responsible for funding remediation of such contamination.<br>**Mitigation Measure HWQ-7: Source Control for Groundwater Contamination (Updated 1991 EIR MM).** The project applicant shall implement standard safeguards, monitoring, and contingency measures to minimize the potential for future contamination of the local groundwater. Such measures include roofing and/or berming of storage areas, lining storage areas to prevent infiltration, and/or installing shutoff valves in downslope storm drain lines. | |
| **Noise** | | |
| **Impact N-1.** Construction and demolition activities associated with implementation of the amended DA would intermittently generate noise within and adjacent to the project site in excess of established standards. This impact is less than significant with mitigation incorporated. | **Mitigation Measure N-1: Construction-Related Noise Reduction Measures (Updated 1991 EIR MM).**<br>The following measures shall be implemented during construction for the purpose of reducing construction-related noise impacts:<br>▪ **Neighbor Notification.** At least two weeks prior to initiating construction activities requiring the use of two or more pieces of heavy construction equipment at the project site, the applicant shall provide an ongoing website of on-site construction activities and written notice to businesses and residents within 500 feet of the project site construction areas , including: (1) a description of the Project; (2) a description of construction activities; (3) a daily construction schedule (i.e., time of day) and expected duration (number of weeks or months); (4) the name and phone number of the "Noise Management Individual" for the Project; (5) a commitment to notify neighbors at least four days in advance of any authorized extended work hours and the reason for extended hours; (6) notice that construction work is about to commence; and (7) the designated "Disturbance Coordinator" responsible for responding to any local complaints about construction noise. The noise manager would determine the cause of the | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | noise complaints (e.g., starting too early, bad muffler) and institute reasonable measures to correct the problem. A copy of such notice and methodology for distributing the notice shall be provided in advance to the City for review and approval prior to issuance of a building permit.<br>▪ **Disturbance Coordinator.** The applicant shall designate a disturbance coordinator who shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site outside the gate visible to passersby (the campus is closed).<br>▪ **Noise Reduction Program.** The applicant shall develop a site-specific construction noise reduction program prepared by a qualified acoustical consultant to reduce construction related noise impacts to the maximum extent feasible, subject to review and approval of the Zoning Officer or a delegate prior to issuance of a building permit. The noise reduction program shall include time limits for construction and all technically and economically feasible measures to ensure that construction complies with the City of Berkeley Municipal Code Section 13.40.070. The program shall include, but is not limited to the following available controls to reduce construction noise levels to as low as practical:<br>▫ **Temporary Noise Barrier.** The applicant shall construct eight-foot-high solid plywood fences along construction site boundaries adjacent to off-site noise sensitive residences or other noise-sensitive land uses (e.g., school uses) to meet applicable thresholds. These fences shall be outfitted with noise control blanket barriers where necessary to effect reductions that result in compliance with the City's quantified noise construction thresholds, as determined by the noise control plan.<br>▫ **Mufflers.** Construction equipment shall be properly maintained and all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds, as applicable, shall be in good condition and appropriate for the equipment. During construction, all equipment, fixed or mobile, shall be operated with closed engine doors and shall be equipped with properly operating and maintained mufflers, consistent with manufacturers' standards.<br>▫ **Electrical Power.** The applicant shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists. The applicant | |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | shall select hydraulically or electrically powered equipment where feasible and avoid pneumatically powered equipment where feasible.<br>▫ **Equipment Staging.** All stationary noise-generating equipment shall be located as far as possible from sensitive receivers when adjoining construction sites. Construct temporary noise barriers or partial enclosures to acoustically shield such equipment where feasible.<br>▫ **Equipment Idling.** Unnecessary idling of internal combustion engines shall be prohibited. Construction equipment that would not be used for more than five minutes should be turned off completely.<br>▫ **Construction Vehicles.** Construction-related traffic shall be routed along major roadways and away from sensitive receivers, where feasible.<br>▫ **Workers' Radios.** All noise from workers' radios shall be controlled such that radios are not audible at sensitive receivers near construction activity.<br>▫ **Smart Back-up Alarms.** Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels. Alternatively, back-up alarms shall be disabled and replaced with human spotters to ensure safety when mobile construction equipment is moving in the reverse direction.<br>▪ **Additional Noise Attenuation Techniques.** For development on the portion of the site east of Seventh Street, implement the measures set forth in the Nosie Reduction Program and either: (1) erect temporary noise control blanket barriers, where necessary, along building facades facing construction sites; (2) restrict construction to weekdays; or (3) implement other noise reductions alternatives that could feasibly reduce noise to achieve the City's quantified noise construction thresholds. | |
| **Impact N-2.** Operational activities associated with the proposed amended DA would generate noise that may periodically be audible to noise-sensitive receivers near the Bayer Campus. Noise sources would include mobile sources (traffic) and stationary sources (stationary equipment and parking activities). However, operational noise would not exceed ambient noise levels at nearby noise-sensitive receivers. Therefore, operational noise impacts would be less than significant. | None required. | Less than significant without mitigation. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| **Impact N-3.** Construction activities associated with implementation of the proposed amended DA would intermittently generate groundborne vibration within and adjacent to the project site. Institutional land uses with sensitive daytime activities could be exposed to vibration levels exceeding FTA guidelines. However, vibration would not exceed standards. This impact would be less than significant. | None required. | Less than significant without mitigation. |
| **Impact N-4.** The project site is located outside of noise contours associated with airports. Therefore, new development under the proposed amended DA would not be exposed to excessive noise levels from aircraft operations and no impact would occur. | None required. | Less than significant without mitigation. |
| **Public Services** | | |
| Operation under the amended DA would increase risk of on-site crime that requires police protection services. This impact would be less than significant with mitigation incorporated (see Section 15, *Public Services*, of the Initial Study). | **Mitigation Measure PS-1: Security Measures (Updated 1991 EIR MM).** The project applicant shall continue implementing the following measures recommended by the Berkeley Police Department including but not limited to:<br>▪ Prepare a Crime Prevention Evaluation Analysis Report in coordination with the Police Department;<br>▪ Employ a highly visible security guard;<br>▪ Provide adequate lighting in parking areas and around buildings in use in the evenings; and<br>▪ Utilize solid walls, burglar alarms, and/or safety glazing on the windows for buildings containing pharmaceuticals. | Less than significant. |
| **Recreation** | | |
| It is expected some Bayer employees would use Aquatic Park during operation under the amended DA. This impact would be less than significant with mitigation incorporated (see Section 16, *Recreation*, of the Initial Study). | **Mitigation Measure REC-1: (Updated 1991 EIR MM).** The project applicant shall contribute to park maintenance and improvements related to Aquatic Park through an upfront payment of $385,000. The contribution shall be paid to the City of Berkeley Parks, Recreation, and Waterfront Department by February 25, 2022. | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| **Transportation** | | |
| **Impact T-1.** The proposed project would not conflict with applicable policies addressing transit, bicycle, and pedestrian facilities. Mitigation would require continued implementation of Bayer's TDM Program, which would ensure that the project would not conflict with policies addressing roadway facilities. Impacts related to transit, bicycle and pedestrian facilities would be less than significant with mitigation incorporated. | **T-1 Transportation Demand Management Program (Updated 1991 EIR MM).** The project applicant shall continue to implement and update the Transportation Demand Management (TDM) Program to reduce single-occupant automobile trips generated by the project site. The TDM Program shall be reviewed and approved by the City of Berkeley prior to issuance of building permits for development allowed under the amended DA. In addition, the TDM Program shall be updated by Bayer and approved by the City every five years, or at intervals required by the City, to ensure that services are consistent with best practices to reduce the use of single-occupant automobile trips to and from the project site.<br>The TDM Program shall include, but not be limited to, the following information and measures:<br>▪ Continued funding and implementation of the West Berkeley Shuttle with service as needed to meet demand.<br>▪ Other TDM measures intended to reduce single-occupant automobile trips, including but not limited to on-site bicycle parking requirements, car share and bike share memberships for Bayer employees, and parking pricing. Additional measures consistent with the City's TDM policies may be required by the City. | Less than significant. |
| **Impact T-2.** Vehicle miles traveled (VMT) attributable to the proposed amended DA would not exceed the City's significance thresholds. Therefore, the impact related to VMT would be less than significant. | None required. | Less than significant without mitigation. |
| **Impact T-3.** The proposed amended DA would not introduce design features or incompatible uses that could increase traffic hazards. This impact would be less than significant. | None required. | Less than significant without mitigation. |
| **Impact T-4.** The proposed amended DA would not result in inadequate emergency access to the project site and would not substantially affect response times. This impact would be less than significant. | None required. | Less than significant without mitigation. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| **Tribal Cultural Resources** | | |
| **Impact TCR-1.** Development under the proposed amended DA could adversely impact tribal cultural resources. However, impacts would be less than significant with mitigation incorporated. | **Mitigation Measure TCR-1: Worker's Environmental Awareness Program.** Prior to ground disturbing activities, the project applicant will retain a locally affiliated tribal member who represents a tribal organization that was contacted as part of Assembly Bill 52 outreach to conduct a Worker's Environmental Awareness Program (WEAP) training. The WEAP training shall be provided to all construction personnel (in conjunction with the cultural resources WEAP) prior to the commencement of ground-disturbing activities. The WEAP training shall include a description of the types of materials that may constitute Tribal Cultural Resources, the reasons for their traditional cultural significance and importance to tribal members, the stop work authority of the Native American monitor, and the proper protocol for the respectful treatment of the resource in the event of an unanticipated discovery. Attendance at the WEAP training shall be documented with a sign-in sheet for submittal to the City for verification of adherence to this measure. This WEAP training may be presented in tandem with the training required under CR-9.<br><br>**Mitigation Measure TCR-2: Native American Monitoring.** If recommended by the Desktop Analysis, Phase I, Extended Phase I (XPI), Phase II, or Phase III studies required under Mitigation Measures CR-1 through CR-8, the project applicant shall retain a qualified local Native American monitor to observe all ground disturbance, including archaeological excavation, associated with development facilitated by the project. Native American monitoring shall be provided by a locally affiliated tribal member. Monitors will have the authority to halt and redirect work if tribal cultural resources are identified during monitoring. If tribal cultural resources are encountered during ground-disturbing activities, work within 60 feet must halt and the find must be evaluated. Native American monitoring may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of ground disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Following the completion of monitoring, a report documenting the monitoring effort shall be prepared and submitted to the City of Berkeley and the Northwest Information Center.<br><br>**Mitigation Measure TCR-3: Cultural Resources Open Space Easement.** The project applicant will set aside an area that could be used as a Tribal Cultural Resources Open Space Easement in the event that tribal cultural resources are encountered during construction activities and are unable to be avoided. The purpose of the Cultural | Less than significant. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| | Resources Open Space Easement will be to provide an onsite location for reinterment of sensitive Native American cultural resources and/or human remains, as well as other associated funerary objects. If said remains are encountered, a Cultural Resource Open Space Easement will be developed and granted by the project applicant in consultation with the identified Most Likely Descendant(s), and other affiliated tribes identified by the NAHC as applicable. Should an easement be necessary, the following actions would be prohibited on the land subject to said easement, except as required for the reburial of sensitive cultural resources: grading; excavation; placement of soil, sand, rock, gravel or other material; clearing of vegetation with machinery; construction; erection or placement of a building or structure; vehicular activities; trash dumping; installation of wet or dry infrastructure, such as irrigation systems; or for a purpose other than as open space for tribal use only.<br>Exceptions include the following:<br>▪ Placement and reburial of sensitive Native American cultural resources or human remains.<br>▪ Access shall be provided for identified Most Likely Descendant(s), and other affiliated tribes identified by the NAHC in perpetuity.<br>▪ Selective clearing of vegetation by hand if required by fire authorities for the purpose of reducing an identified fire hazard or the removal of vegetation using chemicals for vector control purposes where required by the Department of Environmental Health.<br>▪ The installation of a bench, marker, or other amenity if desired by the consulting Tribe(s). | |
| **Utilities and Service Systems** | | |
| **Impact UTL-1.** Buildout under the proposed amended DA would result in a net reduction of wastewater generation compared to baseline conditions (buildout under the existing DA). EBMUD's wastewater treatment plant has adequate capacity to serve the proposed project. Impacts related to wastewater facilities and wastewater infrastructure would be less than significant. | None required. | Less than significant without mitigation. |

| Impact | Mitigation Measure (s) | Residual Impact |
|---|---|---|
| **Impact UTL-2.** Buildout under the proposed amended DA would demand roughly the same amount of water as the existing uses within the project site. existing and projected water supply would be adequate to serve the proposed project, with implementation of demand management measures required by EBMUD. Impacts related to water supply and water infrastructure would be less than significant. | None required. | Less than significant without mitigation. |
| **Impact UTL-3.** Buildout under the proposed amended DA would generate a net increase of approximately 198 tons of solid waste per year compared to baseline conditions. The project would be subject to federal, state, and local regulations and policies related to reduction of solid waste. Impacts related to solid waste would be less than significant. | None required. | Less than significant without mitigation. |
| **Impact UTL-4.** Buildout under the proposed amended DA would not result in the relocation or construction of electricity, natural gas, or telecommunications facilities. This impact would be less than significant. | None required. | Less than significant without mitigation. |

# 1 Introduction

This Environmental Impact Report (EIR) has been prepared as a Subsequent EIR to the City of Berkeley Miles Inc./Cutter Biological Long Range Plan EIR ("1991 EIR"), State Clearinghouse #90030029, certified in June 1991, in accordance with *California Environmental Quality Act (CEQA) Guidelines* §15162.[1]

The project site, now the Bayer HealthCare campus (generally known as the "Bayer Campus"), is located on two properties in south Berkeley that are divided by Carleton Street. The North Properties have a primary address of 800 Dwight Way and the South properties have a primary address of 2700 Seventh Street (generally referred to as "801 Grayson Street"). The 1991 EIR discusses the environmental impacts of Bayer HealthCare LLC's current Development Agreement (DA), which was approved by the City of Berkeley in 1992 and covered development within the North Properties. The DA was amended in 1999. The 1999 amendment allowed modification of the site plan, construction of new buildings, and a new phasing plan, among other revisions, and the City adopted a Mitigated Negative Declaration (MND) for the DA amendment in 1999. In addition, The City approved a Use Permit (UP#00-10000008) for the South Properties and adopted an MND on July 21, 2000.

This Subsequent EIR discusses the potential environmental impacts of the proposed project, which would amend the existing DA to cover both the North and South Properties, extend its duration an additional 30 years until February 2052, and modify some development standards and other terms of the existing DA.

This section discusses (1) the basis for preparation of a Subsequent EIR; (2) the project requiring environmental analysis (synopsis); (3) the EIR background; (4) the legal basis for preparing a Subsequent EIR; (5) the scope and content of the Subsequent EIR; (6) the lead, responsible, and trustee agencies; (7) the environmental review process required under CEQA; and (8) an overview of the content of the Subsequent EIR. The proposed project is described in detail in Section 2, *Project Description*.

## 1.1 Basis for a Subsequent EIR

When an EIR has been adopted and a project is modified or expanded upon, additional CEQA review may be necessary. The key considerations in determining the need for the appropriate type of additional CEQA review are outlined in Section 21166 of the Public Resources Code (CEQA) and *CEQA Guidelines* §15162.

Pursuant to *CEQA Guidelines* §15162, no subsequent EIR shall be prepared unless one or more of the following conditions is present:

1. Substantial changes are proposed in the project which 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;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative

[1] The 1991 EIR is incorporated by reference and available on the City's website at: https://www.cityofberkeley.info/Planning_and_Development/Zoning_Adjustment_Board/Bayer_Development_Agreement.aspx.

Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:
   a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
   b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
   c. 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 proponents decline to adopt the mitigation measure or alternative; or
   d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

As discussed in Section 2, *Project Description*, the proposed project would involve substantial changes to the existing DA, including the addition of the North Properties into the DA; the rearranging of the campus layout through phased demolition of nine existing buildings; construction of approximately twelve new buildings for production, laboratory, and administrative uses; and replacement of surface parking with two new parking structures and new underground parking facilities. Moreover, the 1991 EIR analyzed a DA that will expire in 2022; the project would extend the DA for an additional 30 years. The proposed revisions to the amended DA and extended expiration date require revisions to the 1991 EIR. Therefore, the City has determined that the preparation of a Subsequent EIR is the appropriate approach to CEQA compliance. Consistent with *CEQA Guidelines* §15050, the 1991 EIR is incorporated into this document by reference. A summary of impacts and applicable mitigation identified in the 1991 EIR is included in the Supplemental Initial Study included as Appendix A and in Section 4, *Environmental Impact Analysis*.

## 1.2 Project Requiring Environmental Analysis

The project would involve the following amendments to the existing DA:

- Extend the DA duration an additional 30 years until February 2052
- Add the South Properties to be covered by the DA
- Allow buildout of a conceptual development plan, which proposes to rearrange the campus layout through proposed phased demolition of nine existing buildings; construction of approximately twelve new buildings for production, laboratory, and administrative uses; and replacement of surface parking with two new parking structures and new underground parking facilities

For additional information on the Development Agreement Amendment project, see Section 2, *Project Description*.

# 1.3 Environmental Impact Report Background

In 1991 the City of Berkeley (City) certified the Final EIR (State Clearinghouse [SCH] # 90030029) for the existing DA for Bayer HealthCare. This project was located within the North Properties of the Bayer Healthcare campus. To date, Bayer has partially built out the floor area allowed under the existing DA. Because Bayer acquired the South Properties after the 1999 major amendment to the 1992 DA, the South Properties are not included in the original DA's project area. The City approved a Use Permit (UP#00-10000008) for the South Properties and adopted a Mitigated Negative Declaration on July 21, 2000.

The City of Berkeley distributed a Notice of Preparation (NOP) of a Subsequent EIR for the proposed project for a 30-day agency and public review period starting on October 29, 2020 and ending on December 3, 2020. The City received 19 written responses to the NOP regarding the scope and content of the Subsequent EIR. The NOP and the NOP responses are included in Appendix B. The City also held two Subsequent EIR scoping meetings as part of the regularly scheduled Zoning Adjustments Board meeting on November 12, 2020 and Planning Commission meeting on November 18, 2020. At the hearings, members of the public, Planning Commissioners, and Zoning Adjustment Board members provided verbal comments on the scope and content of the Subsequent EIR. Applicable verbal comments from the scoping meeting attendees and written comments received are summarized in Table 1-1. Verbal and written comments applicable to the environmental analyses under CEQA are addressed, as appropriate, in the analysis contained in the various subsections of Section 4, *Environmental Impact Analysis*.

**Table 1-1 NOP Comments and Subsequent EIR Response**

| Commenter | Comment/Request | How and Where It Was Addressed |
|---|---|---|
| **Public Agencies** | | |
| California Department of Transportation (Caltrans) | Caltrans states that if the project meets the screening criteria established in the City's adopted Vehicle Miles Traveled (VMT) policy to be presumed to have a less than significant VMT impact and exempt from detailed VMT analysis, but that justification for that approach is needed. Projects that do not meet the screening criteria should include a detailed VMT analysis in the Subsequent EIR. | Impacts related to transportation and traffic are addressed in Section 4.6, *Transportation.* As described in that section, the Transportation Analysis prepared for the proposed project concludes that the project would meet City of Berkeley screening criteria for VMT impacts. |
| California Department of Fish and Wildlife (CDFW) | ▪ CDFW recommends nesting bird surveys be completed if project-related work is scheduled during the nesting season. If the qualified biologist documents active nests within the Project area or in nearby surrounding areas, an appropriate buffer between the nest and active construction should be established.<br>▪ CDFW states that project lighting to be installed should be hooded or shielded to direct light downwards and to minimize the spillage of light outwards into adjacent areas where trees are present. | Impacts related to biological resources, including nesting birds, trees, and other special status species are discussed in the Initial Study (Appendix A to this Subsequent EIR).<br>As described in the Initial Study, the project would be subject to mitigation measures that require nesting bird surveys and avoidance measures and requirements identified in the completed Bird Strike Assessment to reduce likelihood of bird collisions. In addition, the project would be subject to a mitigation measure requiring lighting control devices and shielding for outdoor lighting. |

| Commenter | Comment/Request | How and Where It Was Addressed |
|---|---|---|
| | ▪ CDFW states that the Subsequent EIR should require a Bird Collision Reduction Plan for City review and approval to reduce potential bird collisions to the maximum feasible extent. The Plan should include mandatory measures, as well as applicable and specific project Best Management Practice (BMP) strategies to reduce bird strike impacts to the maximum feasible extent. | |
| East Bay Municipal Utility District (EBMUD) | ▪ EBMUD states that a Water Supply Assessment (WSA) will be required as the project exceeds the threshold requirement for an assessment of water supply availability based on the amount of water this project would require (greater than a 250,000 square-foot commercial office building).<br>▪ EBMUD states that the Central Pressure Zone will continue to provide water service to the site and to contact the District if additional water service is needed.<br>▪ EBMUD states that there is potential for contaminated soils or groundwater to be present within the project site boundaries and that the project sponsor should be aware that EBMUD will not install piping or services in contaminated soil or groundwater.<br>▪ EBMUD states the Main Wastewater Treatment Plant would have adequate dry weather capacity for the project. | As described in Section 2, *Project Description*, the amended DA would allow a net reduction of floor area compared to the floor area allowed under the existing DA. Therefore, a WSA was not prepared for the project. Impacts related to wastewater, groundwater, and water supply are discussed in Section 4.8, *Utilities and Service Systems.* |
| **Interested Organizations** | | |
| Center for Genetics and Society | ▪ The commenter states an opinion that insufficient notice has been received by the community and Berkeley-based organizations and businesses.<br>▪ Concern about situating laboratories in West Berkeley that handle high-risk biological agent.<br>▪ Concern about the request to lift safety restrictions currently in place under the existing DA. | As described in Section 1.7, *Environmental Review Process*, the CEQA process requires several opportunities for public review and comment, including the NOP comment period, and the required comment periods for the Draft Subsequent EIR and Final Subsequent EIR. In addition to the two scoping meetings, several public hearings will be held for the proposed project in accordance with CEQA requirements.<br>Impacts related to hazardous materials, including materials used for operation of the Bayer Healthcare campus, are addressed in Section 4.4, *Hazards and Hazardous Materials.* As described in that section, under the amended DA, Bayer would continue to comply with limits described the existing DA related to use of hazardous biological materials. For example, the amended DA would continue to prohibit use of materials in |

| Commenter | Comment/Request | How and Where It Was Addressed |
|---|---|---|
| | | Risk Groups 3 and 4. In addition, under the amended DA, Bayer would continue to comply with all applicable federal, state, and local regulations, including safety protocol published by the Centers for Disease Control and National Institute of Health. |
| Alliance for Humane Biotechnology | ▪ Request that the City ask Bayer to present information on what biosafety level labs the company intends to site, provide information on how the labs will comply with federal regulations, and take an interest in what kind of research it will be possible to conduct in their labs.<br>▪ Request that Bayer not conduct research on genetically manipulating germline cells (eggs, sperm, or embryos). | CEQA is primarily concerned with physical environmental effects of the proposed project. Therefore, comments related to research ethics are not addressed in this Subsequent EIR. The does address impacts related to research activities associated with the Bayer Campus such as impacts related to energy use (Initial Study, Appendix A of the Subsequent EIR) and hazardous materials and wastes (Section 4.4, *Hazards and Hazardous Materials*). |
| **Verbal and Written Comments** | | |
| Scope of the Subsequent EIR | ▪ The project should be analyzed in a new EIR, not a Subsequent EIR. | As described above in Section 1.1, *Basis for a Subsequent EIR*, the Subsequent EIR approach is consistent with Section 15162 of the State CEQA Guidelines, which describe when a Subsequent EIR is warranted. |
| Public Notification and Comment | ▪ Concern that Bayer and the City of Berkeley have done a poor job of informing the residents of Berkeley about the proposed project.<br>▪ Concern that the scoping meetings were held online instead of in person because some may lack access to the internet or are unavailable.<br>▪ The City should ensure enough time for the public to comment and provide printed copies of comments and the CEQA document. | As described in Section 1.7, *Environmental Review Process*, the CEQA process requires several opportunities for public review and comment, including the NOP comment period, and the required comment periods for the Draft Subsequent EIR and Final Subsequent EIR. In addition to the two scoping meetings, several public hearings will be held for the proposed project in accordance with CEQA requirements.<br>The scoping meetings were held virtually in order to comply with the ongoing regional Stay at Home Order for the COVID-19 pandemic, which was issued by both the City of Berkeley and County of Alameda. |
| Aesthetics | Request that impacts on aesthetics be studied in the Subsequent EIR given the proposed change in massing. | Impacts related to aesthetics are analyzed in the Initial Study (Appendix A to this Subsequent EIR). |
| Hazardous Materials, Chemical and Biological Safety, and Scientific Ethics | ▪ The EIR should contain a comprehensive list of all hazardous and dangerous materials currently manufactured, used and/or stored at the southwest Berkeley Bayer compound.<br>▪ Concern that Bayer is producing and releasing dangerous chemicals.<br>▪ Concern that Bayer has a history of unethical practices.<br>▪ Concern that Bayer is or will be involved with genetic engineering | Impacts related to hazardous materials, including materials used for operation of the Bayer Healthcare campus, are addressed in Section 4.4, *Hazards and Hazardous Materials.*<br>Comments related to research ethics are not addressed in this Subsequent EIR. The Subsequent EIR does address impacts related to research activities associated with the Bayer Campus such as impacts related to energy use (Initial Study, Appendix A of the Subsequent EIR) and hazardous materials and wastes (Section 4.4, *Hazards and Hazardous Materials*). |

| Commenter | Comment/Request | How and Where It Was Addressed |
|---|---|---|
| | research which could pose safety concerns.<br>▪ The importance of no using any animals in testing in any research or clinical trials.<br>▪ There should be an agreement that Bayer's controversial weed killer Glycophate – Round-Up will not be manufactured in Berkeley, nor allowed to be sold, stored nor used anywhere in Berkeley. | As described Section 4.4, operation under the amended DA would continue to be required to comply with limits and mitigation measures identified in the 1991 EIR related to safety protocols, use of biological and chemical materials, and preparation for accidental release of hazardous materials. The amended DA would continue to prohibit use of materials in Risk Groups 3 and 4. In addition, under the amended DA, Bayer would continue to comply with all applicable federal, state, and local regulations related to safety protocol for laboratory operations and emergency preparedness. |
| Drought and Water Supply | ▪ The Subsequent EIR should analyze the likely worsening drought conditions in the SF Bay Area, and the resulting declining East Bay water supply. | Impacts related to water supply and demand and drought conditions are addressed in Section 4.8, *Utilities and Service Systems.* |
| Noise | ▪ Concern about impacts of pile driving on nearby residential neighborhoods. | Impacts related to noise, including noise from construction activities such as pile drivers, are addressed in Section 4.5, *Noise.* As described in that section, pile drivers would not be used during construction activities. |
| Public Services and Emergency Evacuation | ▪ The SUBSEQUENT EIR should consider the likely closure of Alta Bates Hospital and its emergency room, and the additional time it will take to get to an emergency room in Oakland.<br>▪ The Subsequent EIR should evaluate impacts to emergency evacuation routes and plans. | Impacts related to emergency services are addressed in the Initial Study (Appendix A to this Subsequent EIR). Impacts related to emergency evacuation routes are discussed in Section 4.4, *Hazards and Hazardous Materials* and Section 4.6, *Transportation*. |
| Transportation | ▪ Concern that the project would generate an increase in vehicle miles traveled.<br>▪ Cumulative development in Berkeley is significantly worsening traffic congestion in Berkeley and will dramatically add to the time it will take to reach an emergency room several miles south of Berkeley in Oakland. | Impacts related to traffic impacts are discussed in Section 4.6, *Transportation*. As described in that section and pursuant to California Public Resources Code section 21099(b(2) and *CEQA Guidelines* §15064.3, "a project's effect on automobile delay shall not constitute a significant environmental impact." Therefore, impacts related to traffic congestion are not addressed in this Subsequent EIR. |

| Commenter | Comment/Request | How and Where It Was Addressed |
|---|---|---|
| Coronavirus Pandemic | ▪ The Subsequent EIR should analyze how the reliance on public transit by Bayer employees will be affected the Coronavirus pandemic.<br>▪ The maximum number of employees that can safely work at the Bayer compound needs to carefully be reassessed based on the Coronavirus pandemic. How can social distancing be safely practiced if there are a thousand or more new Bayer employees in Berkeley? | The Subsequent EIR relies on a variety of data sources to accurately describe the project "baseline" which are the existing environmental conditions at the time of the NOP release. The validity of data in light of the COVID-19 pandemic was taken into account while preparing the analysis.<br>Since this Program Subsequent EIR envisions changes over the next 30 years through 2052 it does not include the temporary conditions associated with the County's shelter-in-place order. Overall, this Subsequent EIR analysis generally assumes that long-term behaviors (such as social distancing) would be similar to conditions prior to the start of the pandemic, because, at present, the medium- or long-term effects of the COVID-19 pandemic on behavior are uncertain and it would be speculative to estimate any potential long-term or permanent changes. Further, as described in Section 2, *Project Description*, buildout under the amended DA would result in a net increase of 108 employees compared to baseline conditions. |

## 1.4 Purpose and Legal Authority

The proposed project requires the discretionary approval of the City of Berkeley; therefore, the project is subject to the environmental review requirements of CEQA. In accordance with *CEQA Guidelines* §15121 (California Code of Regulations, Title 14), the purpose of this Subsequent EIR is to serve as an informational document that:

> "will inform public agency decision makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project."

As discussed above, this document is a Subsequent EIR to the 1991 EIR pursuant to sections 15162 and 15163 of the *CEQA Guidelines*. A Subsequent EIR is appropriate when "substantial changes are proposed in the project which will require major revisions of the previous EIR."

This Subsequent EIR is intended to serve as an informational document for the public and City of Berkeley decision makers. The process will include public hearings before the Planning Commission to consider certification of a Final Subsequent EIR and approval of the proposed project.

This Subsequent EIR contains a program-level environmental review that fulfills the requirement of a program-level Subsequent EIR. As defined in *CEQA Guidelines* §15168, a Program EIR is appropriate when a project can be characterized as one large project consisting of a series of actions that are related either geographically; as logical parts in a chain of contemplated actions; in connection with rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

Although the legally required contents of a Program EIR are the same as those of a Project EIR, Program EIRs are typically more conceptual and may contain a more general discussion of impacts, mitigation measures, and alternatives than a Project EIR. As provided in *CEQA Guidelines* §15168, a Program EIR may be prepared on a series of actions that may be characterized as one large project. Use of a Program EIR provides the City (as Lead Agency) with the opportunity to consider broad policy alternatives and program-wide mitigation measures and provides the City with greater flexibility to address environmental issues and/or cumulative impacts on a comprehensive basis.

In practice, this Program Subsequent EIR could be utilized as a first tier of environmental review for subsequent activities that include site-specific environmental review of new development projects in accordance with the amended DA. For future projects within the project sites, if new effects could occur due to project discrepancies when compared to the program, or due to a change in baseline conditions, an EIR or a Negative Declaration would be required for the specific future project. Prior to the issuance of any entitlements for future development associated with the subsequent tier projects, the City must determine either that the Program Subsequent EIR analysis is sufficiently specific and comprehensive to cover future projects or require additional environmental review and documentation. Subsequent environmental review could be limited to project-level impacts which (a) were not examined in this Program Subsequent EIR, and (b) would be more significant than described in this Program Subsequent EIR.

This Subsequent EIR serves as an informational document for the public and for the City of Berkeley decision makers. The process will include public hearings before the Planning Commission to consider certification of a Final Subsequent EIR and approval of the proposed project

## 1.5 Scope of this Subsequent EIR

This Subsequent EIR addresses the following environmental issue areas as well as other CEQA mandated issues (i.e., cumulative impacts, growth-inducing impacts significant unavoidable impacts, alternatives):

- Air Quality
- Cultural Resources
- Greenhouse Gas Emissions
- Hazardous and Hazardous Materials
- Noise
- Transportation
- Utilities and Service Systems

The Initial Study (Appendix A to this Subsequent EIR) addresses other issue areas listed in Appendix G of the CEQA Guidelines. The alternatives section of the Subsequent EIR (Section 6) was prepared in accordance with *CEQA Guidelines* §15126.6 and focuses on alternatives that are capable of eliminating or reducing significant adverse effects associated with the project while feasibly attaining most of the basic project objectives. In addition, the alternatives section identifies the “environmentally superior” alternative among the alternatives assessed. The alternatives evaluated include the CEQA-required “No Project” alternative and two alternative development scenarios for the project area.

The level of detail contained throughout this Subsequent EIR is consistent with the requirements of CEQA and applicable court decisions. *CEQA Guidelines* §15151 provides the standard of adequacy on which this document is based:

> An EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

In preparing the Subsequent EIR, use was made of pertinent policies and guidelines, certified EIRs and adopted CEQA documents, and other background documents. A full reference list is contained in Section 7, *References*.

## 1.6 Lead, Responsible, and Trustee Agencies

The *CEQA Guidelines* define lead, responsible and trustee agencies. The City of Berkeley is the lead agency because it holds principal responsibility for approving the proposed project.

A responsible agency refers to a public agency other than the lead agency that has discretionary approval over the proposed project. There are no responsible agencies for the proposed DA amendment. However, State, regional and/or local government permits may be required for development under the amended DA, whether or not they are explicitly listed below. State and regional agencies that may have jurisdiction over some aspects include (but are not limited to):

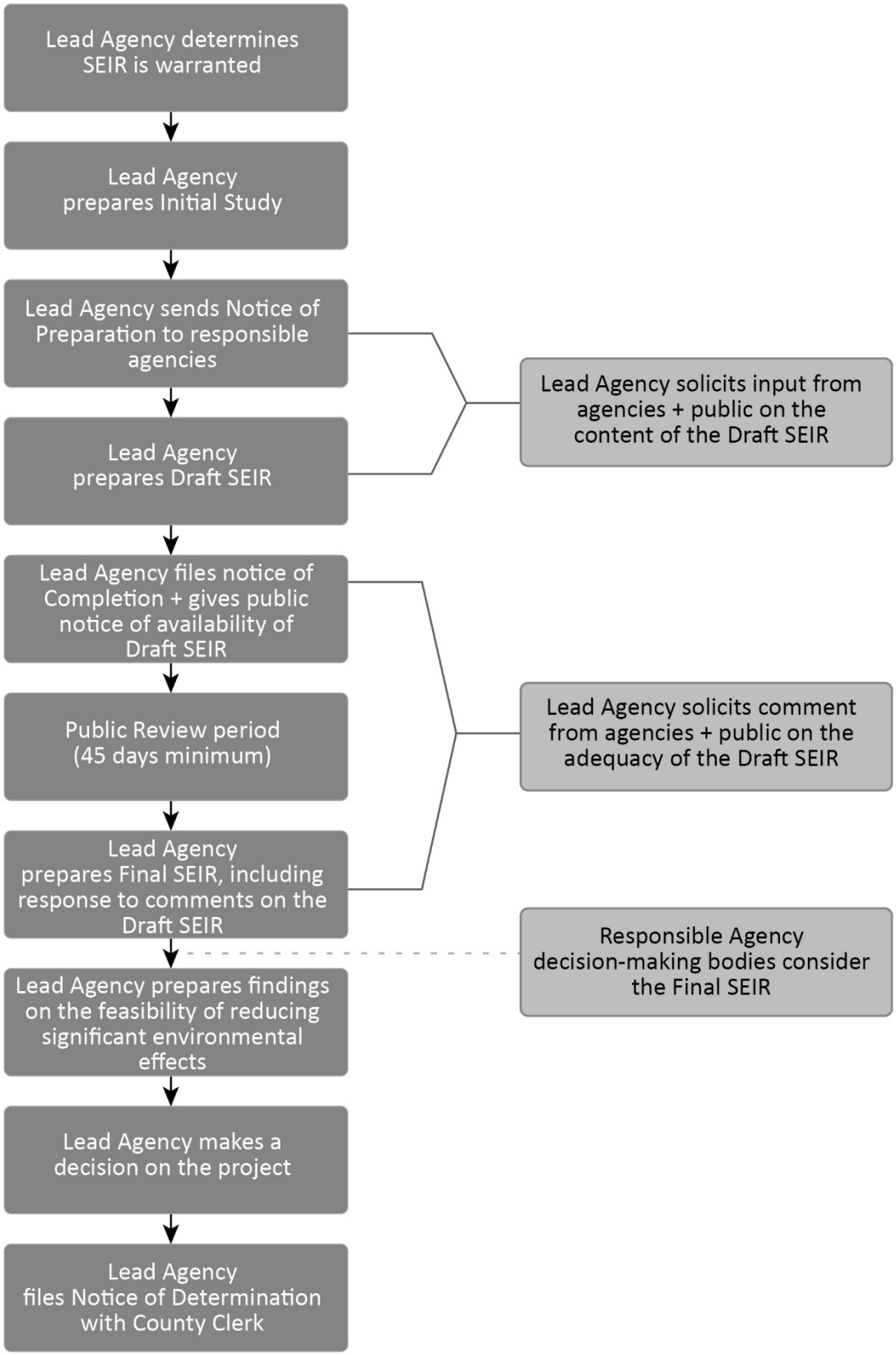
- California Department of Fish and Wildlife
- San Francisco Bay Regional Water Quality Control Board
- California Department of Transportation (Caltrans)
- Department of Toxic Substances Control

Trustee agencies have jurisdiction over certain resources held in trust for the people of California but do not have a legal authority over approving or carrying out the project. *CEQA Guidelines* §15386 designates four agencies as trustee agencies: the California Department of Fish and Wildlife with regards to fish and wildlife, native plants designated as rare or endangered, game refuges, and ecological reserves; the State Lands Commission, with regard to State-owned “sovereign” lands, such as the beds of navigable waters and State school lands; the California Department of Parks and Recreation, with regard to units of the State park system; and, the University of California, with regard to sites within the Natural Land and Water Reserves System. There are no trustee agencies for the proposed DA amendment.

## 1.7 Environmental Review Process

The environmental impact review process, as required under CEQA, is summarized below and illustrated in Figure 1-1. The steps are presented in sequential order.

**Figure 1-1 Environmental Review Process**



1. **Determination that Subsequent EIR is warranted.** When an EIR has been certified for a project, a lead agency must determine if a Subsequent EIR should be prepared due to substantial changes to the project, circumstances under which the project was approved, or new information. As described in Section 1.1, *Basis for a Subsequent EIR*, the proposed project would involve substantial changes to the existing DA, which require revisions to the 1991 EIR. Therefore, the City has determined that the preparation of a Subsequent EIR is the appropriate approach to CEQA compliance.
2. **NOP**. Pursuant to the provision of *CEQA Guidelines* §15082, the City (as lead agency) issued a NOP for public review and comment (see Appendix A of this Subsequent EIR). As required by CEQA Guidelines Section 15375, an NOP is a brief document sent by the lead agency to notify the responsible agencies, trustee agencies, the Governor's Office of Planning and Research (OPR), and other involved agencies that the lead agency plans to prepare a Subsequent EIR for a project. The purpose of the notice is to solicit guidance from those agencies as to the scope and content of the environmental information to be included in the Subsequent EIR and to solicit recommendations and develop information regarding the scope, focus, and content of the Subsequent EIR.

   The public review and scoping period for the Bayer Healthcare LLC DA Amendment NOP was from October 29, 2020 and ending on December 3, 2020 in accordance with *CEQA Guidelines* §15082. In addition, the City of Berkeley held two scoping meetings. The Zoning Adjustments Board held a scoping meeting on November 12, 2020, and the Planning Commission held a scoping meeting on November 18, 2020 to give the public opportunity to receive more information on the proposed project and to provide comments and suggestions on the scope of the Subsequent EIR. Comments on the scope and content of the Subsequent EIR were received and written comments are included in Appendix B of this Subsequent EIR.
3. **Draft Subsequent EIR.** Public and agency review of the Bayer Healthcare LLC DA Amendment will be further encouraged through distribution of the Draft Subsequent EIR for at least the required 45-day public review period.

   Written comments should be submitted by mail or email with appropriate contact information, to the following:

   Leslie Mendez, Senior Planner
   Planning and Development Department
   1947 Center Street, 2nd Floor
   Berkeley, CA 94704
   LMendez@cityofberkely.info

   Any agency, organization, or members of the public desiring to comment on the Subsequent EIR must submit their comments prior to the end of the public comment period.
4. **Notice of Completion.** The provisions of Sections 15085(a) and 15087(a)(1) of the *CEQA Guidelines* require that as soon as the Draft Subsequent EIR is completed, the lead agency must file a Notice of Completion (NOC) with OPR and that a public Notice of Availability (NOA) be provided to all organizations and individuals who have previously requested notification. The City, serving as the lead agency, provided the NOC to OPR and circulated an NOA of the Draft Subsequent EIR to campus organizations, in addition to public agencies, special districts, tribal representatives, organizations, and individuals that commented on the NOP and/or requested to be kept informed of the proposed project.

5. **Final Subsequent EIR.** A Final Subsequent EIR consists of the Draft Subsequent EIR; revisions to the Draft Subsequent EIR; responses to comments addressing concerns raised by individuals, organizations, and public agencies or other reviewing parties; and a Mitigation Monitoring and Reporting Program (MMRP). According to PRC Section 21081.6, for projects in which significant impacts would be minimized by mitigation measures, the lead agency must include an MMRP. The purpose of an MMRP is to ensure compliance with required mitigation measures during implementation of the project. After the Final Subsequent EIR is completed, and at least 10 days prior to its certification, a copy of the response to comments on the Draft ESIR will be provided or made available to all commenting parties.
4. **Certification of Final Subsequent EIR.** Prior to making a decision on the proposed project, the lead agency must certify that: (a) the Final Subsequent EIR has been completed in compliance with CEQA; (b) the Final Subsequent EIR was presented to the decision-making body of the lead agency; and (c) the decision-making body reviewed and considered the information in the Final Subsequent EIR prior to approval (*CEQA Guidelines* §15090).
5. **Lead Agency Project Decision.** The lead agency may: (a) disapprove the project because of its significant environmental effects; (b) require changes to the project to reduce or avoid significant environmental effects; or (c) approve the project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (*CEQA Guidelines* §15042 and §15043).
6. **Findings/Statement of Overriding Considerations**. For each significant impact of the proposed project identified in the Subsequent EIR, the lead agency must find, based on substantial evidence, that either: (a) the Campus Master Plan has been changed to avoid or substantially reduce the magnitude of the impact; (b) changes are within another agency's jurisdiction and such changes have or should be adopted; or (c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible (*CEQA Guidelines* §15091). If an agency approves a project with unavoidable significant environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.
7. **Mitigation Monitoring/Reporting Program.** When the lead agency makes findings on significant effects identified in the EIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects.
8. **Notice of Determination (NOD).** The lead agency must file a NOD after deciding to approve a project for which a Subsequent EIR is prepared (CEQA Guidelines Section 15094). A local agency must file the NOD with the County Clerk. The NOD must be posted for 30 days and sent to anyone previously requesting notice. Posting of the NOD starts a 30-day statute of limitations on CEQA legal challenges (Public Resources Code Section 21167[c]).

## 1.8 Draft Subsequent EIR Content

The contents of the Subsequent EIR include the following:

- **Executive Summary** – presents a brief synopsis of the proposed project, including project objectives, and an overview of project alternatives. This section also provides a table summarizing project environmental impacts, mitigation measures, and the level of significance of impacts after mitigation.
- **Section 1, Introduction** – provides an overview of the purpose and type of Subsequent EIR, the Subsequent EIR process, the intended uses of the Subsequent EIR, and an overview of the format and contents of the Subsequent EIR.
- **Section 2, Project Description** – provides a detailed description of the proposed project, including its location, background information, objectives, and physical characteristics.
- **Section 3, Environmental Setting** – provides a general overview of the environmental setting for the proposed project, including the regional setting and the project site setting.
- **Section 4, Environmental Impact Analysis** – presents an analysis of environmental impacts for each environmental factor. Each subsection contains a description of the environmental setting (or existing conditions); identifies the significance criteria used to determine whether impacts would be significant or less than significant; discusses the impacts; describes mitigation measures to reduce significant environmental impacts; and describes cumulative impacts.
- **Section 5 - Other CEQA Considerations** – summarizes impacts that would result from the proposed project, including significant environmental effects, significant and unavoidable environmental effects, irreversible changes to the environment, and growth-inducing impacts.
- **Section 6, Alternatives** – describes potentially feasible alternatives to the proposed project that may attain most of the basic project objectives while avoiding or substantially lessening any of its significant effects. The analysis evaluates the environmental effects resulting from each alternative, compares these effects to those resulting from the proposed project, and describes the relationship of each alternative to the project objectives.
- **Section 7, References** – lists the documents and materials referenced in the text of the document.

*This page left intentionally blank*

# 2 Project Description

The proposed project would consist of an amendment the existing Development Agreement (DA) between Bayer HealthCare LLC ("Bayer") and the City of Berkeley. This section describes the proposed project, including the project proponent, lead agency, existing setting of the project site, project objectives, key elements of the project, potential buildout under the project, and the approvals needed to implement the proposed project.

## 2.1 Project Proponent

Bayer HealthCare LLC
800 Dwight Way
Berkeley, California 94710

## 2.2 Lead Agency and Lead Agency Contact Person

City of Berkeley
Planning and Development Department
1947 Center Street, 2nd Floor
Berkeley, California 94704

Leslie Mendez, Senior Planner
Phone: (510) 981-7426
Email: LMendez@cityofberkeley.info

## 2.3 Project Location and Setting

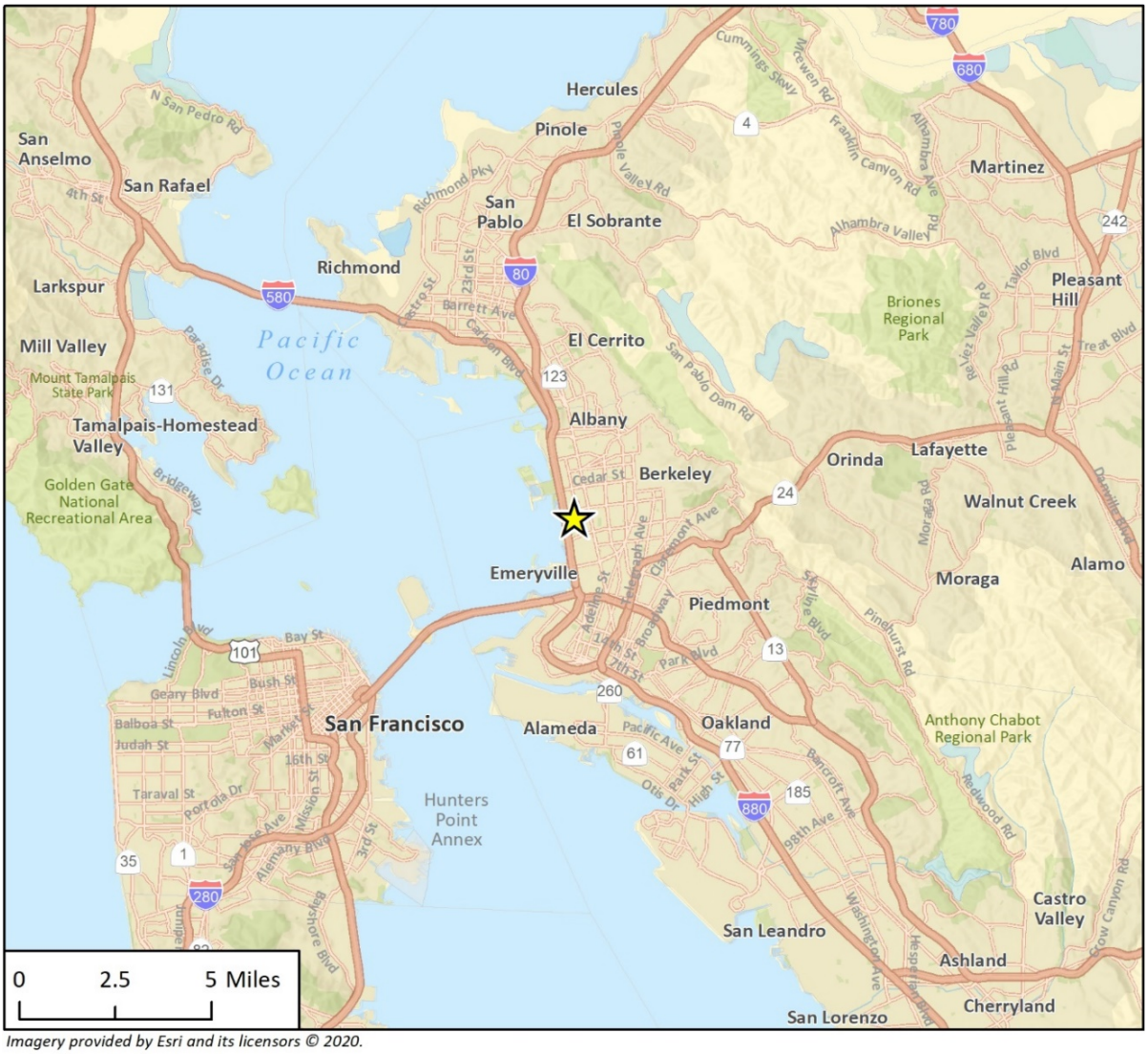
### Regional and Neighborhood Location

As shown in Figure 2-1 (Regional Location), the project site is situated in the City of Berkeley. The site is in West Berkeley, as defined in the 1993 West Berkeley Plan (Berkeley 1993). West Berkeley extends from San Pablo Avenue (SR 123) on the east to the Eastshore Freeway (Interstate 80/I-580) on the west, and is bounded by the City of Albany to the north and the cities of Emeryville and Oakland to the south. West Berkeley supports a mix of land uses including manufacturing, retail, laboratory, and residential uses.

### Project Site Location and Existing Conditions

The project site is the Bayer HealthCare campus (generally known as the "Bayer Campus") in West Berkeley, approximately 2.5 miles west of Downtown Berkeley. As shown in Figure 2-2 (Project Site Location), the Bayer Campus consists of approximately 46 acres generally bounded by the railroad right-of-way and tracks to the west, Dwight Way to the north, Seventh Street to the east, and Grayson Street to the south. In addition, the project site includes a surface parking lot on a property between Dwight Way, Seventh Street, Parker Street, and Eighth Street. The project site comprises two primary areas divided by Carleton Street:

## Figure 2-1 Regional Location




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

Project Location

N

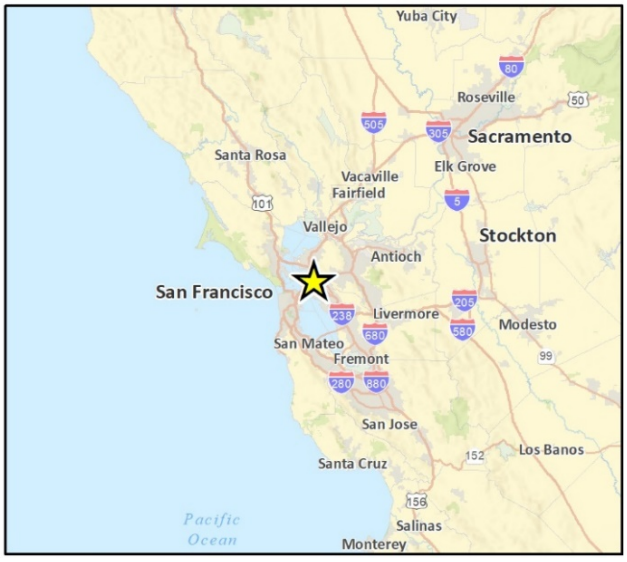


**Figure 2-2 Project Site Location**


*Imagery provided by Microsoft Bing and its licensors © 2020.*

Fig 2-2 Project Site Location

- The North Properties at 800 Dwight Way, which includes 31.9 acres north of Carleton Street; and
- The South Properties at 801 Grayson Street, which includes 14.4 acres south of Carleton Street.

Table 2-1 lists the five parcels that comprise the project site. (Three contiguous parcels near the corner of Carleton Street and Seventh Street are not owned by Bayer and are outside of the project site.)

**Table 2-1 Parcels in the Project Site**

| Property | Parcels |
|---|---|
| North Properties | 54-1770-8-1 |
| | 54-1773-3-4 |
| | 54-1777-1 |
| | 54-1777-2 |
| South Properties | 54-1748-2-1 |

Source: Berkeley 2020a, City of Berkeley Community GIS Portal

The topography on-site is relatively flat, with an elevation approximately 32 feet above mean sea level (Farallon Consulting 2020). Most of the project site is covered with impervious surfaces (i.e., buildings or pavement) and unvegetated. However, the site includes some trees in landscaped strips around buildings and parking lots and a small amount of open space.

The Bayer Campus currently has 35 buildings (counting main, annex, and temporary buildings). Table 2-2, shown on the page, lists each building and describes its functions.

The total floor area of existing buildings is approximately 1,087,000 square feet, including 567,000 square feet on the North Properties and 520,000 square feet on the South Properties. Existing development on the project site accommodates six land uses:

1. Production: pilot plants, processing areas, and fill and finishing areas;
2. Laboratories: research into production and manufacturing technologies, quality assurance examination and testing of therapeutic pharmaceuticals;
3. Warehouse: holding space for distribution of products;
4. Administration: offices, conference rooms, computer rooms, fitness/health facilities, security, training rooms, library, and cafeteria;
5. Utilities: equipment for water distillation, refrigeration, electrical operations, and steam generation; and
6. Maintenance: workshops and maintenance bays for repair, replacement, and preventative activities.
7. An ancillary use is parking. Eight surface parking lots with a total of approximately 1,082 spaces are dispersed around the project site.
8. Building heights on the project site range from approximately 14 feet to the 100-foot building B83.[1]

[1] Building B83 is the former Colgate-Palmolive tower on the South Properties.

**Table 2-2 Existing Buildings on the Project Site**

| Building No. | Building Name | Functions |
|---|---|---|
| B28 | GBD Laboratory | Quality control laboratory |
| B28A | GBD/QC Labs | Fire department and quality control laboratory |
| B44 | Utilities | Water treatment system |
| B46 | R&D Pathogen Safety Lab | Special access laboratory |
| B47 | Warehouse | Spare parts warehouse |
| B48 | Information Systems | Vacant; permitted for demolition in late 2020 |
| B53 | Office, Lab, and QA Documentation | Quality control laboratory |
| B54 | Cold Storage | Refrigerated warehouse |
| B56 | Engineering Offices | Engineering offices |
| B56A | Engineering Offices | Engineering offices |
| B56B | Engineering Offices | Engineering offices |
| B57 | R&D Office and Labs | Analytical methodology laboratory |
| B58 | Office and Auditorium | Administrative offices, auditorium |
| B59 | Purified Water | Water treatment system |
| B60 | rFVIII API Production | Production, biohazard storage, biotech wastewater treatment |
| B61 | Main Electrical Substation | Electrical equipment facility |
| B62 | Refrigeration | Process cooling |
| B62A | Refrigeration | Process cooling |
| B63 | Utilities Steam | Water treatment system |
| B64 | Cafeteria/Administration | Administrative offices, cafeteria |
| B66 | Clinical Manufacturing | Production, wastewater treatment |
| B67 | Compressed Air Building | Clean dry air supply |
| B68 | Cell Culture Technology Center[1] | Cell culture |
| B80 | Warehouse | Product warehouse |
| B81 | FPM Production | Sterile production, wastewater treatment |
| B82 | Refrigeration | Process cooling |
| B83 | Colgate-Palmolive Tower | General storage |
| B84 | Vacant | General storage |
| B85 | Quality Control Labs | Quality control laboratory |
| B87 | Hazmat Storage[2] | Hazardous materials warehouse |
| B88 | QC Office and Lab | Quality control laboratory, offices |
| SC-6 | R&D Offices | Administrative and research offices |
| T6A[3] | Security | Security services |
| T50E | Security | Security services |
| T50F | Security | Security services |

[1] Building B68 is currently under construction.

[2] Hazardous materials are also stored to lesser extents in B28, B28A, B44, B46, B47, B48, B53, B56A, B57, B58, B59, B60, B61, B63, B64, B66, B67, B80, B81, B82, B83, B85, B87 (Hazmat Storage), and B88, as identified in the Phase I ESA for the Bayer Campus.

[3] Building T6A is a temporary trailer.

Source: Farallon Consulting, LLC 2020

9. Figure 2-3, Figure 2-4, and Figure 2-5 show photographs of existing conditions at representative locations on the project site and Figure 2-6 shows a map of the photo locations within the Bayer Campus for reference.

## Surrounding Land Uses

The project site is bordered by a mixture of industrial, commercial, and residential land uses. As discussed above, the Bayer Campus partially surrounds three parcels on the northwest corner of Carleton Street and Seventh Street that are not owned by Bayer. These properties include a provider of industrial metal coatings (Electro-Coatings), an electronic bicycle store (Pacific E-Bike), and the former Macaulay Foundry (currently vacant due to Notice and Order of Unsafe Building issued February 2016, with an underlying permitted use of light manufacturing).

The railroad right-of-way is immediately west of the project site. Farther to the west are the City's Aquatic Park (approximately 100 feet away), Interstate 80/580 (I-80/580), and the San Francisco Bay Trail on the west side of I-80/I-580, with the San Francisco Bay shoreline beyond.

Industrial and commercial uses occur to the south of the project site. These include manufacturers of adhesives (Henkel Corporation) to the south of Grayson Street and of medical products (Berkeley Advanced Biomaterials) on Seventh Street to the south of Grayson Street. A restaurant, 900 Grayson, is located southeast of the project site at the corner of Grayson and Seventh Street, with single family residential uses existing farther east. A day care center is located at 830 Heinz Avenue, approximately 800 feet south of the project site's frontage on Grayson Street.

Primarily commercial, educational, and institutional land uses are located to the east of the project site. On the east side of Seventh Street, these land uses include the following:

- A private school providing preschool through eighth-grade classes (Ecole Bilingue de Berkeley);
- An audio-visual consultant (AVI-SPL);
- An office space for small business owners, entrepreneurs, craftspeople, and artists (ActivSpace);
- An eyewear manufacturer (EnChroma, Inc.);
- A cell phone store (Tehama Wireless Design Group);
- A food caterer (Trumpetvine Catering); and
- An art gallery and event venue (Lumen Labs).

An artisan food manufacturer (La Tourangelle) and an early education and preschool center (Bright Horizons at Bayer) are located on Parker Street east of Seventh Street. In addition, a church (Dance Jam) is on Eighth Street between Dwight Way and Parker Street.

Commercial, industrial, and residential uses occur to the north of Dwight Way: several multi-family residences between Seventh Street and Eighth Street; multi-family residences on Fifth Street; a mechanical engineering consulting firm (Acrokin Engineering, Inc.); a courier service (Bay Area Mailing Services); a mobility equipment supplier (Rio Mobility); a custom apparel manufacturer (G-Bear Prints); and an industrial warehouse east of the railroad tracks.

**Figure 2-3 Site Photographs: North Properties**

**Photograph 1.** Westward view from Fourth Street to the rFVIII API building (B60).

**Photograph 2.** View looking northwest to laboratory building B53, south of Dwight Way.

**Figure 2-4 Site Photographs: North Properties**


**Photograph 3.** Northward view to laboratory buildings B28 and B28A to south of Dwight Way.

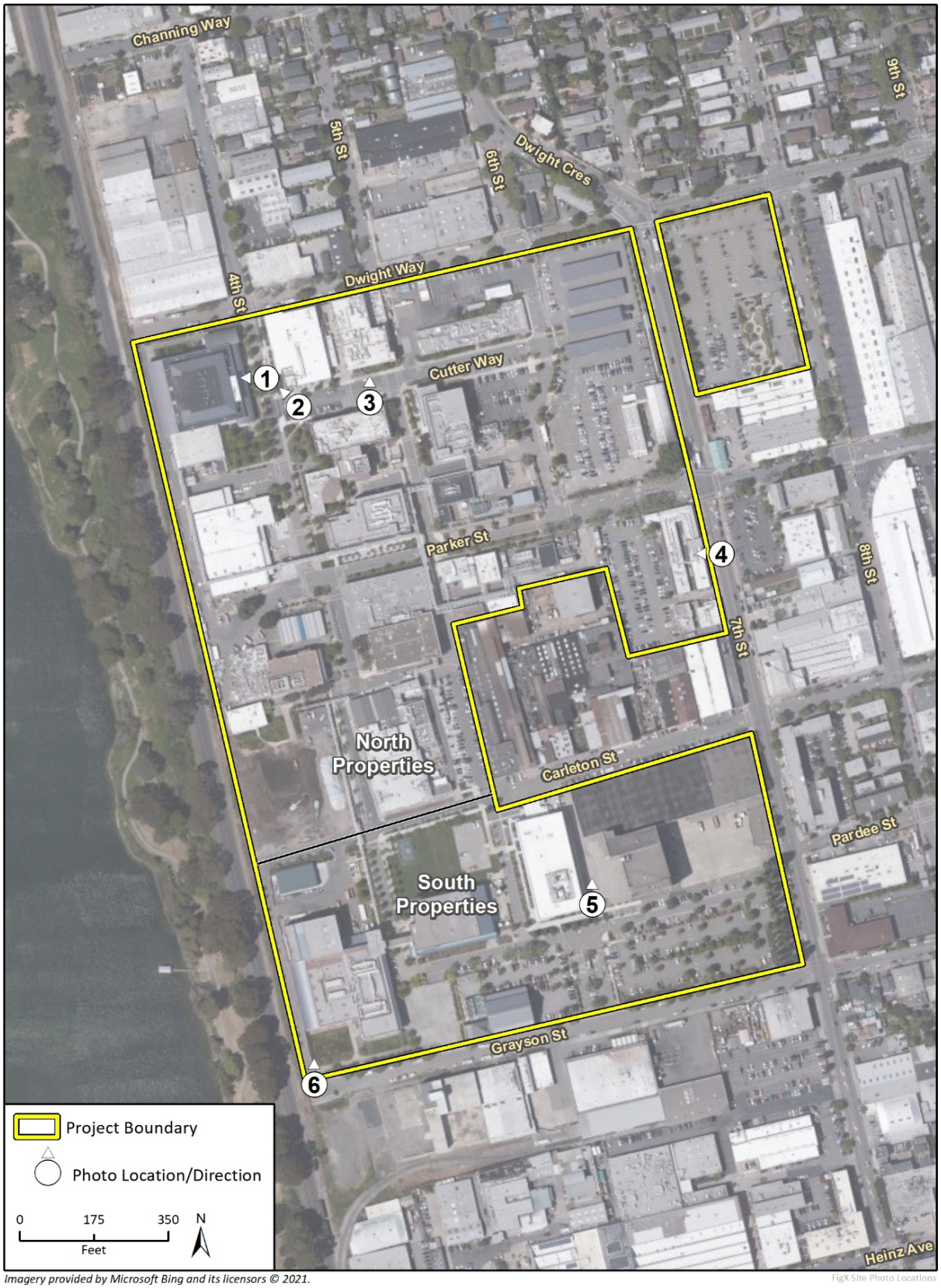
**Photograph 4.** Westward view from Seventh Street of engineering offices building B56.

**Figure 2-5 Site Photographs: South Properties**

**Photograph 5.** Northward view of buildings B83 (to right) and B84 (to left) on the South Properties.


**Photograph 6.** Northward view of building B80 on the South Properties, adjacent to railroad tracks.

**Figure 2-6 Map of Photograph Locations**



# 2.4 Regulatory and Land Use Setting

## Development Agreement for North Properties

The North Properties are subject to an existing DA between Miles, Inc. and the City of Berkeley, which was approved in February 1992. Miles, Inc. was a subsidiary of Bayer AG at the time and was consolidated into the parent company in 1995. The existing DA has a term of 30 years and expires in February 2022. The DA's Site Development Plan allows for construction of up to 1,167,000 square feet of new gross floor area, retention of up to 179,000 square feet of gross floor area in existing buildings, and associated surface parking lots or parking structures. It allows for phased construction of new buildings and phased demolition of existing buildings on the project site over the 30-year lifespan of the agreement. To date, Bayer has partially built out the additional floor area allowed under the existing DA. Bayer has also demolished 32 of the 39 buildings that were permitted for demolition on the North Properties under the original DA.

The existing DA includes the following exhibits:

- Exhibit A: Map of the Project Site and Surrounding Area
- Exhibit B-1: Legal Description of Miles Property
- Exhibit B-2: Legal Description of Steelcutter Properties
- Exhibit C: Site Development Plan
- Exhibit D: Site Development Standards
- Exhibit E: Phasing Plan for the Project
- Exhibit F: Summary of Public Infrastructure, Community Programs and Development Fees
- Exhibit G-1: Biotechnology Education Training Program
- Exhibit G-2: Employment-Hiring Program
- Exhibit G-3: Affordable Housing Program
- Exhibit G-4: Child Care Program
- Exhibit G-5: Public Infrastructure Plan
- Exhibit G-6: Transportation Demand Management Program
- Exhibit G-7: Historic Preservation and Public Art
- Exhibit G-8: Environmental Protection
- Exhibit G-9: Community Programs
- Exhibit G-10: Animal Care and Usage
- Exhibit G-11: Peace and Justice Program
- Exhibit H: Monitoring and Reporting Program
- Exhibit I: Site Planning and Architectural Design Guidelines
- Exhibit J: Special Conditions
- Exhibit K: Findings Pursuant to the California Environmental Quality Act
- Exhibit L: Report of City's Independent Engineering Consulting on Justification for Heights in Excess of Forty-Five Feet
- Exhibit M: Project Description

Exhibit C (Site Development Plan) in the existing DA defines permitted uses, building heights, and floor area ratios on the North Properties, and identifies the locations of permitted uses. Exhibit D (Site Development Standards) sets additional height standards; minimum roadway widths; access, parking, and loading standards; and landscape treatment standards. These site-specific development standards supersede standards in the Zoning Ordinance for the MM and MU-LI zoning districts, which were adopted in 1999. However, where the DA's development "standards are silent with regard to any standard or definition, the standards and definitions set forth in the City of Berkeley 1991 Zoning Ordinance… shall apply."

Exhibit G-8 (Environmental Protection) includes requirements for the proper use of hazardous materials, energy and water conservation, waste reduction, dust suppression, noise reduction, and seismic safety.

Exhibit J (Special Conditions) includes conditions pertaining to the processing and issuance of the discretionary approvals for the project (see also the "Land Use Review" section). This exhibit establishes the process and requirements for design review and use permit applications for future development on the North Properties.

Ordinance 6106-N.S. to adopt the original DA specified that the DA was not subject to the provisions of Chapter to 3.24 of the Berkeley Municipal Code (Landmarks Preservation Ordinance).

### Use Permit for South Properties

The South Properties are subject to a Use Permit approved by the City on July 21, 2000. This permit remains in effect and does not have an expiration date. The Use Permit allows for the following actions:

- Construction of a 210,000 square-foot warehouse packaging facility
- Construction of a 120,000 square-foot sterile fill building
- Refurbishing and reuse of four buildings as office and warehouse space with 207,900 square feet
- Demolition of vacant buildings
- Construction of parking spaces
- Modification of applicable development standards for parking facilities

Bayer has partially built out the South Properties under the Use Permit. The sterile fill building (B81) is 46,143 square feet, and Bayer is not seeking to expand this building to the permitted 120,000 square feet. Refurbishing and reuse of four buildings as office and warehouse space also has not occurred.

## 2.5 Project Objectives

The applicant's three objectives for the project are as follows:

- Maximize Bayer's ability to attract and retain top talent and partners by ensuring that the Berkeley campus facilities are at the forefront of scientific innovation, and that the campus' physical configuration and design support this goal and facilitate and enhance the site's existing and future ability to support the biotech development and manufacture of medicines that improve patient outcomes.

- Promote health of employees through wellness features, such as open green space, pedestrian and bicycle circulation, and other amenities, and create a unified campus with consistent design principles that creates a sense of place within the campus and that integrates with the surrounding community.
- Maximize the productive utilization of the land areas and current buildings to take new treatments through biotech development and manufacturing, with a priority on commercializing new therapies using new and innovative technologies, and ensure that (1) there is sufficient biotech development space to develop advanced therapies that are tailored to individual patients, with development proceeding at a rate that maximizes the ability to deliver successful therapies to patients in a timely manner; (2) there is sufficient biological research and manufacturing capacity to support the production of sufficient quantities of medicine through the numerous phases of clinical trials that are required to prove safety, purity, and efficacy for human use; (3) there is sufficient space to scale up proven medicines for commercial lunch in quantities sufficient to meet worldwide demand; (4) the development plan retains flexibility to take advantage of unforeseen opportunities and challenges; and (5) there is an efficient site configuration that maximizes open space needs and other amenities benefiting employees and the community.

## 2.6 Proposed Project Elements

The proposed project would extend Bayer's DA, which is currently set to expire in February 2022 for another 30 years to February 2052. While the existing DA only applies to the North Properties, the proposed project would amend the DA to cover both the North Properties and South Properties. The amended DA would also modify certain development standards and other aspects of the existing DA (mainly in Exhibits C and D).

Specific elements of the proposed project are discussed below.

### Permitted Uses and Activities

Exhibit C of the existing DA allows six land uses in addition to the ancillary use of parking: administration, laboratories, maintenance, production, utilities, and warehouses. The proposed project would not change the type or definition of allowed land uses in Exhibit C. Currently, non-product oriented recombinant DNA (rDNA) research is prohibited in Exhibit M of the existing DA. The proposed project would revise the list of activities allowed in Exhibit M to include the following types of DNA research:

- Creating new cell lines for manufacture of protein therapeutics, viral vectors, or cell therapies using gene editing technologies such as clustered regularly interspaced short palindromic repeats (CRISPR).
- Manufacture of gene editing reagents. These include short- and long-chain RNA, nucleases, plasmids and synthetic nanoparticles. RNA molecules may be manufactured via chemical synthesis or in vitro transcription methods. Nucleases and plasmids may be manufactured using prokaryotic cells.
- Manufacture of non-replication-competent viral vectors.
- Manufacture of cell therapy products derived from stem cells or other donor cells. Cell therapy products may include engineered tissues for engraftment into humans.
- To the extent not covered above, rDNA research including (1) exploration of new types of organisms as hosts and vectors for transmission of genes, or expression of genes; (2)

research to develop new rDNA techniques; and (3) investigations to develop new ways to construct rDNA and new ways to insert rDNA into host cells.

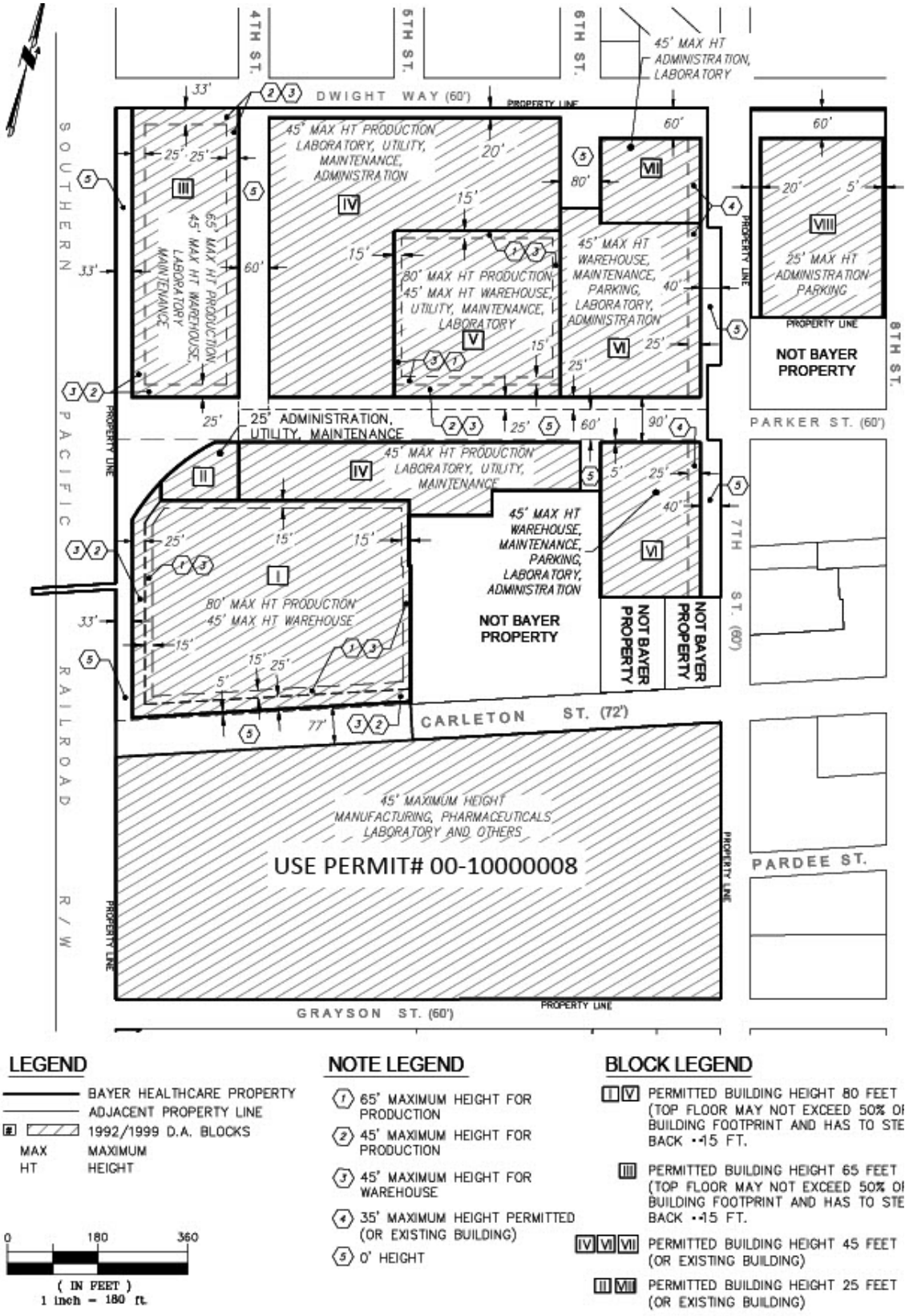
## Site Layout and Massing

The proposed project would modify the location and massing of permitted uses and new development on the Bayer Campus from that shown in Exhibits C and D of the existing DA. This is intended to foster a cohesive identity, sense of place, and collaboration among Bayer's various departments, while preserving existing view corridors on Dwight Way, Parker Street, and Carleton Street. Whereas the existing DA organizes the North Properties into eight "blocks," each with certain permitted uses, the amended DA would simplify this layout into four blocks that apply to the entire project site.

Figure 2-7 shows the location of existing blocks (I through VIII) and existing setbacks and stepbacks from roadways. (A stepback is a horizontal distance where a building wall above specified heights is setback a given distance from the building wall below.)

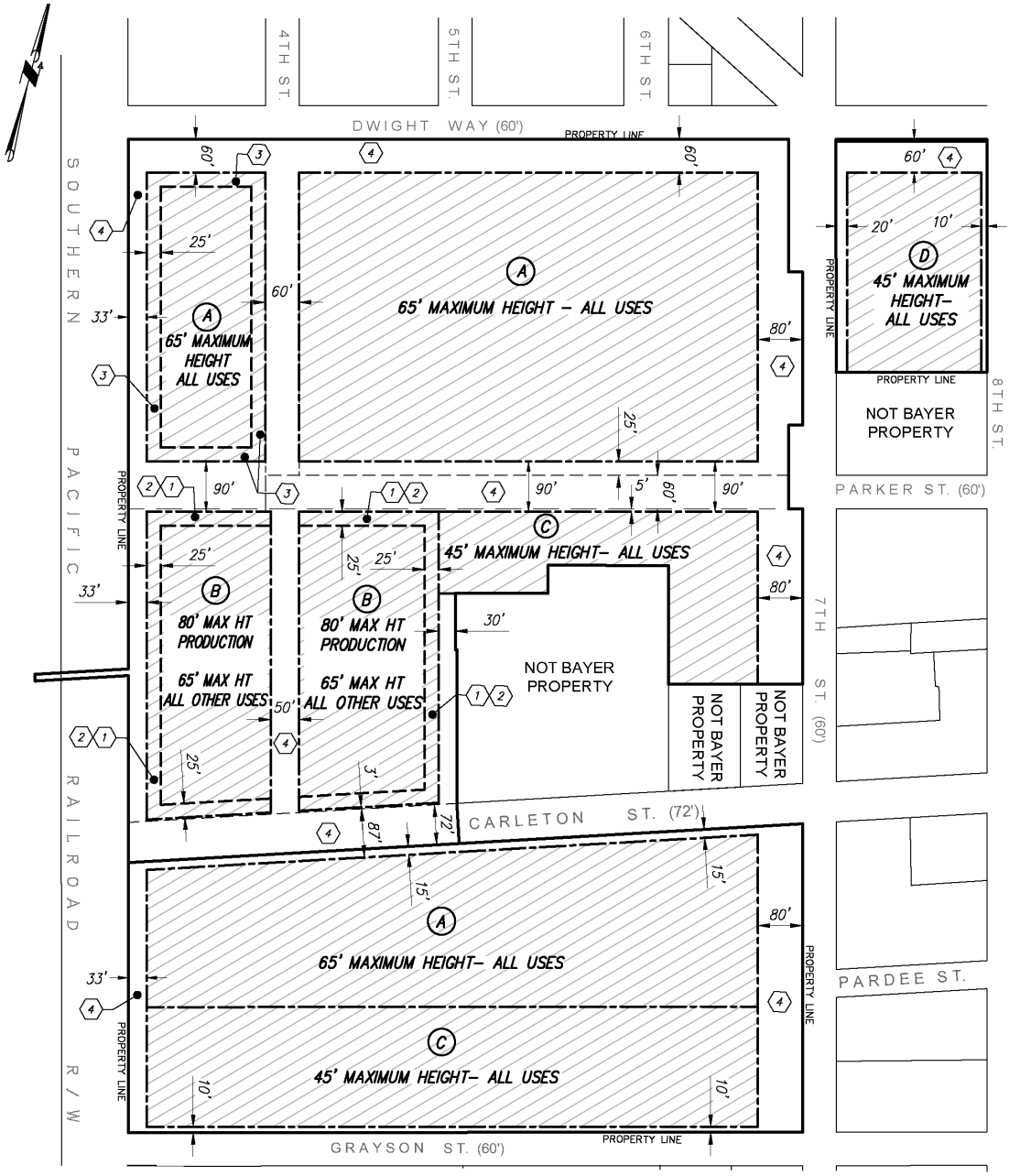
Figure 2-8 shows the location of proposed blocks (A through D) and proposed setbacks and stepbacks.

**Figure 2-7 Campus Plan with Existing Development Standards**




Source: Aliquot 2020

## Figure 2-8 Campus Plan with Proposed Development Standards




Source: Aliquot 2020

Table 2-3 lists the development standards for the existing and proposed block systems. As shown in this table, the proposed project would alter the location of building height limits on the Bayer Campus, but the overall limit of 80 feet would remain. Currently, the north-central portion of the project site has an 80-foot height limit. The proposed project would shift the 80-foot height limit to the west-central portion of the site. The maximum floor areas per block represent maximum densities for those blocks. Consistent with the existing DA terms, surface and structural parking shall not be counted toward floor area ratio nor maximum floor area square feet.

**Table 2-3 Existing and Proposed Block Systems and Development Standards**

| Block | Permitted Uses | Maximum Building Height (feet) | Maximum Floor Area per Block (sf)[1] | Maximum Floor Area Ratio (FAR) |
|---|---|---|---|---|
| **Existing** | | | | |
| I | Production<br>Warehouse | 80<br>45 | 500,000 | 1.84 |
| II | Administration, Utility, Maintenance | 25 | 30,000 | 0.72 |
| III | Production<br>Warehouse, Laboratory, Maintenance | 65<br>45 | 260,000 | 1.52 |
| IV | Production, Laboratory, Utility, Maintenance, Administration | 45 | 225,000 | 0.58 |
| V | Production, Warehouse, Maintenance, Utility, Laboratory | 80<br>45 | 250,000 | 2.00 |
| VI | Warehouse, Maintenance, Parking, Laboratory | 45 | 160,000 | 0.77 |
| VII | Administration, Laboratory | 45 | 75,000 | 1.52 |
| VIII | Administration, Parking[2] | 25 | 30,000 | 0.27 |
| South Properties | N/A | 45[3] | 540,000 | 0.86 |
| **Proposed** | | | | |
| A | All | 65 | 1,500,000 | 1.35 |
| B | Manufacturing<br>All others | 80<br>65 | 495,000 | 1.37 |
| C | All | 45 | 400,000 | 0.94 |
| D | Administrative, Parking | 45 | 30,000 | 0.27 |

[1] As explained in the section on "Buildout Assumptions," overall, new floor area would not exceed 918,000 square feet. Approximately 820,000 square feet of existing facilities floor area would be retained, though replacement and/or remodeling of such space would not be counted against maximum allowed floor area amounts. Upon ultimate buildout, the site would reserve at least approximately 50 percent of floor area for production uses.

[2] Block VIII permits both surface and structured parking.

[3] The height limit for new construction at the South Properties is governed by the MM zoning district, i.e., 45 feet; however, the existing Colgate-Palmolive tower (building B83) is approximately 100 feet tall.

Source: Bayer 2020

Figure 2-9 shows the uses of existing buildings on the project site; Figure 2-10 shows conceptual building uses after complete buildout of the amended DA.

## New, Renovated, and Demolished Buildings

The amended DA would alter the disposition of buildings (to be demolished or retained) from Exhibit C of the existing DA. Table 2-4 shows the conceptual new, renovated, and demolished buildings envisioned by the end of the term of the amended DA. This table excludes buildings which Bayer has already demolished in accordance with the existing DA and temporary trailers that would be removed (i.e., building T6A). Figure 2-11 shows the location of existing buildings proposed for retention, renovation, and demolition by year 30 of the amended DA.

**Table 2-4 New, Renovated, and Demolished Buildings on Bayer Campus by Year 30 (2052)**

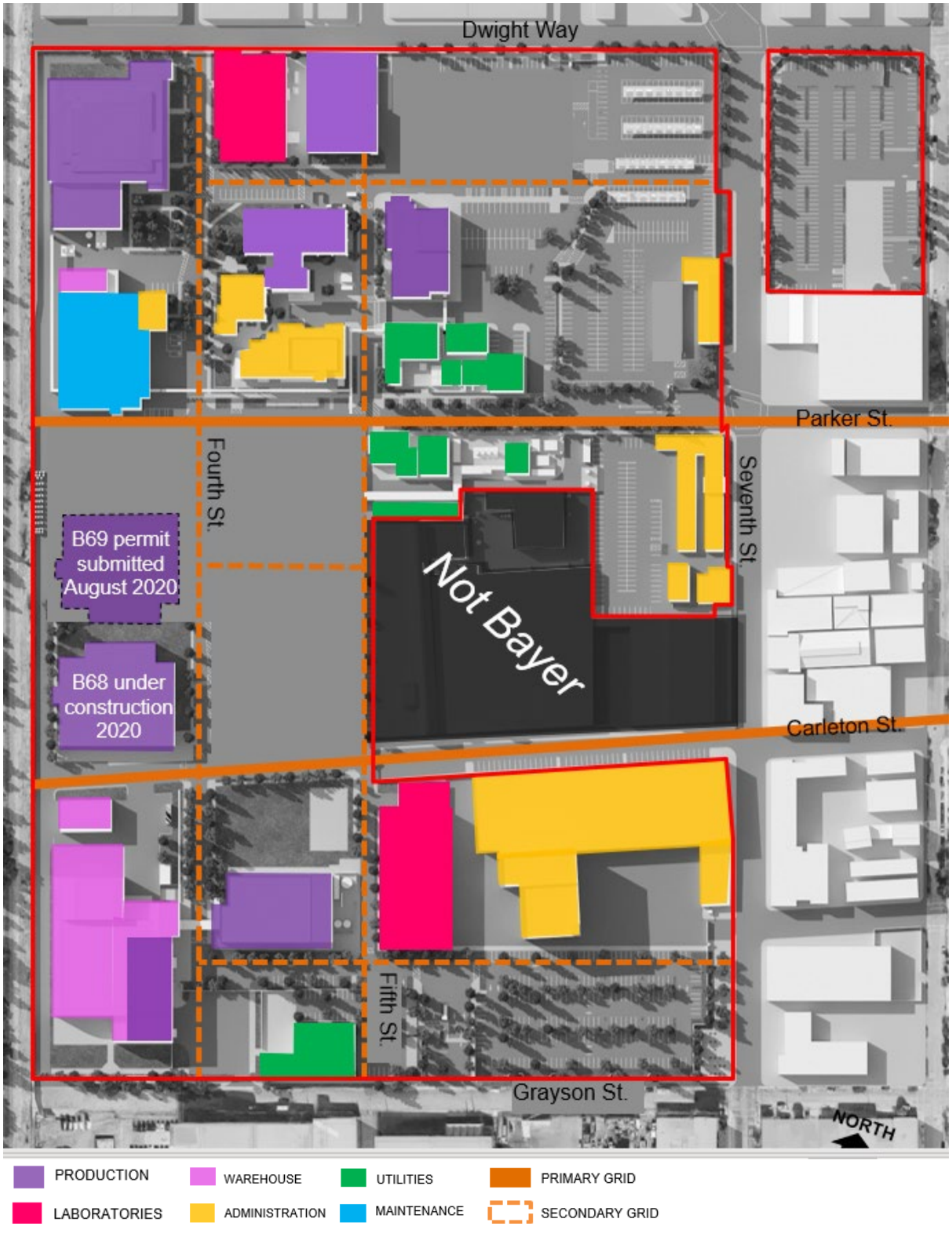
| Block | New Building | Renovated Building[1] | Demolished Building[2] |
|---|---|---|---|
| **North Properties** | | | |
| A-North | Three production buildings for biological development<br>Two production buildings for technology development<br>Laboratory building | Expansion of manufacturing building (B53) | B28<br>B28A<br>B57<br>SC-6 |
| B-North | Six production buildings | | |
| C-North | Administration entrance building<br>Utilities building | | B56A<br>B56B<br>B56 |
| D-North | Parking structure | | |
| **South Properties** | | | |
| A-South | Two laboratory/ administration buildings | Renovation of Colgate-Palmolive tower (B83) | B84<br>B85 |
| C-South | Parking structure | Expansion of primary warehouse building (B80) | |

[1] In addition to the renovated buildings listed in this table, the proposed project envisions expanding other maintenance facilities.

[2] The locations of buildings to be demolished are shown in Figure 2-11

Source: Bayer 2020

**Figure 2-9 Existing Building Uses and Corridors**

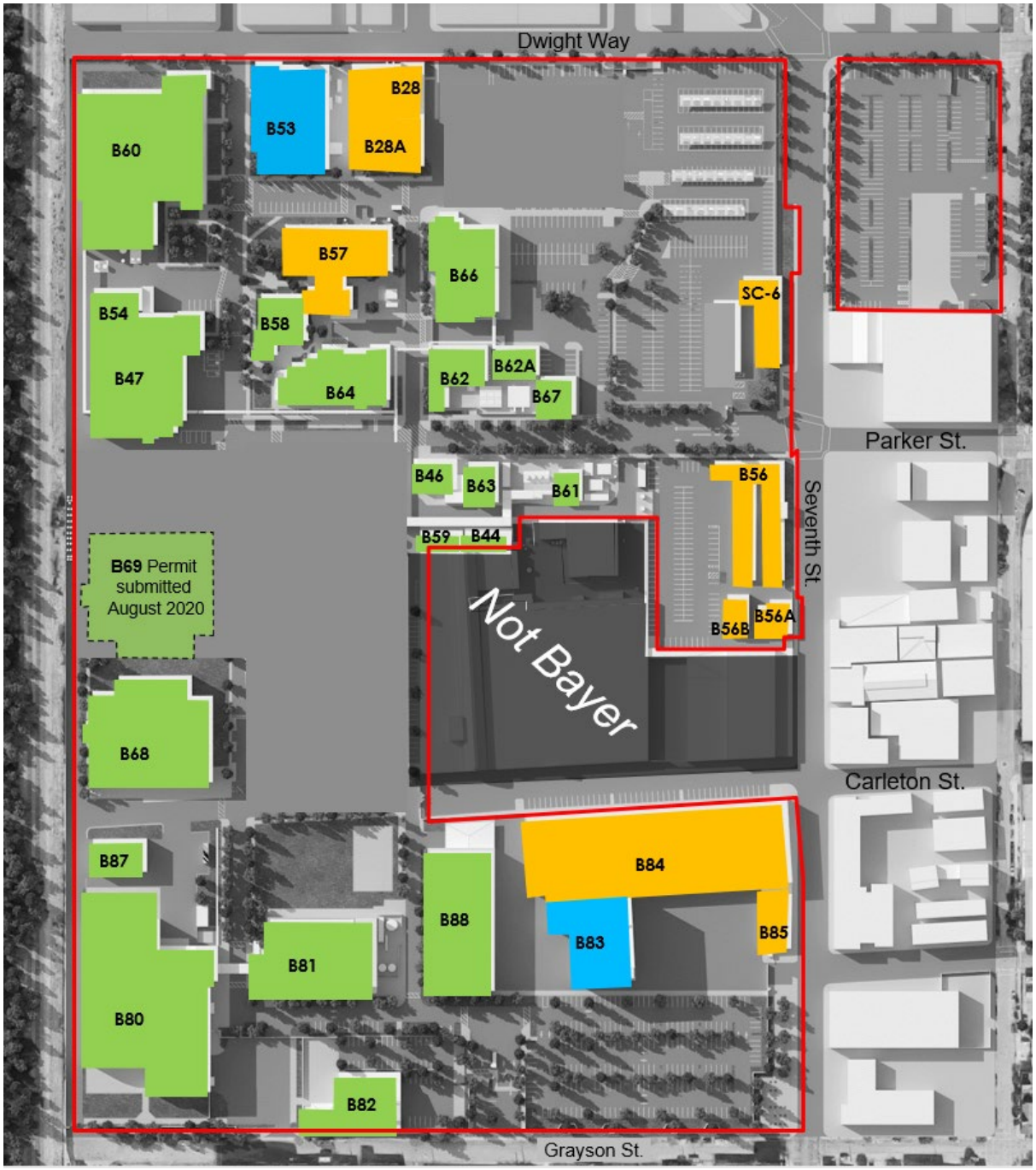



Source: Bayer 2021

**Figure 2-10 Proposed Conceptual Building Uses at Year 30**


Source: Bayer 2021

**Figure 2-11 Proposed Retention, Renovation, and Demolition of Buildings**




Source: Bayer 2021

## Phasing

The project would alter the phasing plan shown in Exhibit E of the existing DA. The existing phasing plan consists of three phases: Phase I (Year 1 to 10), Phase II (Year 5 to 20), and Phase III (Year 10 to 30). Under the amended DA, buildout would occur in two phases: an initial 10-year phase through 2032, followed by a 20-year phase through 2052. Figure 2-12 shows the conceptual 10-Year buildout (Phase I) and Figure 2-13 shows the conceptual 30-year buildout (Phase II).

## Parking and Transportation

The project would modify the parking standards listed in Exhibit D of the existing DA, by reducing the existing parking standard for laboratory buildings from 1.5 spaces per 1,000 square feet of floor area to 1 space per 1,000 square feet. In addition, while the existing DA lacks parking standards for utilities and maintenance uses, the amended DA would apply a parking standard of 1 space per 5,000 square feet for these uses. Table 2-5 compares the existing to proposed parking standards for land uses on the Bayer Campus. Existing standards for production, warehouse, and administration uses would remain the same.

**Table 2-5 Proposed Change in Automobile Parking Standards**

| Land Use Type | Existing Parking Standard | Proposed Parking Standard |
|---|---|---|
| Production | 1 parking space per 1,000 sf | 1 parking space per 1,000 sf |
| Laboratories | 1.5 parking spaces per 1,000 sf | 1 parking space per 1,000 sf |
| Warehouse | 1 parking space per 5,000 sf | 1 parking space per 5,000 sf |
| Administration | 2 parking spaces per 1,000 sf | 2 parking spaces per 1,000 sf |
| Utilities | N/A | 1 parking space per 5,000 sf |
| Maintenance | N/A | 1 parking space per 5,000 sf |

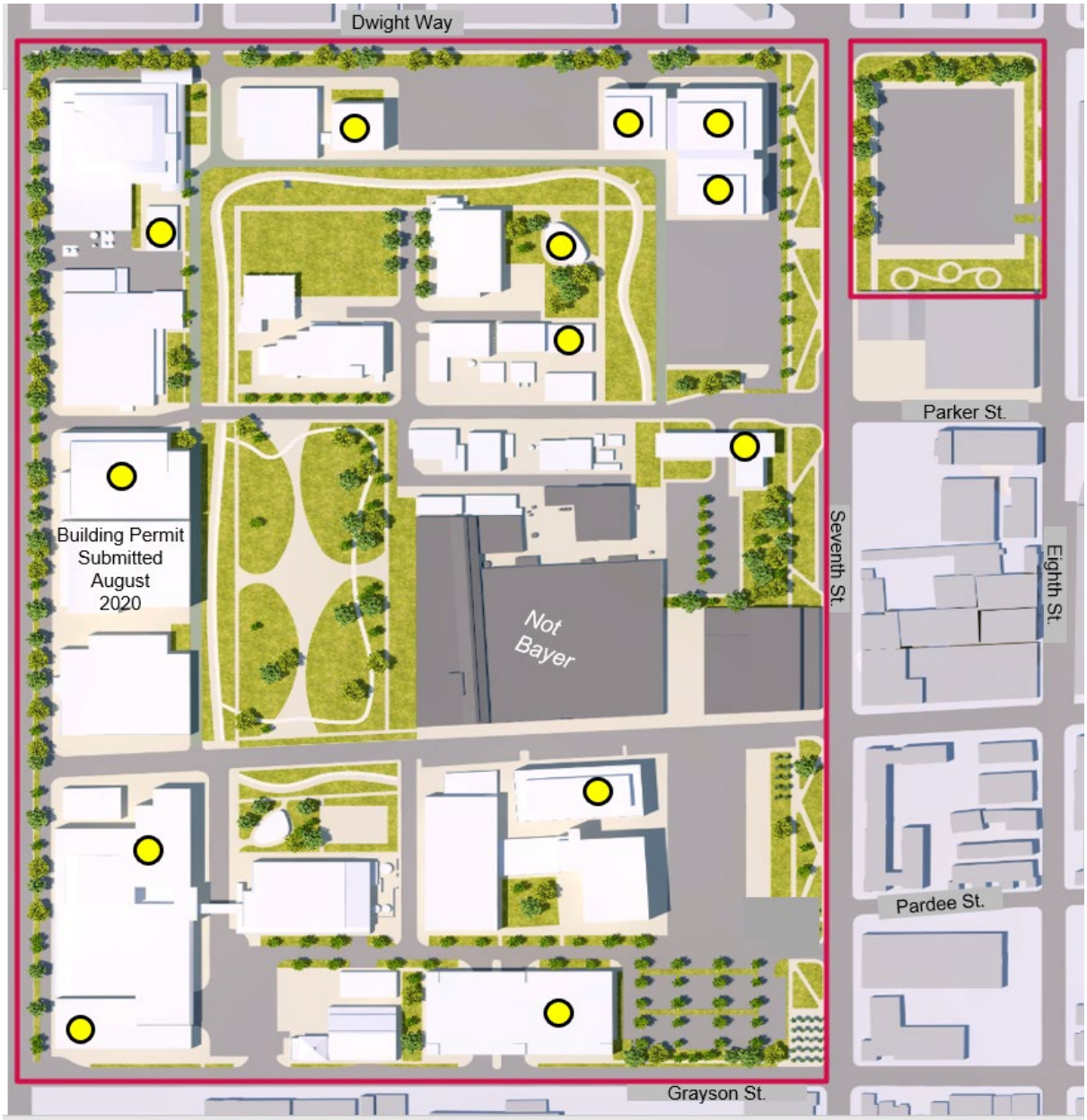
sf = square feet

Sources: Berkeley 1992; Bayer 2020

Based on the existing DA's parking standards and buildout under baseline conditions, it is projected that the Bayer Campus would have 1,965 parking spaces by the year 2052. The proposed project would reduce the parking standard for laboratories and also reduce overall buildout relative to baseline conditions (see Table 2-7). Both proposed changes would reduce the total amount of required parking to 1,825 spaces by the year 2052, a reduction of 140 spaces.

Figure 2-14 shows the existing layout of surface parking lots (currently there is no underground or structured parking). Figure 2-15 shows the proposed layout of parking areas by year 2052. The amended DA assumes construction of one new parking structure by year 10 and a second parking structure by year 30. Most parking spaces would be located in parking structures rather than in surface parking lots, and the conceptual development plan conservatively estimates two parking garages consisting of 830 parking spaces (approximately 370,000 square feet) in a structure located in Block C-South and 925 parking spaces (approximately 410,000 square feet) in a structure located in Block D-North.

**Figure 2-12 Conceptual Illustration of the Anticipated Campus at Year-10**

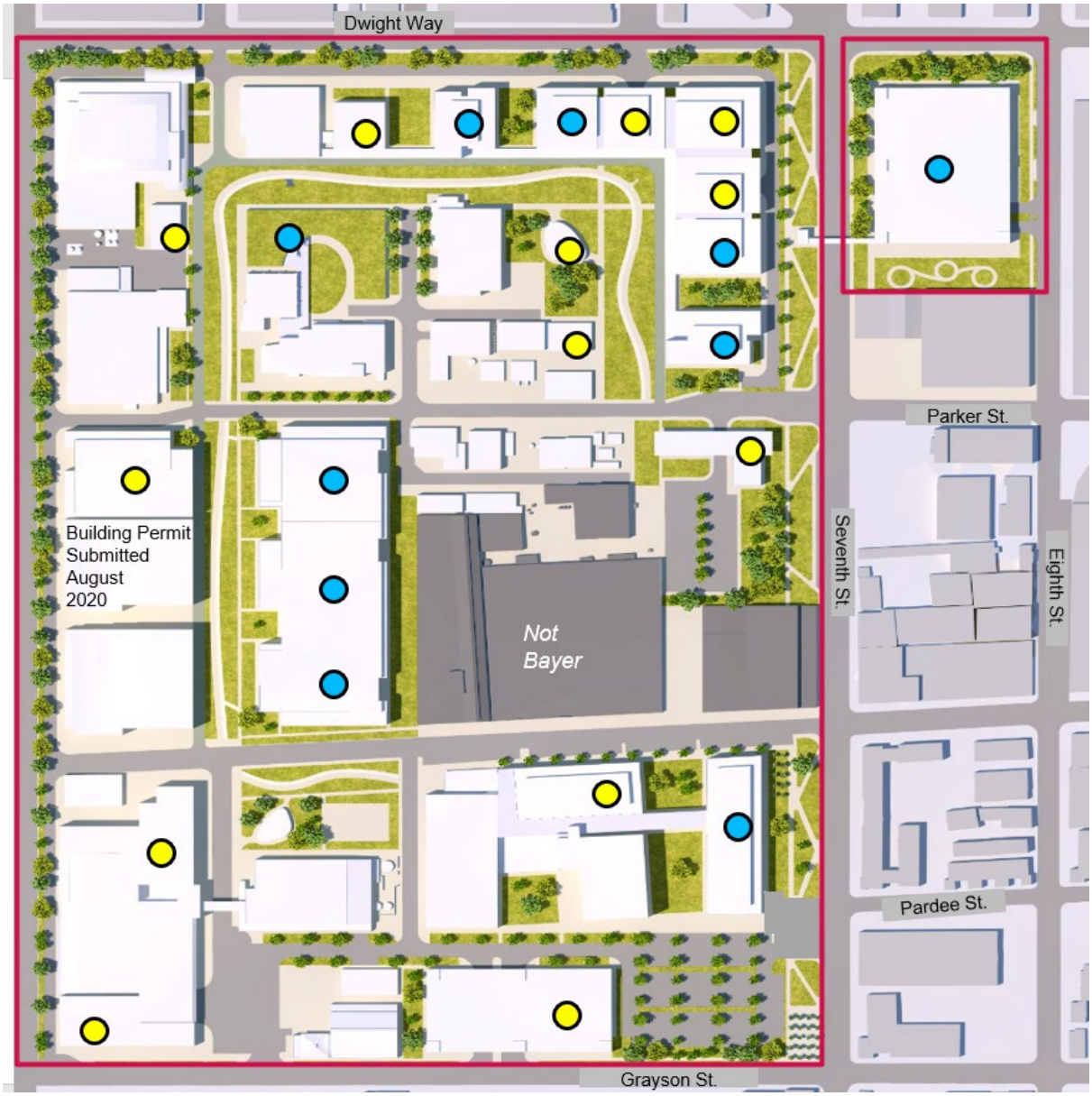



Existing buildings do not have yellow circles.

New at Year 10

Source: Bayer 2021

**Figure 2-13 Conceptual Illustration of the anticipated campus at Year-30**




Existing buildings do not have circles.
New at Year 30
New at Year 10
Source: Bayer 2021

New parking structures could include underground parking. Figure 2-15 does not show potential underground parking that could be incorporated into new buildings that serve other uses. The amended DA assumes that new buildings in the following areas may incorporate parking: along the northeast perimeter of the site, near the intersection of Dwight Way and Seventh Street, near the intersection of Seventh Street and Parking Street, and adjacent to building B83 near the intersection of Seventh Street and Carleton Street. The foregoing parking facilities are conservatively estimated; the amended DA's proposed development standards include provisions to allow for reduced parking insofar as such reductions are supported by a traffic study. Transportation demand management programs, as detailed below, reasonably could result in decreased parking demand.

The proposed project would comply with the City's current provisions for bicycle parking of 1 space per 2,000 square feet of gross floor area for new floor area construction and expansions irrespective of use type. The amended DA would result in an increase in the provision of bicycle parking.

Pursuant to Exhibit G-6 of the existing DA, Bayer currently provides a Transportation Demand Management (TDM) Program to reduce single-occupant automobile trips generated by the project site. As part of the existing TDM program, Bayer funds the West Berkeley Shuttle, which operates between the Ashby BART Station and the Bayer Campus on weekdays during the peak commute periods and is used by about 120 daily riders. Other components of the TDM program include pretax transit benefits, bicycle commuting incentives including secure bicycle parking and showers, and telecommuting options for qualified employees. Bayer would continue to provide the TDM program as part of the proposed project.

In addition, Bayer currently operates its own emergency vehicle and equipment to respond to most emergency needs within the project site. Under the amended DA, this existing emergency vehicle would continue to serve the project site, and Bayer's emergency response team would continue to be supplemented by outside emergency response personnel, including the City of Berkeley's Fire Department, when necessary.

The proposed project would include pedestrian and bicycle trails located both internal to the project site and at the project frontages. These trails would be intended to provide safe and efficient bicycle and pedestrian connections between parking areas, buildings, and other amenities. At project site frontages, trails and street sidewalks would link to existing public right-of-way facilities, including sidewalks and public open space. Pedestrian amenities would include benches and outdoor eating/gathering areas. Bicycle parking would be located in proximity to trails and within a roughly five-minute walk of existing and new buildings. Bayer also currently provides three showers (for example, for employees that bike) to work, located in buildings B80 and B88, and would continue to provide showers for employees.

Consistent with the existing DA's loading standards, off-street loading docks for individual buildings would not be required because delivery and shipping of materials to and from the project site occurs from a central warehouse (building B80).

## Lighting

Exhibit I in the existing DA sets lighting standards for parking structures and surface parking lots but lacks comprehensive lighting standards. The amended DA would set comprehensive lighting standards that apply to the entire Bayer Campus. New exterior lighting would be architecturally integrated with the character of structures, energy-efficient, fully shielded or recessed and, where feasible, would utilize motion sensors or timers to

prevent unnecessary energy use and light pollution. In addition, all outdoor lighting fixtures would be designed and installed so that light rays are not emitted across property lines, to the extent feasible.

## Hazardous Materials

The amended DA would expand an existing warehouse in the southwestern corner of the project site (B80), which would continue to receive deliveries of hazardous materials (such as radioactive, chemical, and biological materials) to the project site. Hazardous materials would be stored in a similar manner to existing conditions: in the B87 building and in laboratories and production spaces during research, development, and manufacturing activities. Hazardous materials and petroleum products are also stored in various quantities in buildings B28, B28A, B44, B46, B47, B53, B56A, B57, B58, B59, B60, B61, B63, B64, B66, B67, B80, B81, B82, B83, B85, B88 and B90. The use of hazardous materials would occur within a slightly different development footprint, as reflected in the proposed year-30 site layout shown in Figure 2-10.

The disposal of hazardous waste would continue to follow protocols in the existing DA and contemporaneous regulations and best practices. Medical waste is collected from various locations throughout the site by specialist contractors and delivered to B84 for removal by a licensed contractor. All waste is ultimately collected for export through the Parker Street entrance.

The proposed project would not alter the basic types of hazardous materials handled on-site. The amended DA would continue to authorize the use of risk group 1 and 2 biological agents, as defined by guidelines published by the National Institutes of Health (NIH) Recombinant Advisory Committee. Group 1 agents are bacterial, fungal, viral, rickettsia, and chlamydial agents that are found in the environment and do not cause disease in healthy humans. Group 2 includes moderate-risk agents that occur in the community and are associated with human disease of varying severity, and risks associated with such are generally similar to the risks one encounters at an outpatient medical facility. The amended DA would continue to prohibit the use of materials in risk Groups 3 and 4. In addition, the amended DA would lift the current restriction on the use of non-mammalian cells. Bayer would adhere to biosafety measures according to guidelines adopted by the NIH and the Centers for Disease Control and Prevention (CDC).

While the existing DA does not include the use of gamma irradiation devices, the amended DA plans for the installation of up to two fully-protected gamma irradiation devices.[2] These devices would be allowable equipment at production and laboratory uses on the Bayer Campus, and City approval would not be required for their installation and operation. They would be designed to enable safe operation by employees without requiring additional personal protective equipment (PPE). The two contemplated irradiation rooms would be situated within Block B in designated production space located along the project site's westerly edge and in designated production space located at the corner of Seventh Street and Dwight Way.

[2] Fully protected gamma irradiation devices have a de minimis radiation output at their surface (i.e., a dose rate of less than 3 µSv/h). They require no additional protection measures to reduce radiation output, and no radiation surveillance with dosimeters is required for staff.

**Figure 2-14 Existing Parking**


SURFACE PARKING

VISITOR ENTRY

STAFF ENTRY

DELIVERIES

CAR PARKING SPOTS

**Site Entrances & Parking Current, 2021**

Current main entrance is at Dwight Way with additional staff entrances at Parker St., Grayson St., and Eighth St. (MULI Zone).

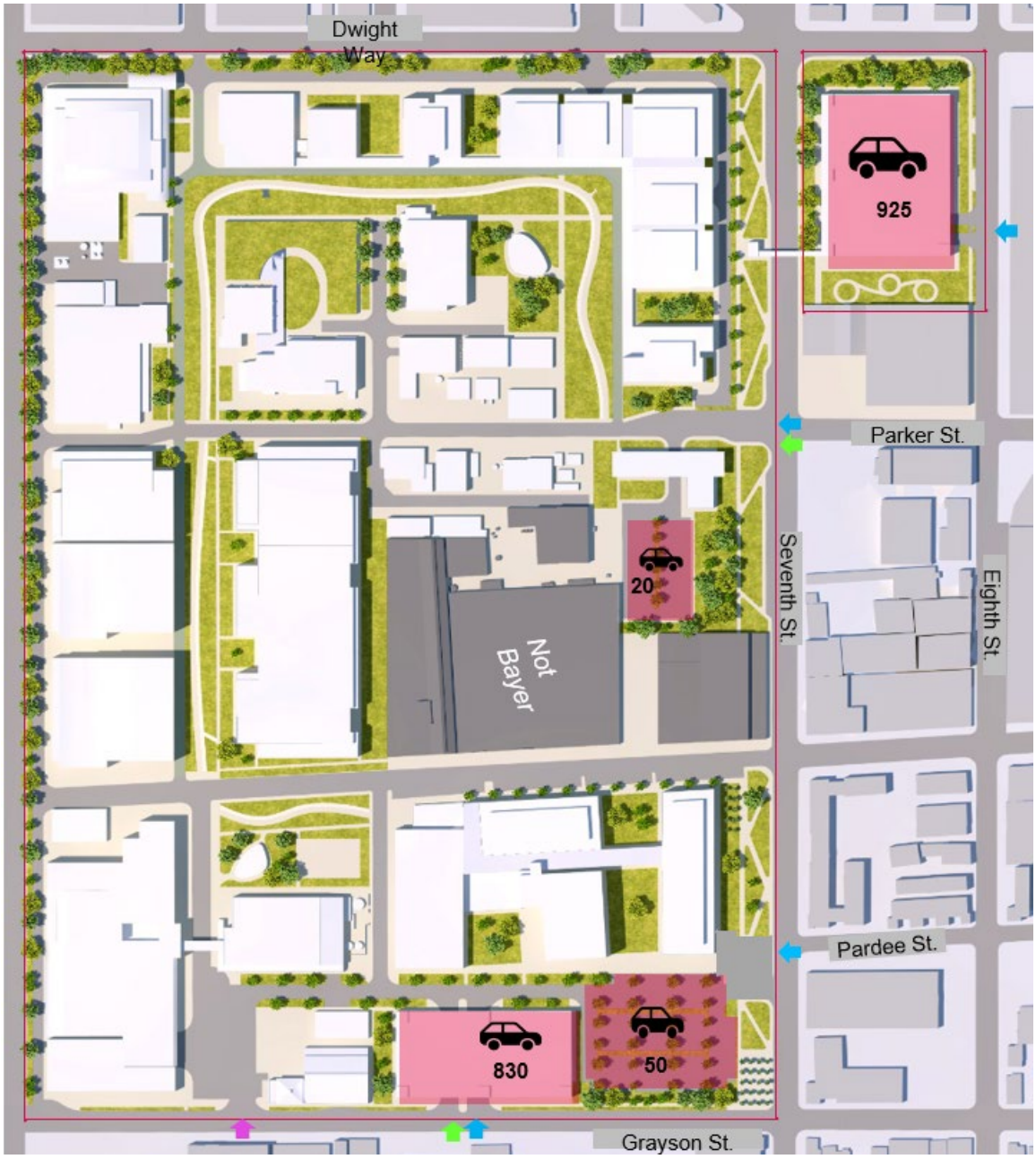
Warehouse deliveries are centralized on Grayson St.

Some site services/deliveries, such Waste Management, enter at Parker St.

There are 1,100 existing surface parking spaces on campus; 920 additional spaces are required according to the existing DA and 810 additional spaces would be required for the amended DA.

Source: Bayer 2021

## Figure 2-15 Proposed Parking




SURFACE PARKING
STRUCTURED PARKING
VISITOR ENTRY
STAFF ENTRY
DELIVERIES
CAR PARKING SPOTS

Source: Bayer 2021

**Site Entrances and Parking at Year-30 of Development Plan**

Staff entrances at Parker St., Pardee St., Grayson St., and Eighth St. (MULI Zone).

Parker St. and Grayson St. include visitor entry.

Dwight Way is a limited entrance location for some site service deliveries.

Warehouse deliveries stay centralized on Grayson St.

Additional structured parking is proposed in the MULI zone, in between 7th and 8th Streets. A skybridge to conect this structured parking location to the main campus is proposed.

This configuration provides ~1,825 parking spaces under the proposed DA extension.

## Open Space

Exhibit I of the existing DA sets design guidelines for open space, such as recommendations for types of open space (e.g., courtyards, promenades, landscape beds) and suggested locations, but does not specify the acreage of open space. The amended DA includes at least six acres of open space by year 10 of buildout and at least nine acres of open space by year 30, which would exceed the existing three acres on-site. Open space would consist of fields, sports courts, pedestrian trails, bicycle trails, outdoor eating areas, and landscaping. Most new open space would only be accessible to Bayer employees. However, the proposed project also would expand existing publicly accessible open space at street frontages. Existing public open space includes about 1.0 acre along Seventh Street and 0.3 acre along Dwight Way. The open space area along Seventh Street would be expanded to approximately 1.6 acres by Year 10 of the amended DA (with 0.8 acres being provided by Year 5).

Bayer would landscape all open space areas with drought-tolerant species and design them to minimize water demand, in compliance with all local and state regulations. The proposed project entails the removal of no trees, and it is anticipated that future open space areas would accommodate dozens of new trees in open space areas, including along pedestrian and bicycle paths; parking areas, in part to avoid urban heat island effects; and along project frontages so as to enhance the interface between the project site and surrounding community, and promote compatibility. Species of trees and other plants would include native Californian species requiring minimal water supplies.

### Utilities

Several water mains managed by the East Bay Municipal Utility District (EBMUD) serve the project site, including eight-inch diameter lines under Dwight Way, Seventh Street, Parker Street, Carleton Street, and Grayson Street; a six-inch diameter line under Fourth Street; and a 36-inch diameter main under Seventh Street. It is anticipated that the proposed project may involve upgrades to on-site water conveyance pipes and upsizing of offsite water mains. The existing eight-inch diameter pipes along Dwight Way, Seventh Street, and Grayson Street may be replaced with 12-inch diameter pipes. Upgraded utility pipes within the project site and public rights-of-way would be located from four to six feet below roadway surfaces, all consistent with existing utilities.

Under the amended DA, there would be no changes to the site's electric or gas infrastructure, with the exception that electrical transmission feeder lines might be necessary to install on the South Properties in order to ensure the site has adequate electrical capacity.

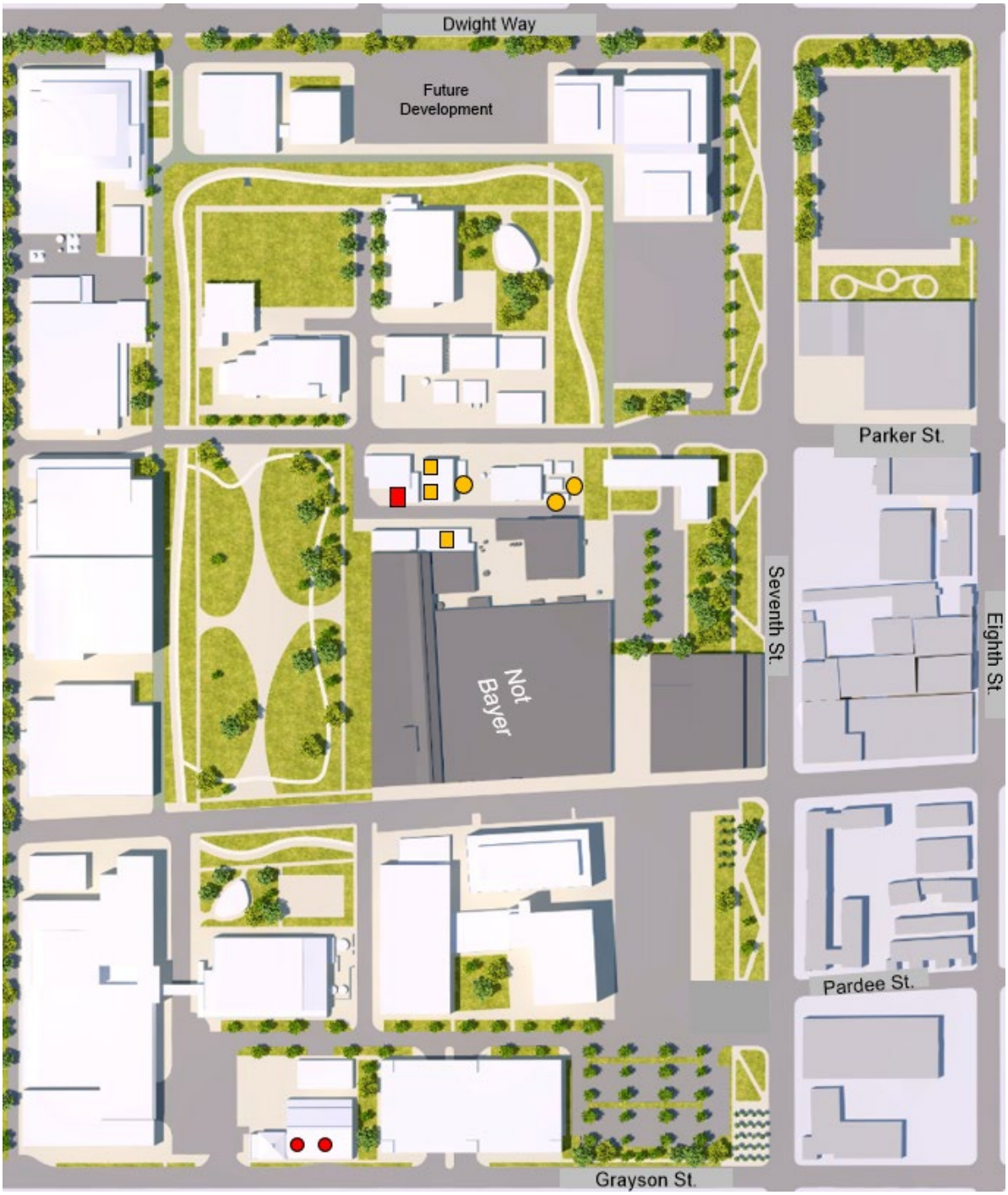
## Mechanical Equipment

The proposed project would add two new emergency back-up generators along Grayson Street, in addition to the six existing above-ground generators on the project site. It is anticipated that Bayer would replace the three remaining generators in the central portion of the site with newer models by year 30 and would retire the generator in Building B47. Bayer only operates these generators during routine tests that occur twelve times per year (for 30 minutes at a time and once a year for 1 hour) and when the primary power supply is lost. In addition, one new boiler is proposed in the North Properties. Figure 2-16 shows the locations of existing generators and boilers; Figure 2-17 shows the proposed locations.

**Figure 2-16 Existing Generators and Boilers**


*Source: Bayer 2020*

**Figure 2-17 Proposed Generators and Boilers**




*Source: Bayer 2020*

## Sustainability Features

The amended DA would include sustainability features as required by exiting regulations as well as voluntary measures that go beyond regulatory compliance.

Table 2-6 lists additional proposed sustainability features under the amended DA.

**Table 2-6 Proposed Sustainability Features**

| Category | Feature |
|---|---|
| Transportation | ▪ Provide employee vanpool/shuttle[1]<br>▪ Encourage telecommuting and alternative work schedules |
| Energy | ▪ Provide infrastructure to electrify landscaping equipment<br>▪ Purchase 100 percent of electricity from renewable sources by 2030 such as through purchase of electricity through East Bay Community Energy (per Bayer's 2030 Sustainability Targets)[2]<br>▪ Obtain LEED certification or equivalent of new buildings, except where a production process makes certification infeasible[3]<br>▪ Install solar panels on new parking areas and rooftops of new buildings (and potentially on existing facilities)<br>▪ Install Energy Star appliances: laboratory ceiling fans, refrigerators, washers, dryers |
| Water | ▪ Provide leak detection and preventative maintenance<br>▪ Install low-flow faucets (i.e., bathroom, kitchen, toilet, shower)<br>▪ Turf reduction[4]<br>▪ Install water -efficient irrigation systems including energy and water efficient irrigation systems and use of recycled water for irrigation/landscaping<br>▪ Install water -efficient landscape, including drought tolerant landscaping |
| Waste | ▪ Purchase sustainably sourced building materials for construction<br>▪ Purchase environmentally preferable products for waste prevention<br>▪ Implement reuse/deconstruction principles in building design<br>▪ Use lower energy and chemicals in cleaning processes<br>▪ Implement a construction and demolition recycling program |

[1] The shuttle service normally runs every 15 minutes during peak travel hours, timed to align with BART trains. If demand exceeds the capacity of existing shuttles, shuttles would be upsized to accommodate more people. Bayer anticipates that many employees would frequently work from home, so usage of shuttles is not expected to increase.

[2] PG&E offers 100 percent renewable electricity options. Community choice energy (CCE) programs also are capable of providing 100 percent carbon-free electricity at a rate equivalent to the electrical utility's base offering. Bayer would use one of these verified means of purchasing renewable energy by 2030.

[3] Bayer anticipates that most if not all new production buildings would feasibly attain LEED certification.

[4] In new construction, consistent with the WELO ordinance, turf would not be included.

Source: Bayer 2020

Bayer would landscape all open space areas with drought-tolerant species and design them to minimize water demand. Landscaping would be consistent with requirements in the State's Model Water Efficient Landscape Ordinance (WELO). Species of trees and other plants would include native Californian species requiring minimal water supplies.

Bayer would also comply with the requirement for all-electric new construction in Chapter 12.80 of the Berkeley Municipal Code, except that Bayer anticipates the need for exemptions to provide natural gas at new manufacturing, laboratory, and production buildings. Bayer subscribes to the Montreal and Kyoto protocols for the use of refrigerants. All refrigerants used at the site would continue to be handled consistent with California and U.S. EPA regulation, which are designed to minimize any release of greenhouse gas

emissions. The Bayer Campus has a fully dedicated building for refrigeration (B62) where ammonia is the primary refrigerant; ammonia has a zero value in terms of global warming potential and, therefore, there are no active plans to immediately phase out its use. In addition, Bayer would comply with the City's requirements for the provision of electric vehicle (EV) charging stations. The project site has 22 EV chargers, and Bayer anticipates having as many as 182 chargers by year 30 of the amended DA.

## Special Events

Currently the Bayer Campus hosts approximately four special events per year. While the existing DA does not address special events at the North Properties, the amended DA includes that the Bayer Campus would host about four special events per year during non-business hours, including conferences, seminars, and employee gatherings. Bayer would manage event sizes such that event-related parking demand does not exceed the on-site parking supply.

## Land Use Review

The special conditions and discretionary review processes established in Exhibit J of the existing DA state that the following proposed actions require approval of an Administrative Use Permit (AUP):

- Buildings of less than 40,000 square feet;
- Temporary buildings;
- Temporary surface parking; and
- Demolition of buildings.

The project proposes to modify this process in the following ways:

- Requiring AUP approval for new construction of buildings 40,000 square feet and greater (instead of less than 40,000 square feet as under the existing DA); and
- Allowing new construction of buildings of less than 40,000 square feet, demolition of buildings, temporary trailers, and temporary surface parking by right.

For construction of buildings taller than 45 feet, the existing DA requires verification that the additional height is necessary to meet the constraints of the manufacturing process. The proposed project would add energy efficiency as an allowable justification for construction of buildings taller than 45 feet. In addition, the proposed project would memorialize the variance procedures vested into by the DA (i.e., the procedures existing in 1992), for convenience. The amended land use review procedures in the DA would include other revisions in order to conform with other amended elements of the DA, to remove antiquated procedures/considerations to streamline review where substantial environmental review has already occurred, and to be more consistent with modern zoning format expectations.

## Construction

The existing DA does not include requirements for on-site construction activities, the amended DA would add the following requirements:

- Prohibit the use of pile drivers; piles would be auger-drilled, if needed for foundations.
- Follow best management practices of the Bay Area Air Quality Management District (BAAQMD), including watering of exposed areas to minimize dust, reducing vehicle

speed on unpaved roads, and minimizing idling times for heavy equipment; and Use Tier 4 equipment or electric equipment where available.

Construction activity under the amended DA also would be required to comply with required construction hours in Chapter 13.40 of the Berkeley Municipal Code. It is anticipated that construction activity would typically involve excavation to a depth of up to 10 feet below ground surface (bgs). However, excavation for pilings in areas subject to potential liquefaction hazards could extend 30 to 60 feet bgs.

# 2.7 Baseline and Buildout Assumptions

## CEQA Baseline

For most environmental issue areas, this Subsequent EIR compares projected buildout of the amended DA to the allowable buildout under the entitled DA and Use Permit. It is assumed that baseline conditions include maximum allowable development under the existing DA at the North Properties (1,346,000 square feet), in addition to existing development at the South Properties (520,000 square feet), for a total of 1,866,000 square feet. Existing development at the South Properties is 20,000 square feet less than the 540,000 square feet allowed by the Use Permit, resulting in a more conservative analysis of environmental impacts associated with the projected change in buildout. For the issues of greenhouse gas (GHG) emissions and vehicle miles traveled (VMT) which have been recently added as environmental topics for analysis under CEQA and therefore were not analyzed in the 1991 EIR, this Subsequent EIR compares projected buildout of the amended DA to existing conditions (2020).

## Buildout Assumptions

Projected buildout represents Bayer's proposed modified entitlement for development on the project site over the 30-year time horizon of the amended DA (through 2052). Although actual development may be less than the modified entitlement, this Subsequent EIR assumes that maximum buildout may occur. To ensure a conservative approach in analyzing environmental effects under CEQA, EIRs typically analyze what could be considered a maximum reasonable impact scenario in order to capture as many significant environmental impacts as could be reasonably expected as a result of the project.

Table 2-7 compares baseline (entitled) conditions to projected buildout for each land use on the Bayer Campus. Although the development potential for production and administration uses would increase with respect to baseline conditions, it would decrease for laboratory, maintenance, utilities, and warehouse uses. Production space would represent roughly half of all development potential. Accounting for all land uses on the project site, the projected buildout of 1,738,000 square feet would represent a net decrease of 128,000 square feet from the baseline buildout of 1,866,000 square feet. The projected buildout does not impose a limit on floor area for individual land uses but does place a limit on overall floor area.

**Table 2-7 Change in Buildout Projections for Project Site under the Proposed Project by Land Use Type**

| Land Use Type | Existing Entitlements[1] (sf) | Projected Buildout at Year 30 (sf) | Change in Buildout[2] (sf) |
|---|---|---|---|
| Production | 793,598 | 978,000 | +184,402 |
| Laboratories | 415,832 | 230,000 | (185,832) |
| Warehouse | 295,659 | 157,000 | (138,659) |
| Administration | 244,225 | 284,000 | +39,775 |
| Utilities | 79,743 | 71,000 | (8,743) |
| Maintenance | 36,955 | 18,000 | (18,955) |
| **Total** | **~ 1,866,000** | **1,738,000** | **(128,000)** |

[1] Existing entitlements are defined as inclusive of maximum allowable buildout of the North Properties under the existing DA and existing development on the South Properties under the Use Permit.

[2] () indicates subtraction.

sf = square feet

Table 2-8 shows the overall proposed construction and demolition by phase for the entire campus (North Properties and South Properties combined). Total, the proposed project would involve an estimated 267,000 square feet of demolition and 918,000 square feet of new construction. Compared to existing conditions (1,087,000 square feet of development), the proposed project would allow for a maximum net increase of 555,000 square feet at the North Properties and 96,000 square feet at the South Properties. This would amount to a net increase of 651,000 square feet on the Bayer Campus beyond existing conditions.

**Table 2-8 Total Demolition and New Construction under the Proposed Project**

| | Existing (2020) (sf) | Year 10 (2032) (sf) | Year 30 (2052) (sf) | Total (sf) |
|---|---|---|---|---|
| Existing | 1,087,000[1] | 1,188,000 | 1,738,000 | – |
| Demolition | – | (267,000) | 0 | (267,000) |
| New Construction | – | 368,000 | 550,000 | 918,000 |

[1] The existing floor area of 1,087,000 square feet on the Bayer Campus includes the 97,000 square-foot B69 building, for which Bayer submitted a building permit application to the City in August 2020.

[2] () indicates subtraction.

sf = square feet

Currently the Bayer Campus has approximately 1,000 employees. Under baseline conditions (buildout of the existing DA on the North Properties and existing development on the South Properties), it was estimated that the project site would have 1,892 employees by the year 2052. The proposed project would result in an estimated 2,000 employees by 2052. This represents a net increase of 108 employees beyond baseline conditions, and a doubling of employees relative to existing numbers.

## 2.8 Required Approvals

The proposed project would require approval by the City Council of the City of Berkeley. This Subsequent EIR is intended to provide the information and environmental analysis necessary to assist the City in considering the approvals and actions necessary to adopt and implement the project. Such actions/approvals include:

- **Certification of a Subsequent EIR.** Certify the Bayer HealthCare LLC Development Agreement Amendment Subsequent EIR and make environmental findings pursuant to CEQA.
- **Amendment to the Existing DA.** Adopt an ordinance to amend the text and exhibits in the DA consistent with the proposed project.

Future implementation of the proposed project's land use plan may require a different set of project-level approvals by the City of Berkeley (e.g., use permits, administrative use permits, zoning certificates, building permits, electrical permits) or by other reviewing agencies (e.g., Section 401 Water Quality Certification, Bay Area Air Quality Management District permits).

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

California Native American Tribes have requested consultation pursuant to Public Resources Code Section 21080.3.1. Potential environmental impacts to tribal cultural resources are discussed in Section 4.7, *Tribal Cultural Resources,* in the Subsequent EIR.

# 3 Environmental Setting

This section provides a general overview of the environmental setting for the proposed project. More detailed descriptions of the environmental setting for each environmental issue area can be found throughout Section 4, *Environmental Impact Analysis*.

## 3.1 Regional Setting

The project site is located in the western portion of Berkeley, in the East Bay region of the San Francisco Bay Area. Figure 2-1 in Section 2, *Project Description*, shows the location of the project site relative to Berkeley and nearby East Bay cities. The East Bay region generally includes cities along the eastern shores of the San Francisco Bay and San Pablo Bay and inland communities in Alameda and Contra Costa counties. Approximately one-third of the Bay Area's population resides in the East Bay. Berkeley is the fourth largest city in Alameda County in population following Oakland, Fremont, and Hayward (California Department of Finance [DOF] 2020). It borders the cities of Oakland and Emeryville to the south and the city of Albany and the unincorporated community of Kensington in Contra Costa County to the north. To the east lies the ridge of the Berkeley Hills and Contra Costa County beyond, while the western edge is defined by the San Francisco Bay.

Berkeley is located in the San Francisco Bay Hydrologic Region. Drainage flows generally to the west towards the San Francisco Bay. Berkeley is in a seismically active region in the vicinity of the San Andreas and Hayward faults. The nearest active fault, a branch of the Hayward fault, runs on a northwest-southeast axis through the Berkeley Hills, as close as approximately 2.4 miles from the project site, as shown in the Initial Study (Appendix A to this SEIR).

A grid system of east-west and north-south roadways, including arterials, collectors, and local streets, provide vehicular access throughout the City. The major roadways include San Pablo Avenue (State Route [SR] 123), Ashby Avenue (SR 13), University Avenue, Telegraph Avenue, Shattuck Avenue, and Sacramento Street. Regional access to Berkeley is provided by Interstate (I) 580, SR 13, and SR 24. SR 13 is approximately 0.6 mile south of the project site, SR 24 is approximately 2.3 miles southeast of the project site, and I-580 is approximately 0.3mile west of the project site. The City is also served by the Amtrak passenger rail network that runs on the Union Pacific Railroad (UPRR) tracks bordering the project site to the west.

Berkeley enjoys a mild climate characterized by cool winters and moderate summers. Average high temperatures range from about 70 degrees F in summer to 60 degrees F in winter. Annual rainfall averages about 27 inches per year, with most rainfall occurring between October and April (U.S. Climate Data 2020).

## 3.2 Project Site Setting

The project site is located in West Berkeley, approximately one and a half miles west of Downtown Berkeley. The site is bounded by a mixture of industrial, commercial, and residential land uses. As discussed in Section 2, *Project Description*, the project site partially surrounds three parcels on the northwest corner of Carleton Street and Seventh Street that are not owned by Bayer. These properties include a provider of industrial metal coatings

(Electro-Coatings), an electronic bicycle store (Pacific E-Bike), and the former Macaulay Foundry. The Union Pacific Railroad right-of-way is immediately west of the project site. Farther to the west are the City's Aquatic Park, Interstate 580 (I-580), and the San Francisco Bay Trail on the west side of I-580. Industrial and commercial uses are located to the south of the project site. These include manufacturers of adhesives (Henkel Corporation) to the south of Grayson Street and of medical products (Berkeley Advanced Biomaterials) on Seventh Street to the south of Grayson Street. A restaurant, 900 Grayson, is located southeast of the project site at the corner of Grayson and Seventh Street. Primarily commercial, educational, and institutional land uses are located to the east of the project site.

The Bayer Campus consists of approximately 46 acres generally bounded by the Union Pacific Railroad to the west, Dwight Way to the north, Seventh Street to the east, and Grayson Street to the south. The project site also includes a surface parking lot on a property between Dwight Way, Seventh Street, Parker Street, and Eighth Street. The project site comprises two primary areas that are divided by Carleton Street. The North Properties of Bayer's campus have a primary address of 800 Dwight Way and include 31.9 acres north of Carleton Street. The South Properties of Bayer's campus, with the primary address of 801 Grayson Street, include 14.4 acres south of Carleton Street. The Bayer Campus currently has 35 buildings (counting main, annex, and temporary buildings), which together total approximately 1,087,000 square feet of floor area, including 567,000 square feet on the North Properties and 520,000 square feet on the South Properties. Existing development on the project site accommodates six land uses: production, laboratories, warehouse, administration, utilities, and maintenance.

## 3.3 Cumulative Development

As defined in *CEQA Guidelines* §15335, "cumulative impacts" refers to two or more individual impacts that, when considered together, are substantial or will compound other environmental impacts. Cumulative impacts are the changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. For example, traffic impacts of two nearby projects may be insignificant when analyzed separately but could have a significant impact when analyzed together. Cumulative impacts analysis provides a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects. According to *CEQA Guidelines* §15130(b), a discussion of significant cumulative impacts shall include a list of past, present, and probably future projects related to cumulative impacts; or, a summary of projections contained in an adopted local, regional, or statewide plan that describes or evaluates conditions contributing to the cumulative effect.

The cumulative setting for each environmental issue area is described in Section 4, *Environmental Impact Analysis*. The Bayer Campus is located geographically in the western portion of Berkeley; however, cumulative impacts as analyzed in this SEIR may be spread throughout Berkeley or the region. Some cumulative impacts are not necessarily significant in relation to development that occurs further from the project site. For example, noise impacts associated with construction under the amended DA may be detected in adjacent residential and commercial West Berkeley neighborhoods but are unlikely to be detected outside in areas further away from the site. Selected cumulative impact discussions, such as land use and geology and soils, rely on a smaller geographic area and are noted as appropriate. Some cumulative impact discussions, such as air quality, traffic and circulation, and population and housing, rely on larger geographic areas such as the Bay Area region.

For issues that may have regional cumulative impact implications, the cumulative impact analysis for this SEIR is based on Plan Bay Area 2040, the Bay Area's most recent Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Based on the forecasts in Plan Bay Area 2040, in 2040 Berkeley is estimated to have a population of 140,935, 55,370 housing units, and 121,670 jobs. Currently, Berkeley has an estimated population of 122,580 and 47,718 housing units (ABAG and MTC 2017). Development under the amended DA in conjunction with development forecasted in Plan Bay Area 2040 is accounted for in the cumulative impacts analysis.

*This page left intentionally blank*

# 4 Environmental Impact Analysis

This section discusses the possible environmental effects of the proposed Bayer HealthCare LLC Development Agreement Amendment Project (proposed project) for the specific issue areas that were identified through the scoping process as having the potential to experience significant effects. “Significant effect” is defined by the *CEQA Guidelines* §15382 as:

> a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment but may be considered in determining whether the physical change is significant.

The assessment of each issue area begins with a discussion of the environmental setting related to the issue, which is followed by the impact analysis. In the impact analysis, the first subsection identifies the methodologies used and the “significance thresholds,” which are those criteria adopted by the City and other agencies, universally recognized, or developed specifically for this analysis to determine whether potential effects are significant. The next subsection describes each impact of the proposed project, mitigation measures for significant impacts, and the level of significance after mitigation. Each effect under consideration for an issue area is separately listed in bold text with the discussion of the effect and its significance. Each bolded impact statement also contains a statement of the significance determination for the environmental impact as follows:

- **Significant and Unavoidable.** An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per *CEQA Guidelines* §15093.
- **Less than Significant with Mitigation Incorporated**. An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under *CEQA Guidelines* §15091.
- **Less than Significant**. An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.
- **No Impact.** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Following each environmental impact discussion is a list of mitigation measures (if required) and the residual effects or level of significance remaining after implementation of the measure(s). These are also summarized in the Executive Summary of this EIR. In cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed and evaluated as a secondary impact. The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the proposed project in conjunction with other planned and pending developments in the area listed in Section 3, *Environmental Setting*.

*This page left intentionally blank*

# 4.1 Air Quality

This section evaluates the impacts of the proposed amendment to Bayer HealthCare LLC's Development Agreement related to air quality. Assessment of impacts is based on pertinent analysis provided in the 1991 EIR, which evaluated impacts of buildout under the existing DA, and additional impacts that could occur as a result of buildout under the amended DA. The project-specific analysis is based on an Air Quality Environmental Impact Report by Ramboll US Consulting, Inc. in February 2021. This study is included as Appendix C.

## 4.1.1 Setting

### a. Local Climate and Meteorology

The project site is located in the "Northern Alameda and Western Contra Costa Counties" climatological subregion of the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). This subregion is bordered on the east by the Oakland-Berkeley Hills and on the west by the San Francisco Bay (Bay). Marine air traveling through the Golden Gate is a dominant weather factor, and the Oakland-Berkeley Hills cause the westerly flow of air to split off the north and south of Oakland, which causes diminishing wind speeds. Air temperatures are moderated by the subregion's proximity to marine air. During the summer months, average maximum temperatures are in the mid-70 degrees Fahrenheit (°F), and during the winter months, average maximum temperatures are in the mid- to high 50°F (BAAQMD 2017a).

Air quality in the SFBAAB is affected by the emission sources located in the region and by natural factors. Air pollutant emissions in the SFBAAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are distributed widely and include those such as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be operated legally on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment such as when high winds suspend fine dust particles.

Atmospheric conditions such as wind speed and direction, air temperature gradients, and local and regional topography influence air quality. Complex topographical features, the location of the Pacific high-pressure system, and varying circulation patterns associated with temperature gradients affect the speed and direction of local winds, which play a major role in the dispersion of pollutants. Strong winds can carry pollutants far from their source, but a lack of wind will allow pollutants to concentrate in an area. Air dispersion also affects pollutant concentrations. As altitude increases, air temperature normally decreases. However, inversions can occur when colder air becomes trapped below warmer air, restricting the air masses' ability to mix. Pollutants also become trapped, which promotes the production of secondary pollutants. Subsidence inversions, which can occur during the summer in the SFBAAB, result from high-pressure cells that cause the local air mass to sink, compress, and become warmer than the air closer to the earth. Pollutants accumulate as this stagnating air mass remains in place for one or more days (BAAQMD 2017a).

The air pollution potential in Northern Alameda and Western Contra Costa Counties climatological subregion is lowest in areas closest to the Bay due to good ventilation and lower influxes of pollutants from upwind sources. Air pollution potential in Berkeley is marginally higher than that of communities directly east of the Golden Gate because of the lower frequency of strong winds. This subregion contains a variety of industrial air pollution sources, some of which are close to residential areas, as well as congested major freeways, which are a major source of motor vehicle emissions (BAAQMD 2017a).

## b. Air Quality Standards

The federal Clean Air Act (CAA) governs air quality in the United States and is administered by the U.S. EPA at the federal level. Air quality in California is also governed by regulations under the California CAA, which is administered by the CARB at the state level. At the regional and local levels, local air districts such as the BAAQMD typically administer the federal and California CAA. As part of implementing the federal and California CAA, the U.S. EPA and the CARB have established ambient air quality standards for major pollutants at thresholds intended to protect public health. Table 4.1-1 summarizes the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS). The CAAQS are more restrictive than the NAAQS for several pollutants, including the one-hour standard for carbon monoxide, the 24-hour standard for sulfur dioxide, and the 24-hour standard for $PM_{10}$.

**Table 4.1-1 Ambient Air Quality Standards & Basin Attainment Status**

| | | California Ambient Air Quality Standards | | National Ambient Air Quality Standards | |
|---|---|---|---|---|---|
| Pollutant | Averaging Time | Concentration | Attainment Status | Concentration | Attainment Status |
| Ozone | 8-Hour | 0.070 ppm | N | 0.070 ppm | N |
| | 1-Hour | 0.09 ppm | N | – | – |
| Carbon Monoxide | 8-Hour | 9.0 ppm | A | 9 ppm | A |
| | 1-Hour | 20 ppm | A | 35 ppm | A |
| Nitrogen Dioxide | 1-Hour | 0.18 ppm | A | 0.100 ppm | U |
| | Annual Arithmetic Mean | 0.030 ppm | – | 0.053 ppm | A |
| Sulfur Dioxide | 24-Hour | 0.04 ppm | A | 0.14 ppm | U |
| | 1-Hour | 0.25 ppm | A | 0.075 ppm | U |
| | Annual Arithmetic Mean | – | – | 0.030 ppm | U |
| Particulate Matter – Small ($PM_{10}$) | Annual Arithmetic Mean | 20 µg/m$^3$ | N | – | – |
| | 24-Hour | 50 µg/m$^3$ | N | 150 µg/m$^3$ | U |
| Particulate Matter – Fine ($PM_{2.5}$) | Annual Arithmetic Mean | 12 µg/m$^3$ | N | 12 µg/m$^3$ | U/A |
| | 24-Hour | – | – | 35 µg/m$^3$ | N |
| Sulfates | 24-Hour | 25 µg/m$^3$ | A | – | – |

| Pollutant | Averaging Time | California Ambient Air Quality Standards | | National Ambient Air Quality Standards | |
|---|---|---|---|---|---|
| | | Concentration | Attainment Status | Concentration | Attainment Status |
| Lead | Calendar Quarter | – | – | 1.5 µg/m³ | A |
| | Rolling 3-Month Average | – | – | 0.15 µg/m³ | U |
| | 30-Day Average | 1.5 µg/m³ | A | – | – |
| Hydrogen Sulfide | 1-Hour | 0.03 ppm (42 µg/m³) | U | – | |
| Vinyl Chloride (Chloroethene) | 24-Hour | 0.010 ppm (26 µg/m³) | No information available | – | – |
| Visibility Reducing Particles | 8-Hour (10:00 to 18:00 PST) | – | U | – | – |

A = attainment; N = nonattainment; U = unclassified; ppm=parts per million; µg/m³=micrograms per cubic meter; PST = Pacific Standard Time

Source: BAAQMD 2017b and U.S. EPA 2020a

Depending on whether the standards are met or exceeded, the local air basin is classified as in "attainment" or "non-attainment." Some areas are unclassified, which means insufficient monitoring data are available; unclassified areas are considered to be in attainment. Table 4.1-1 presents the attainment status of the SFBAAB for each of the CAAQS and NAAQS. As shown therein, the SFBAAB is designated nonattainment for the NAAQS for ozone and $PM_{2.5}$ and the CAAQS for ozone, $PM_{10}$, and $PM_{2.5}$.

The federal and State CAAs mandate the control and reduction of certain air pollutants. Under these laws, the U.S. Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (CARB) have established ambient air quality standards (AAQS) for "criteria pollutants" and other air pollutants. Primary criteria air pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere and include carbon monoxide, volatile organic compounds (VOC)/reactive organic gases (ROG),[1] nitrogen oxides ($NO_X$), fine particulate matter ($PM_{10}$ and $PM_{2.5}$), sulfur dioxide, and lead. Secondary criteria pollutants are created by atmospheric chemical and photochemical reactions primarily between ROG and $NO_X$. Secondary pollutants include oxidants, ozone, and sulfate and nitrate particulates (smog). The characteristics, sources and effects of criteria pollutants are discussed in the following subsections.

## Ozone

Ozone is produced by a photochemical reaction (triggered by sunlight) between $NO_X$ and ROG. ROG are composed of non-methane hydrocarbons (with some specific exclusions), and $NO_X$ is composed of different chemical combinations of nitrogen and oxygen, mainly nitric oxide and nitrogen dioxide. $NO_X$ are formed during the combustion of fuels, while ROG are formed during combustion and evaporation of organic solvents. As a highly reactive molecule, ozone readily combines with many different components of the atmosphere. Consequently, high levels of ozone tend to exist only while high ROG and $NO_X$ levels are

[1] CARB defines VOC and ROG similarly as, "any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate," with the exception that VOC are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROG and VOC are considered comparable in terms of mass emissions, and the term ROG is used in this EIR.

present to sustain the ozone formation process. Once the precursors have been depleted, ozone levels rapidly decline. Because these reactions occur on a regional rather than local scale, ozone is considered a regional pollutant. In addition, because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans, including respiratory and eye irritation, aggravation of respiratory diseases such as asthma and bronchitis, possible changes in lung functions, and permanent damage to lung tissue (BAAQMD 2017a). Groups most sensitive to ozone include children, the elderly, persons with respiratory disorders, and people who exercise strenuously outdoors.

## Carbon Monoxide

Carbon monoxide is a localized pollutant that is found in high concentrations only near its source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is the incomplete combustion of petroleum fuels by automobile traffic. Therefore, elevated concentrations are usually only found near areas of high traffic volumes. Other sources of carbon monoxide include the incomplete combustion of petroleum fuels at power plants and fuel combustion from wood stoves and fireplaces during the winter. The health effects of carbon monoxide are related to its affinity for hemoglobin in the blood. Carbon monoxide causes a number of health problems including fatigue, headache, confusion, and dizziness. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity, and impaired mental abilities (BAAQMD 2017a). Carbon monoxide tends to dissipate rapidly into the atmosphere; consequently, violations of AAQS for carbon monoxide are generally associated with localized carbon monoxide “hotspots” that can occur at major roadway intersections during heavy peak-hour traffic conditions.

## Nitrogen Dioxide

Nitrogen dioxide is a by-product of fuel combustion; the primary sources are motor vehicles and industrial boilers and furnaces. The principal form of $NO_X$ produced by combustion is nitric oxide, but nitric oxide reacts rapidly to form nitrogen dioxide, creating the mixture of nitric oxide and nitrogen dioxide commonly called $NO_X$. Nitrogen dioxide is an acute irritant that can aggravate respiratory illnesses and increase the risk of acute and chronic respiratory diseases (BAAQMD 2017a). A relationship between nitrogen dioxide and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light, gives a reddish-brown cast to the atmosphere, and reduces visibility (BAAQMD 2017a). It can also contribute to the formation of $PM_{10}$ and acid rain.

## Suspended Particulates

Small particulate matter measuring no more than 10 microns in diameter is $PM_{10}$, while fine particulate matter measuring no more than 2.5 microns in diameter is $PM_{2.5}$. Both $PM_{10}$ and $PM_{2.5}$ are directly emitted into the atmosphere as by-products of fuel combustion and wind erosion of soil and unpaved roads. Particulate matter is also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with $PM_{10}$ and $PM_{2.5}$ can be very different. $PM_{10}$ is generally associated with dust mobilized by wind and vehicles while $PM_{2.5}$ is generally associated with combustion processes as well as formation in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory

problems (CARB 2020a). More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance (South Coast Air Quality Management District 2005). Suspended particulates can also reduce lung function, aggravate respiratory and cardiovascular diseases, increase mortality rates, and reduce lung function growth in children (BAAQMD 2017a).

### Sulfur Dioxide

Sulfur dioxide is included in a group of highly reactive gases known as "oxides of sulfur." The largest sources of sulfur dioxide emissions are from fossil fuel combustion at power plants (73 percent) and other industrial facilities (20 percent). Smaller sources of sulfur dioxide emissions include industrial processes such as extracting metal from ore and the burning of fuels with a high sulfur content by locomotives, large ships, and off-road equipment. Sulfur dioxide is linked with a number of adverse effects on the respiratory system, including irritation of lung tissue, aggravation of respiratory diseases, increased risk of acute and chronic respiratory diseases, and reduced lung function (BAAQMD 2017a).

### Lead

Lead is a metal found naturally in the environment, as well as in manufacturing products. The major sources of lead emissions historically have been mobile and industrial sources. However, as a result of the U.S. EPA's regulatory efforts to remove lead from gasoline, atmospheric lead concentrations have declined substantially over the past several decades. The most dramatic reductions in lead emissions occurred prior to 1990 due to the removal of lead from gasoline sold for most highway vehicles. Lead emissions were further reduced substantially between 1990 and 2008, with reductions occurring in the metals industries at least in part as a result of national emissions standards for hazardous air pollutants (U.S. EPA 2013). As a result of phasing out leaded gasoline, metal processing currently is the primary source of lead emissions. The highest level of lead in the air is generally found near lead smelters. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. The health impacts of lead include behavioral and hearing disabilities in children and nervous system impairment (BAAQMD 2017a).

### Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. One of the main sources of TACs in California is diesel engine exhaust that contains solid material known as diesel particulate matter (DPM). More than 90 percent of DPM is less than one micron in diameter (about $1/70^{th}$ the diameter of a human hair) and thus is a subset of $PM_{2.5}$. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs (CARB 2020b). Particulate matter emitted from diesel engines contributes more than 85 percent of the cancer risk within the SFBAAB, and cancer risk from TACs is highest near major diesel PM sources (BAAQMD 2014).

TACs are different than criteria pollutants because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

BAAQMD recommends that general plans include buffer zones to separate sensitive receptors from sources of TACs and odors. In April 2005, CARB released the final version of the *Air Quality and Land Use Handbook*, which is intended to encourage local land use agencies to consider the risks from air pollution prior to making decisions that approve the siting of new sensitive receptors (e.g., homes or daycare centers) near sources of air pollution. Unlike industrial or stationary sources of air pollution, the siting of new sensitive receptors does not require air quality permits but could create air quality problems. The primary purpose of the CARB's handbook is to highlight the potential health impacts associated with proximity to common TAC emission sources, so that those issues are considered in the planning process. CARB makes recommendations regarding the siting of new sensitive land uses near freeways, truck distribution centers, dry cleaners, gasoline dispensing stations, and other TAC emission sources. These recommendations are based primarily on modeling information and may not be entirely reflective of conditions in the project area. As a result, the *Air Quality and Land Use Handbook* (2005) notes that siting of new sensitive land uses within these distances may be possible but recommends that site-specific studies be conducted to identify actual health risks. CARB acknowledges that land use agencies have to balance other siting considerations such as housing and transportation needs, economic development priorities and other quality of life issues. CARB recommends avoiding siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day (CARB 2005). Since publication of the *Air Quality and Land Use Handbook* (2005), the CARB has developed a Technical Advisory (2017) that acknowledges that there is a possibility that near-roadway pollution exposure was previously underestimated and that people living as much as 1,000 feet from a freeway are adversely impacted by poor air quality. The Technical Advisory also recognizes the environmental and public health benefits of infill development, which often results in more people living near high-volume roadways, and highlights several strategies to reduce the resultant air pollution exposure from mobile sources (CARB 2017).

## Current Air Quality

Table 4.1-2 summarizes the representative annual air quality data for all criteria pollutants for the local airshed from the nearest monitoring stations with available data for 2017 through 2019. As shown therein, the NAAQS for nitrogen dioxide was exceeded in 2017; the CAAQS for $PM_{10}$ was exceeded in 2017 and 2018; the NAAQS for $PM_{10}$ was exceeded in 2018; and the NAAQS for $PM_{2.5}$ was exceeded in 2017 and 2018. Many of the exceedances of the $PM_{10}$ and $PM_{2.5}$ standards in 2017 and 2018 were likely caused by high particulate matter concentrations from wildfire smoke associated with the Tubbs, Nuns, Atlas, and Camp Fires in Napa, Sonoma, Solano, and Butte Counties, which overlapped with the days of the exceedances (California Department of Forestry and Fire Protection 2018).

## Table 4.1-2 Annual Ambient Air Quality Data

| Pollutant | 2017 | 2018 | 2019 |
|---|---|---|---|
| Ozone (ppm), Worst 1-Hour[1] | 0.058 | 0.059 | 0.047 |
| Number of days above CAAQS (>0.09 ppm) | 0 | 0 | 0 |
| Number of days above NAAQS (>0.12 ppm) | 0 | 0 | 0 |
| Ozone (ppm), Worst 8-Hour Average[1] | 0.049 | 0.049 | 0.042 |
| Number of days above CAAQS (>0.070 ppm) | 0 | 0 | 0 |
| Number of days above NAAQS (>0.070 ppm) | 0 | 0 | 0 |
| Carbon Monoxide (ppm), Highest 8-Hour Average[2] | 1.7 | 2.2 | 1.3 |
| Number of days above CAAQS or NAAQS (>9.0 ppm) | 0 | 0 | 0 |
| Nitrogen Dioxide (ppm), Worst 1-Hour[1] | 0.1233 | 0.0726 | 0.062 |
| Number of days above CAAQS (>0.180 ppm) | 0 | 0 | 0 |
| Number of days above NAAQS (>0.100 ppm) | 1 | 0 | 0 |
| Sulfur Dioxide (ppm), Worst Hour[3] | 0.0169 | 0.0119 | 0.0192 |
| Number of days above CAAQS (>0.25 ppm) | 0 | 0 | 0 |
| Number of days above NAAQS (>0.075 ppm) | 0 | 0 | 0 |
| Particulate Matter <10 microns ($\mu g/m^3$), Worst 24 Hours[4] | 95 | 191 | 34 |
| Number of days above CAAQS (>50 $\mu g/m^3$) | 4[5] | 2[6] | 0 |
| Number of days above NAAQS (>150 $\mu g/m^3$) | 0 | 1 | 0 |
| Particulate Matter <2.5 microns ($\mu g/m^3$), Worst 24 Hours[1] | 52.0 | 165.5 | 28.8 |
| Number of days above NAAQS (>35 $\mu g/m^3$) | 7[5] | 13[6] | 0 |
| Lead ($\mu g/m^3$), 3-Month Average[7] | 0.070 | 0.077 | 0.009 |
| Number of days above NAAQS (>0.15 $\mu g/m^3$) | 0 | 0 | 0 |

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard

[1] Data sourced from the CARB and the U.S. EPA at the nearest monitoring station with available data at the Aquatic Park in Berkeley (approximately 0.2 mile west of the project site).

[2] Data sourced from the U.S. EPA at the nearest monitoring station with available data at the Aquatic Park in Berkeley (approximately 0.2 mile west of the project site).

[3] Data sourced from the U.S. EPA at the nearest monitoring station with available data at 1100 21st Street in Oakland (approximately 3.1 miles south of the project site).

[4] Data sourced from the U.S. EPA at the nearest monitoring station with available data at 1865 Rumrill Boulevard in San Pablo (approximately 7.7 miles north of the project site).

[5] Some of the exceedances of the $PM_{10}$ and $PM_{2.5}$ standards for 2017 were likely a result of wildfire smoke from the Nuns, Tubbs, and Atlas Fires, which burned a total of approximately 145,000 acres between October 8 and October 31, 2017 in Sonoma, Solano, and Napa Counties and overlapped with many of the days of exceedances (California Department of Forestry and Fire Protection 2018).

[6] Many of the exceedances of the $PM_{10}$ and $PM_{2.5}$ standards for 2018 were likely a result of wildfire smoke from the Camp Fire, which burned approximately 1.9 million acres between November 8 and November 25, 2018 in Butte County and overlapped with many of the days of exceedances (California Department of Forestry and Fire Protection 2018).

[7] Data sourced from the U.S. EPA at the nearest monitoring station with available data at 10 Arkansas Street in San Francisco (approximately 8.7 miles southwest of the project site).

Source: CARB 2020c and U.S. EPA 2020b

### c. Sensitive Receptors

The NAAQs and CAAQS were established to protect public health and welfare with an adequate margin of safety. They are designed to protect that segment of the public most susceptible to respiratory distress as a result of poor air quality, such as children under 14, persons over 65, persons engaged in strenuous work or exercise, and people with pre-existing cardiovascular and chronic respiratory diseases. According to BAAQMD, sensitive receptors include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities (BAAQMD 2017a).

Existing areas evaluated in this analysis include a representative sample of known residents living in residential areas (children and adults) in the surrounding neighborhood, and other sensitive receptors (day care centers, schools and nursing homes etc.) located in the surrounding community and along the expected travel routes of employees and delivery trucks. The closest residential receptors are approximately 30 feet to the east of the project site. Other sensitive receptors include Bright Horizons Daycare (less than 15 feet to the east of the project site), Ecole Bilingue de Berkeley (50 feet to the southeast of the project site), Aquatic Park School (700 feet to the south of the project site), and a private residence daycare (899 Dwight Crescent, 190 feet to the southeast of the project site).

## 4.1.2 Regulatory Setting

The federal Clean Air Act (CAA) governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is governed by more stringent regulations under the California CAA. At the federal level, the USEPA administers the CAA. CARB administers the California CAA at the state level and the air quality management districts administer it at the regional and local levels. BAAQMD regulates air quality at the regional level, which includes the SFBAAB, where the project is located.

### a. Federal

The USEPA is responsible for enforcing the federal CAA and for establishing the NAAQS, required under the 1977 CAA and subsequent amendments. The USEPA regulates emission sources under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California.

### b. State

### California Clean Air Act

In California, CARB, which became part of the CalEPA in 1991, is responsible for meeting the state requirements of the federal CAA, administering the California CAA, and establishing the California Ambient Air Quality Standards (CAAQS). The California CAA, as amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS, which generally are more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. CARB regulates mobile air pollution sources, such as motor vehicles, and is responsible for setting emission standards for vehicles sold in California. The agency also addresses other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, effective

March 1996. CARB oversees the functions of local APCDs, which in turn administer air quality activities at the regional and county levels.

### Safer Affordable Fuel-Efficient Vehicles Rule

On September 27, 2019, the U.S. EPA and the National Highway Safety Administration published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program. The Part One Rule revokes California's authority to set its own GHG emissions standards and zero-emission vehicle mandates in California. On April 30, 2020, the U.S. EPA and the National Highway Safety Administration published Part Two of the SAFE Vehicles Rule, which revised corporate average fuel economy and carbon dioxide emissions standards for passenger cars and trucks of model years 2021-2026 such that the standards increase by approximately 1.5 percent each year through model year 2026 as compared to the approximately five percent annual increase required under the 2012 standards (National Highway Traffic Safety Administration 2020).

### Tanner Air Toxics Act and Air Toxics Hot Spots Information and Assessment Act

The Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588) (Hot Spots Act) are the primary regulators of TACs in California. HAPs/TACs are a broad class of compounds known to cause morbidity or mortality (cancer risk). HAPs/TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). Because chronic exposure can result in adverse health effects, TACs are regulated at the federal, state, and regional levels.

AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. To date, CARB has identified more than 21 TACs and adopted USEPA's list of HAPs as TACs. In 1998, diesel PM was added to CARB's list of TACs. Once a TAC is identified, CARB adopts an Airborne Toxic Control Measure for sources that emit that particular TAC. If a safe threshold exists at which no toxic effect occurs from a substance, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology to minimize emissions.

The Hot Spots Act requires existing facilities that emit toxic substances above a specified level to prepare a toxic emissions inventory and a risk assessment if the emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

## c. Regional and Local

### Bay Area Air Quality Management District 2017 Clean Air Plan

The BAAQMD adopted the 2017 Clean Air Plan (2017 Plan) on April 19, 2017 as an update to the 2010 Clean Air Plan. The 2017 Plan, which focuses on protecting public health and the climate, defines an integrated, multi-pollutant control strategy that includes all feasible measures to reduce emissions of ozone precursors (including transport of ozone and its precursors to neighboring air basins), PM, and TACs. To protect public health, the control strategy will decrease population exposure to PM and TACs in communities that are most impacted by air pollution with the goal of eliminating disparities in exposure to air pollution between communities. The control strategy will also protect the climate by reducing

greenhouse gas (GHG) emissions and developing a long-range vision of how the Bay Area could look and function in a post-carbon economy in 2050 (BAAQMD 2017c).

## City of Berkeley General Plan

The City of Berkeley General Plan Environmental Management and Transportation elements contain the following policies specific to air quality (City of Berkeley 2003):

**Policy EM-18 Regional Air Quality Action**. Continue working with the BAAQMD and other regional agencies to:

1. Improve air quality through pollution prevention methods.
2. Ensure enforcement of air emission standards.
3. Reduce local and regional traffic (the single largest source of air pollution in the city) and promote public transit.
4. Promote regional pollution prevention plans for business and industry.
5. Promote strategies to reduce particulate pollution from residential fireplaces and wood-burning stoves.
6. Locate parking appropriately and provide signage to reduce unnecessary "circling" and searching for parking.

**Policy T-18 Level of Service.** When considering transportation impacts under CEQA, the City shall consider how a plan or project affects all modes of transportation, including transit riders, bicyclists, pedestrians, and motorists, to determine the transportation impacts of a plan or project. Significant beneficial pedestrian, bicycle, or transit impacts, or significant beneficial impacts on air quality, noise, visual quality, or safety in residential areas, may offset or mitigate a significant adverse impact on vehicle Level of Service (LOS) to a level of insignificance. The number of transit riders, pedestrians, and bicyclists potentially affected will be considered when evaluating a degradation of LOS for motorists.

**Policy T-19 Air Quality Impacts.** Continue to encourage innovative technologies and programs such as clean-fuel, electric, and low-emission cars that reduce the air quality impacts of the automobile.

**Policy T-29 Infrastructure Improvements.** Facilitate mobility and the flow of traffic on major and collector streets, reduce the air quality impacts of congestion, improve pedestrian and bicycle access, and speed public transportation throughout the city by making improvements to the existing physical infrastructure.

## City of Berkeley Climate Action Plan

The City of Berkeley adopted a Climate Action Plan (CAP) in 2009 with the goal of reducing communitywide GHG emissions by 80 percent below 2000 levels by 2050. While the purpose of the CAP is to reduce GHG emissions, these policies can also result in the co-benefit of reducing air quality impacts. The core recommendation strategies and actions of the CAP center around the following topics (City of Berkeley 2009):

1. Sustainable Transportation and Land Use
2. Building Energy Use
3. Waste Reduction and Recycling

4. Community Outreach and Empowerment
5. Preparing for Climate Change Impacts

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

- 100 percent renewable electricity by 2035
- Carbon neutrality by 2045, in alignment with Governor Brown's Executive Order B-55-18
- Declaration of a Climate Emergency and resolution to become a Fossil Fuel Free City as soon as possible and no later than 2030

### Natural Gas Prohibition in New Buildings

In 2019, the Berkeley City Council added Chapter 12.80 to the Berkeley Municipal Code (BMC) via Ordinance No. 7,672-N.S., which prohibits the installation of natural gas infrastructure in newly constructed buildings. Natural gas infrastructure may be permitted if the applicant establishes, subject to City approval, that it is not physically feasible to construct the building without natural gas infrastructure or if its use serves the public interest.

## 4.1.3 Impact Analysis

### a. Methodology and Significance Thresholds

### Significance Criteria

Based on Appendix G of the *CEQA Guidelines* and the May 2017 BAAQMD *CEQA Air Quality Guidelines,* Air quality impacts would be significant if the project would:

1. Conflict with or obstruct implementation of the applicable air quality plan;
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;
3. Expose sensitive receptors to substantial pollutant concentrations; or
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

*Criteria Air Pollutants*

Criteria air pollutants include for which air quality standards have been established. Table 4.1-3 presents the quantitative criteria air pollutant thresholds published by BAAQMD and used by the City of Berkeley. Projects that would result in criteria pollutant emissions below these significance thresholds would not violate an air quality standard, contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants within the air basin. Both of these thresholds (average daily and maximum annual) apply to operational emissions from a given project. Construction emissions are assessed solely with respect to the average daily thresholds, pursuant to BAAQMD's guidance, because of the temporary nature of construction-related emissions.

For the purposes of this analysis, the project would result in a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 4.1-3.

**Table 4.1-3 Air Quality Thresholds of Significance**

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

Notes: tpy = tons per year; lbs/day = pounds per day; NOX = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; $PM_{10}$ = respirable particulate matter with an aerodynamic resistance diameter of ten micrometers or less; ROG = reactive organic gases; tpy = tons per year.

Source: Table 2-1, BAAQMD, CEQA Air Quality Guidelines, May 2017.

### *Toxic Air Contaminants*

For health risks associated with TAC and $PM_{2.5}$ emissions from individual development projects, the BAAQMD 2017 *CEQA Air Quality Guidelines* state a project would result in a significant impact if the any of the following thresholds are exceeded (BAAQMD 2017a):

- Non-compliance with Qualified Community Risk Reduction Plan;
- Increased cancer risk of >10.0 in one million;
- Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute); or
- Ambient $PM_{2.5}$ increase: > 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average

In addition, a project would have a cumulatively considerably impact associated with TAC and $PM_{2.5}$ emissions if the aggregate total emissions of all past, present, and foreseeable future sources within a 1,000-foot radius of the fenceline of the source plus the project's contribution exceed any of the following thresholds (BAAQMD 2017a):

- Non-compliance with Qualified Community Risk Reduction Plan;
- Increased cancer risk of >100.0 in one million;
- Increased non-cancer risk of > 10.0 Hazard Index (Chronic or Acute); or
- Ambient $PM_{2.5}$ increase: > 0.8 $\mu g/m^3$ annual average

## Methodology

## Criteria Air Pollutant Emissions

Criteria air pollutant emissions associated with construction and operation of the project were calculated with Excel-based models using methods consistent with the latest version of the California Emissions Estimator Model (CalEEMod; version 2016.3.2). As described in Section 2, *Project Description*, the CEQA baseline for the air quality analysis is buildout under the existing (1992) DA on the North Properties (1,346,000 square feet of development) and existing development on the South Properties (520,000 square feet of

development). The total square footage analyzed in the baseline scenario is therefore 1,866,000 square feet across the project site.

Construction emissions were calculated for the use of off-road equipment, on-road worker commutes, construction delivery and haul trucks, and application of architectural coatings. As described in Section 2, *Project Description*, under the amended DA, buildout would occur in two phases: an initial 10-year phase through 2032, followed by a 20-year phase through 2052. For the purposes of the air quality analysis, construction of the "Year 10 Project" is assumed to occur between 2024 and 2029, and construction of the "Year 30 Project" (full buildout) is assumed to occur in 2034 and 2049. Construction emissions modeling takes into account the use of equipment equipped with Tier 4 Final engines. CARB has certified off-road diesel engine emission standards that require all equipment manufactured after January 1, 2015 to have Tier 4 Final engines. For the purposes of construction emissions modeling for the Year 10 Project, emissions were modeled with 10 percent of equipment hours using Tier 2 engines in order to grant some flexibility in case some Tier 4 Final equipment is not available for construction of the Year 10 Project. However, the Year 30 Project construction equipment fleet is assumed to be 100 percent Tier 4 Final engines. Construction emissions modeling also assumed demolition of approximately 24,900 cubic yards of material during 2024 for the Year 10 Project. Please refer to the Air Quality Environmental Impact Report included in Appendix C for a detailed discussion of the methodology used to calculate criteria air pollutant emissions associated with project construction.

Operational emissions were calculated for a variety of sources, including area sources (consumer products, architectural coatings, landscaping, manufacturing laboratory material usage), building energy use (natural gas),[2] mobile sources (vehicle trips), and stationary sources (diesel emergency generators, natural gas boilers, solvent cleanup). Emissions modeling for building energy usage accounts for the 2019 Title 24 standards and the City's Ordinance No. 7,672-N.S. Mobile source emissions were estimated using the vehicle trip estimates from the transportation analysis prepared for the proposed project by Fehr & Peers and EMission FACtor model (EMFAC) 2017 vehicle emissions factors. Emissions associated with the six emergency diesel generators were estimated based on emission factors from manufacturer specification sheets, assuming that the Year 10 Project would include replacement of two of the existing generators with two new 2,000-kilowatt diesel generators and the Year 30 Project would include replacement of the remaining four existing generators with three new 2,00-kilowatt generators.[3] Hours of operation for existing emergency generators were based on permit limits of 50 hours per generator for annual non-emergency operation. Emissions from the three existing natural gas boilers were estimated based on the boiler capacity, the total annual operating hours, and natural gas consumption rates. In addition, it was assumed that steam consumption for the Year 10 and Year 30 Projects would increase by approximately 17 percent as compared to existing permitted levels, and to accommodate this increase in usage, the modeling assumes the Year 10 Project would include an additional boiler (400 brake horsepower). To

[2] Emissions modeling for building energy usage only account for natural gas usage, consistent with the methodology of CalEEMod: "When electricity is used in buildings, the electricity generation typically takes place offsite power plants, the majority of which burn fossil fuels. Because power plants are existing stationary sources permitted by air districts and/or the USEPA, criteria pollutant emissions are generally associated with the power plants themselves, and not individual buildings or electricity users. Additionally, criteria pollutant emissions from power plants are subject to local, state, and federal control measures, which can be considered to be the maximum feasible level of mitigation for stack emissions" (California Air Pollution Control Officers Association 2017).

[3] The assumption that backup power would be provided by diesel generators provides a conservative estimate of project impacts. It is possible that battery energy storage systems supplied by renewable energy may be used in lieu of diesel generators as the feasibility and practicality of this option evolves over the timeframe of the proposed DA.

accommodate this increase in usage, the modeling assumes the Year 10 Project would include an additional boiler (400 brake horsepower). A small increase in isopropyl alcohol (IPA) usage would also occur as a result of the Year 10 and Year 30 Projects as compared to the CEQA baseline; therefore, manufacturing lab emissions for the Year 10 and Year 30 Projects assume maximum permitted IPA emissions of 54,200 pounds of ROG per year. However, project operation would include chemical reduction elements such that overall chemical usage associated with the Year 10 and Year 30 Projects would decrease as compared to the CEQA baseline. Therefore, this analysis does not anticipate increased volatile chemical usage or additional ROG emissions in either the laboratories or production areas beyond that associated with IPA usage (Appendix C). Please refer to the Air Quality Environmental Impact Report included in Appendix C for a detailed discussion of the methodology used to calculate criteria air pollutant emissions associated with project operation.

## Health Risk Assessment

As part of the Air Quality Environmental Impact Report (Appendix C), Ramboll prepared a health risk assessment (HRA) for construction and operation of the proposed amendments to identify off-site health risks associated with $PM_{2.5}$ and TAC emissions, consistent with BAAQMD guidance. Near-field air dispersion modeling of TACs and $PM_{2.5}$ emissions from the project's emissions sources was conducted using USEPA's American Meteorological Society/Environmental Protection Agency Regulatory Air Dispersion Model (AERMOD) air dispersion model (version 19191). Concentrations of $PM_{2.5}$ and TACs were estimated at nearby sensitive receptors, including residences, schools/daycare facilities, senior care facilities, and in-patient medical centers. The health risk modeling included:

- Off-road construction equipment in-use during construction activities in 2024, 2029, 2034, and 2049;
- Project-related vehicular traffic;
- Emergency diesel generators, assuming maximum permitted non-emergency operations during all hours outside of 7:30 am to 3:30 p.m., which is consistent with BAAQMD permits that prevent operation of generators during school hours;
- Natural gas boilers, assuming 8,760 hours of operation per year at maximum heat input rate, with a utilization rate to reflect actual usage; and
- IPA usage assuming maximum permitted emissions.

Ammonia usage is not expected to increase as a result of the proposed amendments, and because the ammonia refrigeration system is a closed pressurized system, emissions are limited to minor potential leaks from the process components (pumps, valves, flanges, etc.) in the system for which risks are expected to be negligible.

Source concentrations were then used in combination with toxicity and exposure information to estimate inhalation health risks following the most recent BAAQMD Recommended Methods for Screening and Modeling Local Risks and Hazards. The exposure parameters were obtained using risk assessment guidelines from the California Environmental Protection Agency and BAAQMD. Age sensitivity factors account for an "anticipated special sensitivity to carcinogens" of infants and children as recommended in the California Office of Environmental Health Hazard Assessment (OEHHA) Technical Support Document and current OEHHA guidance (Appendix C). Please refer to the Air Quality Environmental Impact Report included in Appendix C for a detailed discussion of the methodology used to calculate health risk impacts

## b. Prior Environmental Analysis

Chapter 5F (Air Quality) of the 1991 EIR analyzes the existing DA's air quality impacts. That chapter does not address the issues of conflicts with air quality plans (Threshold 1) or other emissions such as odors (Threshold 4). Further, the project would involve demolition of existing buildings and construction and operation of new buildings that were not analyzed in the 1991 EIR and could therefore result in new impacts related to air quality. Therefore, all the CEQA checklist items listed above under Significance Criteria are addressed in this analysis.

## c. Project Impacts and Mitigation Measures

| **Threshold 1:** | Would the project conflict with or obstruct implementation of the applicable air quality plan? |
|---|---|

**Impact AQ-1 IMPLEMENTATION OF THE PROPOSED AMENDED DA WOULD NOT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE 2017 BAAQMD CLEAN AIR PLAN. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

The California CAA requires air districts to create a Clean Air Plan that describes how the jurisdiction will meet AAQS, and these plans must be updated every three years. The most recently adopted air quality plan for the SFBAAB is the 2017 Plan. The control strategy in the 2017 Plan includes measures related to stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants (BAAQMD 2017c).

The 2017 Plan focuses on two paramount goals (BAAQMD 2017c):

- Protect air quality and health at the regional and local scale by attaining all state and national air quality standards and eliminating disparities among Bay Area communities in cancer health risk from TACs; and
- Protect the climate by reducing Bay Area GHG emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050

Under the BAAQMD's methodology, a plan-level determination of consistency with the 2017 Plan should demonstrate that the proposed amended DA:

- Support the primary goals of the 2017 Plan;
- Include applicable control measures from the 2017 Plan; and
- Would not disrupt or hinder implementation of any control measures in the 2017 Plan.

The following subsections provide a discussion of consistency with these three criteria.

### Support for the Primary Goals of the Clean Air Plan

The primary goals of the 2017 Plan are to protect air quality and health at the regional and local scale and protect the climate. Any project that would not support these goals would not be considered consistent with the 2017 Plan. On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating support for the Plan goals. As discussed under Impacts AQ-2 and AQ-3, approval of the proposed DA would not result in significant and unavoidable criteria pollutant emissions. In addition, the proposed amended DA includes components that would reduce vehicle trips and emissions associated with new individual development projects. For example, the DA would extend the

provisions that would promote the use of transit and pedestrian and bicycle access. The proposed amended DA would include other transportation features such as car-share parking spaces and existing electric chargers. As further detailed in *Section 4.6 Transportation and Traffic,* these proposed features would be designed to reduce vehicle trips by increasing density in proximity to existing transit, extensive pedestrian and bicycle infrastructure. Consistent with the City of Berkeley's Ordinance on Prohibition of Natural Gas Infrastructure in New Buildings, it is anticipated that the proposed amended DA would include no natural gas usage in buildings other than manufacturing laboratories and production. (This analysis conservatively assumes that natural gas usage for manufacturing and laboratory operations would qualify for an exception to or exemption from BMC Chapter 12.80; however, ultimate determination of the use of an exception or exemption would be at the discretion of the City.) Therefore, the proposed amendments would support the primary goals of the 2017 Plan.

## Inclusion of Applicable 2017 Plan Control Measures

The 2017 Plan contains 85 control strategies aimed at reducing air pollution and protecting the climate in the Bay Area. For consistency with climate planning efforts at the state level, the control strategies in the 2017 Plan are based on the same economic sector framework used by the CARB, which encompasses stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-greenhouse gas pollutants. Table 4.1-4 identifies applicable control measures from the 2017 Plan and correlates the measures to specific elements of the proposed amended DA. As shown therein, the proposed amended DA would include applicable 2017 Plan control strategies.

**Table 4.1-4 Project Consistency with Applicable 2017 Plan Control Measures**

| Control Measures | Consistency |
|---|---|
| **Transportation** | |
| **TR1: Clean Air Teleworking Initiative**: Develop teleworking best practices for employers and develop additional strategies to promote telecommuting. Promote teleworking on Spare the Air Days. | **Consistent**: As described in Section 2, *Project Description,* (Table 2-6) the project amended DA includes a sustainability feature to encourage telecommuting and alternative work schedules and thus would be consistent with this measure. |
| **TR2: Trip Reduction Programs:** Implement the regional Commuter Benefits Program (Rule 14-1) that requires employers with 50 or more Bay Area employees to provide commuter benefits. Encourage trip reduction policies and programs in local plans, e.g., general and specific plans while providing grants to support trip reduction efforts. Encourage local governments to require mitigation of vehicle travel as part of new development approval, to adopt transit benefits ordinances in order to reduce transit costs to employees, and to develop innovative ways to encourage rideshare, transit, cycling, and walking for work trips. Fund various employer-based trip reduction programs | **Consistent**: As described in Section 4.6, *Transportation,* and with Mitigation Measure T-1, the proposed amended DA would implement a Transportation Demand Management (TDM) program that would include continued funding of the West Berkeley Bart Shuttle from Bayer to the Ashby BART station. Additionally, the TDM would implement pretax benefits, bicycle commuting incentives, and telecommuting options for qualified employment positions and thus would be consistent with the applicable measure. |

| Control Measures | Consistency |
|---|---|
| **TR3: Local and Regional Bus Service.** Fund local and regional bus projects, including operation and maintenance. | **Consistent**: As described in Section 4.6, *Transportation,* and with Mitigation Measure T-1, the proposed amended DA would implement a TDM program that would include continued funding of the West Berkeley BART Shuttle from Bayer to the Ashby BART station. During normal conditions (i.e., non-pandemic conditions), the shuttles run every 15 minutes during peak hours and are timed to align with BART trains with service as needed to meet demand. In accordance with Mitigation Measure T-1, in the event that demand increases under the proposed DA, Bayer would either increase shuttle capacity, increase service frequency, or both, which would reduce vehicle trips associated with the proposed DA below those estimated herein. Therefore, the project would be consistent with this measure. |
| **TR4: Local and Regional Rail Service:** Fund local and regional rail service projects, including operations and maintenance. | **Consistent**: As described in Section 4.6, *Transportation,* and with Mitigation Measure T-1, the proposed amended DA would implement a TDM program that would include continued funding of the West Berkeley Bart Shuttle from Bayer to the Ashby BART station. During normal conditions (i.e., non-pandemic conditions), the shuttles run every 15 minutes during peak hours and are timed to align with BART trains with service as needed to meet demand. In accordance with Mitigation Measure T-1, in the event that demand increases under the proposed DA, Bayer would either increase shuttle capacity, increase service frequency, or both, which would reduce vehicle trips associated with the proposed DA below those estimated herein. Therefore, the project would be consistent with this measure. |
| **TR8: Ridesharing Last-Mile Connection.** Promote carpooling and vanpooling by providing funding to continue regional and local ridesharing programs, and support the expansion of carsharing programs. Provide incentive funding for pilot projects to evaluate the feasibility and cost-effectiveness of innovative ridesharing and other last-mile solution trip reduction strategies. Encourage employers to promote ridesharing and carsharing to their employees | **Consistent.** The proposed amended DA would feature ridesharing and trip reduction strategies such as car-sharing park spaces and there would be electric vehicle chargers throughout the Bayer campus that meet the City's requirements for electric vehicle charging stations, at a minimum. (Currently, under BMC Chapter 19.37, ten percent of parking spaces must include electric vehicle chargers and 40 percent of parking spaces must include raceways to facilitate future electric vehicle supply equipment.) |
| **TR9: Bicycle and Pedestrian Access and Facilities**. Encourage planning for bicycle and pedestrian facilities in local plans, e.g., general and specific plans, fund bike lanes, routes, paths and bicycle parking facilities. | **Consistent**: The project would meet the City's current bicycle parking requirements. In addition, the proposed amended DA would include provisions to encourage and improve active pedestrian and biking access to the facilities. |

| Control Measures | Consistency |
|---|---|
| **Buildings** | |
| **BL2: Decarbonize Buildings**. Explore potential Air District rulemaking options regarding the sale of fossil fuel-based space and water heating systems for both residential and commercial use. Explore incentives for property owners to replace their furnace, water heater or natural-gas powered appliances with zero-carbon alternatives. Update Air District guidance documents to recommend that commercial and multi-family developments install ground source heat pumps and solar hot water heaters. | **Consistent**: Development under the proposed amended DA would be required to comply with the City of Berkeley's Ordinance on Prohibition of Natural Gas Infrastructure in New Buildings. This ordinance prohibits natural gas infrastructure unless it is not physically feasible or unless natural gas usage is in the public interest. It is assumed that the proposed project would involve natural gas usage only for the manufacturing lab facilities, the production buildings, and the natural gas boilers (if approved by the City to qualify for an exception to or exemption from BMC Chapter 12.80), and not for administration, maintenance, and warehouse facilities. Nonetheless, the project would comply with the ordinance for all uses where feasible and request an exception to or exemption from BMC Chapter 12.80, the ultimate determination of which would be at the discretion of the City. |

Source: BAAQMD 2017c

## Implementation of 2017 Plan Control Measures

The proposed amended DA would be required to be consistent with BAAQMD rules and regulations, including dust and DPM reduction measures, and would not otherwise cause a disruption, delay, or other hinderance of the implementation of a control measure of the 2017 Plan. Buildout under the proposed amended DA would not preclude planned transit or bike pathways and would not otherwise disrupt regional planning efforts to reduce VMT and meet the NAAQS and CAAQS.

## Summary

Overall, the proposed amended DA would support the primary goals of the 2017 Plan, include applicable control measures from the 2017 Plan, and would not disrupt or hinder implementation of control measures in the 2017 Plan. Therefore, the project would be consistent with the 2017 Plan, and this impact would be less than significant.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

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

### Impact AQ-2 CONSTRUCTION ACTIVITIES UNDER THE PROPOSED AMENDED DA WOULD RESULT IN THE TEMPORARY GENERATION OF CRITERIA AIR POLLUTANTS, WHICH WOULD AFFECT LOCAL AIR QUALITY. WITH MITIGATION, CONSTRUCTION EMISSIONS WOULD NOT EXCEED APPLICABLE BAAQMD THRESHOLDS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

The proposed amended DA would involve activities that generate criteria air pollutant and fugitive dust emissions. Construction activities such as demolition, grading, construction worker travel to and from the project site, delivery and hauling of construction supplies and

debris to and from the project site, and fuel combustion by on-site construction equipment would generate pollutant emissions. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants, particularly during site preparation and grading. The extent of daily emissions (particularly ROG and $NO_X$ emissions) generated by construction equipment would depend on the quantity of equipment used and the hours of operation. The extent of $PM_{2.5}$ and $PM_{10}$ emissions would primarily depend on the following factors: 1) the amount of disturbed soils; 2) the length of disturbance time; 3) whether existing structures are demolished; 4) whether excavation is involved; and 5) whether off-site transport of excavated materials is necessary.

Demolition of structures may also result in the release of asbestos containing materials or lead-based paint. This impact is discussed in Section 4.4, *Hazards and Hazardous Materials.* Potential impacts associated with microbes or other organisms used in the manufacturing or production processes are also discussed in Section 4.4.

As discussed in Section 4.1.1(c), *Regulatory Setting*, the SFBAAB is designated nonattainment for the NAAQS for ozone and $PM_{2.5}$ and the CAAQS for ozone, $PM_{10}$, and $PM_{2.5}$. According to the 2017 BAAQMD *CEQA Air Quality Guidelines*, $PM_{10}$ is the greatest pollutant of concern during construction (BAAQMD 2017a). Construction-related criteria air pollutant and fugitive dust emissions are discussed in the following subsections.

## Fugitive Dust

Demolition, site preparation, and grading during construction activities under the proposed amended DA may cause wind-blown dust that could contribute particulate matter into the local atmosphere. The BAAQMD has not established a quantitative threshold for fugitive dust emissions but rather states that projects that incorporate best management practices (BMPs) for fugitive dust control during construction would have a less-than-significant impact related to fugitive dust emissions. As described in Section 2, *Project Description,* the proposed amended DA would add construction requirements to follow the BMPs. Mitigation is required to ensure compliance with BAAQMD construction BMPs for future development on the project site and in accordance with the applicable BMPs at the time of development. This impact is potentially significant and mitigation is required.

## Criteria Air Pollutant Emissions

Buildout under the proposed amended DA would involve demolition, site-preparation, grading, excavation, building construction, architectural coating, and paving using typical construction equipment. Construction emissions include emissions from both off-road construction equipment and on-road construction vehicles, including haul trucks and vendor/worker trips. As noted in the Air Quality Environmental Impact Report (Appendix C), construction of any single phase of the proposed project's construction phasing program would result in emissions of ROG, $NO_X$, $PM_{10}$, and $PM_{2.5}$ that would be below the thresholds of significance when considered alone. However, multiple construction phases would overlap in time; therefore, construction emission estimates from overlapping phases were summed using the average daily emissions from each active phase. As described in Section 2, *Project Description,* Bayer has committed to using only Tier 4 Final engines in their construction fleets for the Year 10 and Year 30 Projects, where available. In addition, Bayer has committed to using exclusively Tier 4 Final equipment in all of their construction projects by 2035. Maximum average daily project construction emissions for both the Year 10 Project and Year 30 Project are presented in Table 4.1-5. As shown therein, temporary emissions during construction of both the Year 10 Project and the Year 30 Project would not

exceed BAAQMD thresholds for criteria pollutants in comparison to the baseline conditions, assuming the Tier 4 commitments are achieved. Mitigation is required to ensure the amended DA includes the use of Tier 4 Final engines for construction throughout the 30 year DA. This impact is potentially significant and mitigation is required.

**Table 4.1-5 Average Daily Construction Emissions**

| | Average Daily Emissions (lbs/day)[1] | | | |
|---|---|---|---|---|
| **Project** | **ROG** | **$NO_x$** | **$PM_{10}$ (exhaust)** | **$PM_{2.5}$ (exhaust)** |
| **Year 10** | | | | |
| 2024 | 13 | 8 | 1 | <1 |
| 2029 | 4 | 1 | <1 | <1 |
| *BAAQMD Significance Threshold* | *54* | *54* | *82* | *54* |
| **Exceeds Threshold?** | **No** | **No** | **No** | **No** |
| **Year 30** | | | | |
| 2034 | 6 | 3 | <1 | <1 |
| 2049 | 18 | 6 | <1 | <1 |
| *BAAQMD Significance Threshold* | *54* | *54* | *82* | *54* |
| **Exceeds Threshold?** | **No** | **No** | **No** | **No** |

[1] Numbers may not add due to rounding

Source: Ramboll 2021, Appendix C

## Mitigation Measures

The following mitigation measures are required. These measures have been adapted from mitigation required in the 1991 EIR to address impacts from the proposed project and to reflect current regulations.

### *AQ-1 Construction Emissions Measures*

Demolition, grading and construction activities shall comply with the current Bay Area Air Quality Management District's basic control measures for reducing construction emissions (Table 8-2, Basic Construction Mitigation Measures Recommended for All Proposed Projects, of the May 2017 BAAQMD CEQA Guidelines or equivalent as updated by BAAQMD).

### *AQ-2 Tier 4 Construction Equipment*

Demolition, grading and construction activities shall utilize at least 90 percent Tier 4 equipment (or better) through 2032 and all Tier 4 equipment (or better) after 2032. If the use of such equipment is not commercial availably, the applicant shall prepare a project-specific air quality assessment to evaluate construction-related criteria air pollutants. If the project-specific air quality assessment finds that construction emissions would exceed any of the applicable BAAQMD thresholds, the air quality assessment shall identify emission reduction measures to reduce emissions below the thresholds and the applicant shall implement the measures. Measures may include, but would not be limited to, some or all of the following, as necessary:

- Equip construction equipment with Tier 3 or Tier 4 certified engines or CARB-certified Level 3 diesel particulate filters. All diesel particulate filters shall be kept in working order and maintained in operable condition according to manufacturer's specifications.
- Minimize the idling time of diesel-powered construction equipment to two minutes.
- Use late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
- Use low-sulfur fuel or other non-diesel for stationary construction equipment.
- Use low-emission on-site stationary equipment.
- Use alternatively-fueled construction equipment (e.g., natural gas, electric).
- Schedule soil import and/or export to reduce the number of daily haul truck trips.
- Phase construction activities to reduce daily equipment use.
- Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time to reduce the amount of disturbed ground surfaces at any one time.

## Significance After Mitigation

With mitigation, construction under the proposed amended DA would implement construction BMPs per BAAQMD guidance and would use Tier 4 construction equipment with increasing requirements for the use of Tier 4 over time, or implement additional measures to reduce emissions to the same degree. Impacts would be less than significant.

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

**Impact AQ-2 PROJECT OPERATION WOULD NOT GENERATE AIR POLLUTANTS IN QUANTITIES THAT EXCEED BAAQMD SIGNIFICANCE THRESHOLDS. THEREFORE, THE PROJECT WOULD NOT VIOLATE OR CONTRIBUTE SUBSTANTIALLY TO THE VIOLATION OF AN AIR QUALITY STANDARD. IMPACTS WOULD BE LESS THAN SIGNIFICANT.**

The project's long-term operational emissions are those attributed to mobile, energy, area, and stationary sources. Mobile sources include daily visitor, delivery truck, and employee trips. Energy sources include natural gas combustion for space and water heating. Area sources include consumer products (e.g., solvents, cleaning supplies, cosmetics, toiletries), architectural coatings and the associated off-gassing during reapplication, and landscape maintenance equipment. Stationary sources include emergency diesel generators, boilers, and solvent cleaning. The net change in operational emissions associated with the Year 10 Project and the Year 30 Project are shown in Table 4.1-6. As shown in the table, operation of the Year 10 Project would result in a net decrease in average daily and annual emissions of $NO_X$ and $PM_{10}$ and a net increase in average daily and annual ROG and $PM_{2.5}$ emissions. Nevertheless, net new operational emissions associated with the Year 10 Project would be below the BAAQMD thresholds.

Operation of the Year 30 project would also result in a net decrease in average daily and annual emissions of $NO_X$ and a net increase in average daily and annual ROG, $PM_{10}$, and $PM_{2.5}$ emissions. However, similar to the Year 10 Project, net new operational emissions associated with the Year 30 Project would be below BAAQMD thresholds. The net decreases in operational emissions associated with the Year 10 Project and Year 30 Project

are primarily due to the overall reduction in square footage as compared to the CEQA baseline as well as improving vehicle emission standards over time.

**Table 4.1-6 Estimated Average Daily Operational Emissions**

| | Net New Emissions[1] | | | |
|---|---|---|---|---|
| **Emissions Source** | **ROG** | **$NO_x$** | **$PM_{10}$** | **$PM_{2.5}$** |
| **Year 10** | | | | |
| Architectural Coatings (lbs/day) | (2) | 0 | 0 | 0 |
| Consumer Products (lbs/day) | (1) | 0 | 0 | 0 |
| Manufacturing Lab (lbs/day) | 54 | 0 | 0 | 0 |
| Landscaping (lbs/day) | <1 | <1 | <1 | <1 |
| Building Natural Gas Usage (lbs/day) | (1) | (8) | (1) | (1) |
| Boiler Natural Gas Usage (lbs/day) | 2 | 19 | 3 | 3 |
| Generators (lbs/day) | <1 | 8 | (<1) | (<1) |
| On-Road Fugitive Dust Emissions (lbs/day) | 0 | 0 | (3) | (<1) |
| On-Road Exhaust Emissions (lbs/day) | (7) | (25) | (2) | (1) |
| Net New Daily Emissions (lbs/day) | 46 | (7) | (3) | 1 |
| *BAAQMD Daily Significance Threshold (lbs/day)* | *54* | *54* | *82* | *54* |
| **Exceeds Threshold?** | **No** | **No** | **No** | **N/A** |
| Net New Annual Emissions (tons/year) | 8 | (1) | (<1) | 1 |
| *BAAQMD Annual Significance Threshold* | *10* | *10* | *15* | *10* |
| **Exceeds Threshold?** | **No** | **No** | **No** | **N/A** |
| **Year 30** | | | | |
| Architectural Coatings (lbs/day) | (<1) | 0 | 0 | 0 |
| Consumer Products (lbs/day) | (1) | 0 | 0 | 0 |
| Manufacturing Lab (lbs/day) | 54 | 0 | 0 | 0 |
| Landscaping (lbs/day) | <1 | <1 | 0 | 0 |
| Building Natural Gas Usage (lbs/day) | (<1) | (7) | (1) | (1) |
| Boiler Natural Gas Usage (lbs/day) | 2 | 19 | 3 | 3 |
| Generators (lbs/day) | <1 | 2 | (<1) | (<1) |
| On-Road Fugitive Dust Emissions (lbs/day) | 0 | 0 | 1 | <1 |
| On-Road Exhaust Emissions (lbs/day) | (8) | (20) | (<1) | (<1) |
| Net New Daily Emissions (lbs/day) | 48 | (7) | 3 | 2 |
| *BAAQMD Daily Significance Threshold (lbs/day)* | *54* | *54* | *82* | *54* |
| **Exceeds Threshold?** | **No** | **No** | **No** | **N/A** |
| Net New Annual Emissions (tons/year) | 9 | (1) | (<1) | <1 |
| *BAAQMD Annual Significance Threshold* | *10* | *10* | *15* | *10* |
| **Exceeds Threshold?** | **No** | **No** | **No** | **N/A** |

[1] Numbers may not add due to rounding

Source: Ramboll 2021, Appendix C

Emissions generated by project operation in comparison to the existing DA would not exceed BAAQMD significance thresholds. Therefore, impacts would be less than significant.

### Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

**Threshold 3:** Would the project expose sensitive receptors to substantial pollutant concentrations?

**Impact AQ-3 THE PROJECT WOULD EXPOSE OFF-SITE SENSITIVE RECEPTORS TO SUBSTANTIAL CONCENTRATIONS OF TACS DURING CONSTRUCTION OR OPERATION. HOWEVER, THE CHANGE IN EXPOSURE COMPARED TO BASELINE CONDITIONS WOULD NOT EXCEED THRESHOLDS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

As detailed in Section 4.1.1(c), *Sensitive Receptors*, the closest residential receptors are approximately 30 feet to the east of the project site. Other sensitive receptors include Bright Horizons Daycare (less than 15 feet to the east of the project site), Ecole Bilingue de Berkeley (50 feet to the southeast of the project site), Aquatic Park School (700 feet to the south of the project site), and a private residence daycare (899 Dwight Crescent, 190 feet to the southeast of the project site).

### Carbon Monoxide Hotspots

As stated in the BAAQMD 2017 *CEQA Air Quality Guidelines*, a proposed project would result in a less than significant impact related to local CO concentrations if the project is consistent with an applicable CMP; would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

As mentioned in the Air Quality Environmental Impact Report (Ramboll 2021), the proposed amended DA would generate less than 25-hour peak trips compared to the baseline (buildout under the existing DA). This would be less than the 44,000 vehicles per hour threshold for CO; therefore, the project would not expose sensitive receptors to substantial CO concentrations, and impacts would be less than significant.

### Toxic Air Contaminants

Construction and operational activities facilitated by the proposed amended DA would result in temporary and long-term TAC emissions, including DPM exhaust emissions from off-road, heavy-duty diesel construction equipment and on-road diesel truck trips associated with operation; IPA usage in laboratory/production/warehouse space; and DPM and TAC emissions generated by fuel combustion associated with diesel-fueled emergency generators and natural gas-fired boilers. Off-site health risk impacts for the Years 10 and 30 Projects were calculated at the maximally exposed individual resident (MEIR) and the nearest daycare center.

*Year 10 Project*

The maximum estimated excess lifetime cancer risk from all Year 10 project sources would occur for a residential receptor born during construction and exposed to project emissions for 30 years and for a daycare child who enters daycare at six weeks old at the start of construction and is exposed to project emissions until age six. The off-site residential receptors were conservatively assumed to be exposed to operational emissions from Year 10 Project buildout conditions for 29 years, which represent the reasonable, worst-case scenario. However, the Year 30 Project could become fully operational and replace these conditions within the first ten years, and as discussed later, the Year 30 Project would reduce health risk impacts as compared to the Year 10 Project due to lower TAC emissions.

As shown in Table 4.1-7, exposure to TAC emissions associated with the Year 10 Project would result in total excess cancer risks of 1.3 in a million at the MEIR and 3.6 in a million at the maximally exposed daycare child, which are well below the BAAQMD threshold of significance for individual projects of 10 in a million. In addition, the maximum estimated $PM_{2.5}$ concentrations associated with the Year 10 Project would be approximately of 0.17 $\mu g/m^3$ at the MEIR and 0.14 $\mu g/m^3$ at the maximally exposed daycare child, which are below the BAAQMD threshold of significance for individual projects of 0.3 $\mu g/m^3$. Furthermore, the maximum estimated excess chronic non-cancer hazard index and non-cancer acute hazard index associated with the Year 10 Project would be approximately 0.0060 for the chronic hazard index and 0.061 for the acute hazard index at the MEIR and approximately 0.0042 for the chronic hazard index and 0.043 for the acute hazard index at the maximally exposed daycare child, all of which would be below the BAAQMD threshold of significance for individual projects of 1.0. Therefore, the Year 10 Project would result in less-than-significant health risk impacts.

**Table 4.1-7 Health Risk Associated with Year 10 Project**

| | | Lifetime Excess Cancer Risk (in a million) | $PM_{2.5}$ (µg/m³) | Chronic Non-Cancer Hazard Index (unitless) | Acute Non-Cancer Hazard Index (unitless) |
|---|---|---|---|---|---|
| **Maximally Exposed Individual Resident** | | | | | |
| Construction | Demolition | 0.031 | 0.0017 | 2.1E-04 | – |
| | Year 10 Construction | 0.90 | 0.00581 | 7.0E-04 | – |
| Emergency Generators | | 0.30 | -0.0016 | -3.3E-04 | – |
| Boilers | | 0.094 | 0.16 | 0.0052 | 0.0068 |
| Net Traffic | | -0.0031 | -2.8E-05 | -6.2E-07 | -6.0E-06 |
| Lab IPA Usage | | – | – | 2.6E-04 | 0.054 |
| **Total** | | **1.3** | **0.17** | **0.0060** | **0.061** |
| *BAAQMD Significance Threshold* | | *10* | *0.3* | *1.0* | *1.0* |
| **Exceeds Threshold?** | | **No** | **No** | **No** | **N/A** |
| **Maximally Exposed Daycare Child** | | | | | |
| Construction | Demolition | 0.19 | 0.0014 | 1.8E-04 | – |
| | Year 10 Construction | 3.2 | 0.0084 | 0.0013 | – |
| Emergency Generators | | 0.30 | -0.013 | -0.010 | -0.0019 |
| Boilers | | 0.094 | 0.17 | 0.14 | 0.0045 |
| Net Traffic | | -0.0031 | -0.0018 | -4.3E-05 | -9.6E-07 |
| Lab IPA Usage | | – | – | – | 1.5E-04 |
| **Total** | | **3.6** | **0.14** | **0.0042** | **0.043** |
| *BAAQMD Significance Threshold* | | *10* | *0.3* | *1.0* | *1.0* |
| **Exceeds Threshold?** | | **No** | **No** | **No** | **N/A** |

Notes: Negative numbers indicate a risk reduction as compared to buildout under the existing DA. Numbers may not add due to rounding.

Source: Ramboll 2021, Appendix C

### *Year 30 Project*

The maximum estimated excess lifetime cancer risk from all Year 30 project sources would occur for a residential receptor born during construction and exposed to project emissions for 30 years and for a daycare child who enters daycare at six weeks old at the start of construction and is exposed to project emissions until age six. As shown in Table 4.1-8, exposure to TAC emissions associated with the Year 30 Project would result in total excess cancer risks of 0.17 in a million at the MEIR and a risk reduction of 0.33 in a million at the maximally exposed daycare child, which are well below the BAAQMD threshold of significance for individual projects of ten in a million. In addition, the maximum estimated $PM_{2.5}$ concentrations associated with the Year 30 Project would be approximately of 0.16 µg/m³ at the MEIR and 0.08 µg/m³ at the maximally exposed daycare child, which are below the BAAQMD threshold of significance for individual projects of 0.3 µg/m³. Furthermore, the maximum estimated excess chronic non-cancer hazard index and non-cancer acute hazard index associated with the Year 30 Project would be approximately 0.0052 for the chronic hazard index and 0.070 for the acute hazard index at the MEIR and approximately 0.0017

for the chronic hazard index and 0.043 for the acute hazard index at the maximally exposed daycare child, all of which would be below the BAAQMD threshold of significance for individual projects of 1.0. Therefore, the Year 30 Project would result in less-than-significant health risk impacts.

**Table 4.1-8 Health Risk Associated with Year 30 Project**

| | | Lifetime Excess Cancer Risk (in a million) | $PM_{2.5}$ ($\mu g/m^3$) | Chronic Non-Cancer Hazard Index (unitless) | Acute Non-Cancer Hazard Index (unitless) |
|---|---|---|---|---|---|
| **Maximally Exposed Individual Resident** | | | | | |
| Construction | Demolition | 0.049 | 0.0085 | 8.9E-04 | – |
| | Year 10 Construction | -0.32 | -0.0041 | -7.0E-04 | – |
| Emergency Generators | | 0.30 | 0.11 | 0.15 | 0.0047 |
| Boilers | | 0.094 | 5.3E-04 | 7.4E-06 | 1.2E-07 |
| Net Traffic | | -0.0031 | – | – | 3.0E-04 |
| Lab IPA Usage | | – | -0.17 | 0.16 | 0.0052 |
| **Total** | | 3.6 | 0.049 | 0.0085 | 8.9E-04 |
| *BAAQMD Significance Threshold* | | *10* | *0.3* | *1.0* | *1.0* |
| **Exceeds Threshold?** | | **No** | **No** | **No** | **N/A** |
| **Maximally Exposed Daycare Child** | | | | | |
| Construction | Demolition | 0.014 | 0.010 | 1.3E-04 | – |
| | Year 10 Construction | -0.36 | -0.010 | -3.9E-04 | – |
| Emergency Generators | | 0.30 | 0.0085 | 0.083 | 0.0018 |
| Boilers | | 0.094 | 1.4E-04 | -3.2E-05 | 1.8E-07 |
| Net Traffic | | -0.0031 | – | – | 1.5E-04 |
| Lab IPA Usage | | – | -0.33 | 0.083 | 0.0017 |
| **Total** | | 3.6 | 0.14 | 0.0042 | 0.043 |
| *BAAQMD Significance Threshold* | | *10* | *0.3* | *1.0* | *1.0* |
| **Exceeds Threshold?** | | **No** | **No** | **No** | **N/A** |

Notes: Negative numbers indicate a risk reduction as compared to the existing DA. Numbers may not add due to rounding.
Source: Ramboll 2021, Appendix C

## Mitigation Measure

Impacts would be less than significant without mitigation. Mitigation Measure AQ-2 under Impact AQ-2 would further reduce impacts related to construction TAC emissions by requiring the use of Tier 4 construction equipment. New mitigation measures or mitigation measures from the 1991 EIR are not required.

**Threshold 4:** Would the project create objectionable odors affecting a substantial number of people?

**Impact AQ-4 IMPLEMENTATION OF THE PROPOSED AMENDED DA WOULD NOT CREATE OBJECTIONABLE ODORS THAT COULD AFFECT A SUBSTANTIAL NUMBER OF PEOPLE. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source, the wind speeds and direction, and the sensitivity of the receiving location each contribute to the intensity of the impact. While offensive odors rarely cause any physical harm, they can be unpleasant and cause distress among the public and generate citizen complaints. Land uses typically producing odorous emissions include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities. Facilities that are regulated by CalRecycle (e.g., landfills, composting facilities) are required to have Odor Impact Minimization Plans in place to mitigate potential odor impacts (BAAQMD 2017).

Construction activities would potentially generate odors from vehicle exhaust and fumes from fuel and architectural coatings. Construction-related odors would be temporary and would cease upon completion. Impacts would be less than significant.

The proposed amended DA does not include uses that would generate substantial odorous emissions. Odor emissions from the project would be limited to odors associated with vehicle and engine exhaust and trash receptacles and would be comparable with existing uses on and near the site. Therefore, compared to baseline conditions, the project would not create new sources of odors that would affect a substantial number of people. This impact would be less than significant.

### Mitigation Measure

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

## d. Cumulative Impacts

The geographic scope for the cumulative criteria pollutant air quality impact analysis is the SFBAAB. Because the SFBAAB is designated non-attainment for the state and federal ozone standards, the state and federal $PM_{2.5}$ standards, and the state $PM_{10}$ standard, there are existing significant cumulative air quality impacts related to these pollutants. As discussed in the BAAQMD 2017 *CEQA Air Quality Guidelines*, "by its very nature, air pollution is largely a cumulative impact…if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions."

As discussed under Impacts AQ-1 through AQ-3, the proposed DA amendments would be consistent with the 2017 Clean Air Plan and criteria air pollutant emissions generated under the proposed amended DA would not exceed the BAAQMD's thresholds of significance. Therefore, the project's contribution to significant cumulative air quality impacts related to criteria air pollutant emissions in the SFBAAB would not be cumulatively considerable.

The HRA evaluates cumulative health risk impacts related to TAC and $PM_{2.5}$ emissions by evaluating the cumulative contribution of existing localized health risks to sensitive receptors from sources in the vicinity of the project site plus the sources associated with the proposed amended DA.

TAC and $PM_{2.5}$ emissions generated from sources within 1,000 feet of the proposed amended DA site include freeways, high volume roadways, railways, and 16 stationary sources. Table 4.1-9 and Table 4.1-10 present the cumulative excess cancer risks, chronic hazard indices, acute hazard indices, and $PM_{2.5}$ concentrations for existing on-site and off-site sources plus proposed project sources. The cumulative health risks were assessed for the maximally exposed individual receptors of each health risk category. As shown in Table 4.1-9 and Table 4.1-10, cumulative TAC and $PM_{2.5}$ emissions for both the Year 10 Project and the Year 30 Project scenarios, respectively, would not result in excess cancer risks, chronic hazard indices, acute hazard indices, or $PM_{2.5}$ concentrations that exceed BAAQMD cumulative thresholds. Therefore, no significant cumulative health risk impacts would occur.

**Table 4.1-9 Cumulative Health Risks at Maximally Exposed Receptors for Year 10 Project**

| Emission Sources | Lifetime Excess Cancer Risk (in a million) | Chronic Non-Cancer Hazard Index (unitless) | Acute Non-Cancer Hazard Index (unitless) | $PM_{2.5}$ Concentration ($\mu g/m^3$) |
|---|---|---|---|---|
| **Existing Sources at Project Site plus Year 10 Project Construction and Operational Sources** | **6.8** | **0.015** | **0.17** | **0.42** |
| **Existing Stationary Sources** | | | | |
| Uncommon Grounds, LLC (Facility #1574) | 0.0058 | 0 | N/A | 0.014 |
| Consolidated Printers, Inc. (Facility #2970) | 0.0045 | 0 | N/A | 0.015 |
| Electro-Coatings of California, Inc. (Facility #4449) | 18 | 0 | N/A | 0 |
| Fifth & Potter Street Assoc (Facility #14949) | 0.68 | 0.0012 | N/A | 8.0E-04 |
| 2929 Seventh Street, LLC (Facility #15509) | 0.048 | 0 | N/A | 0 |
| Seventh Street Properties II (Facility #15697) | 0.12 | 4.0E-04 | N/A | 0 |
| Verizon Wireless (Oakland W/Berkeley) (Facility #17271) | 0.24 | 0 | N/A | 4.0E-04 |
| Seventh Street Properties II (Facility #18531) | 0.014 | 0 | N/A | 0 |
| Wareham Development (Facility #18581) | 0.068 | 0 | N/A | 0 |
| Henkel US Operations Corporation (Facility #19522) | 0.010 | 0 | N/A | 0.28 |
| DSM Biomedical (Facility #20956) | 0.16 | 0 | N/A | 0 |
| Ruby's Roast, LLC (Facility #21809) | 5.8E-04 | 8.6E-06 | N/A | 0.0025 |
| Seventh Street Properties VII, LLC (Facility #22870) | 0.087 | 4.0E-04 | N/A | 0 |
| AGC Biologics Incorporated (Facility #23177) | 0.0076 | 0 | N/A | 0.014 |
| Agenus West, LLC (Facility #23417) | 0.062 | 0 | N/A | 0 |
| APRO LLC dba United Pacific #AD2204 (Facility #112401) | 0.40 | 0.0018 | N/A | 0 |
| **Stationary Sources Subtotal** | **20** | **0.0038** | **0** | **0.33** |
| **Existing Mobile Sources** | | | | |
| Railway Sources | 11 | N/A | N/A | 0.013 |
| Highway and Major Roadway Sources | 0.78 | 4.3E-04 | 0.0060 | 0.017 |
| **Mobile Sources Subtotal** | **11** | **4.3E-04** | **0.0060** | **0.031** |
| **Cumulative Total** | **38** | **0.019** | **0.18** | **0.77** |
| *BAAQMD Thresholds* | *100* | *10* | *10* | *0.80* |
| **Threshold Exceeded?** | **No** | **No** | **No** | **No** |

Source: Ramboll 2021, Appendix C

## Table 4.1-10 Cumulative Health Risks at Maximally Exposed Receptors for Year 30 Project

| Emission Sources | Lifetime Excess Cancer Risk (in a million) | Chronic Non-Cancer Hazard Index (unitless) | Acute Non-Cancer Hazard Index (unitless) | $PM_{2.5}$ Concentration ($\mu g/m^3$) |
|---|---|---|---|---|
| **Existing Sources at Project Site plus Year 30 Project Construction and Operational Sources** | **1.8** | **0.014** | **0.18** | **0.40** |
| **Existing Stationary Sources** | | | | |
| Uncommon Grounds, LLC (Facility #1574) | 0.010 | 0 | N/A | 0.014 |
| Consolidated Printers, Inc. (Facility #2970) | 0.0026 | 0 | N/A | 0.015 |
| Electro-Coatings of California, Inc. (Facility #4449) | 10 | 0 | N/A | 0 |
| Fifth & Potter Street Assoc (Facility #14949) | 0.68 | 0.0012 | N/A | 8.0E-04 |
| 2929 Seventh Street, LLC (Facility #15509) | 0.048 | 0 | N/A | 0 |
| Seventh Street Properties II (Facility #15697) | 0.12 | 4.0E-04 | N/A | 0 |
| Verizon Wireless (Oakland W/Berkeley) (Facility #17271) | 0.36 | 0 | N/A | 4.0E-04 |
| Seventh Street Properties II (Facility #18531) | 0.022 | 0 | N/A | 0 |
| Wareham Development (Facility #18581) | 0.068 | 0 | N/A | 0 |
| Henkel US Operations Corporation (Facility #19522) | 0.010 | 0 | N/A | 0.28 |
| DSM Biomedical (Facility #20956) | 0.32 | 0 | N/A | 0 |
| Ruby's Roast, LLC (Facility #21809) | 3.7E-04 | 7.8E-06 | N/A | 0.0025 |
| Seventh Street Properties VII, LLC (Facility #22870) | 0.11 | 4.0E-04 | N/A | 0 |
| AGC Biologics Incorporated (Facility #23177) | 0.013 | 0 | N/A | 0.014 |
| Agenus West, LLC (Facility #23417) | 0.16 | 0 | N/A | 0 |
| APRO LLC dba United Pacific #AD2204 (Facility #112401) | 0.40 | 0.0018 | N/A | 0 |
| **Stationary Sources Subtotal** | **13** | **0.0038** | **0** | **0.33** |
| **Existing Mobile Sources** | | | | |
| Railway Sources | 11 | N/A | N/A | 0.013 |
| Highway and Major Roadway Sources | 0.47 | 3.5E-04 | 0.0047 | 0.021 |
| **Mobile Sources Subtotal** | **11** | **3.5E-04** | **0.0047** | **0.034** |
| **Cumulative Total** | **26** | **0.018** | **0.18** | **0.76** |
| *BAAQMD Thresholds* | *100* | *10* | *10* | *0.80* |
| **Threshold Exceeded?** | **No** | **No** | **No** | **No** |

Source: Ramboll 2021, Appendix C

# 4.2 Cultural Resources

This section evaluates the impacts of the proposed amendment to Bayer HealthCare LLC's Development Agreement on cultural resources. The analysis in this section takes into account the cultural resources analysis contained in the 1991 EIR, supplemented by analysis of potential changes under the amended DA. The analysis is based on a Cultural Resources Technical Report prepared by Rincon Consultants in 2021 which is included as Appendix D of this document.

## 4.2.1 Regulatory Setting

This regulatory framework section identifies the federal, state, and local laws, statutes, guidelines, and regulations that govern the identification and treatment of cultural resources as well as the analysis of potential impacts to cultural resources. The lead agency must consider the provisions and requirements of this regulatory framework when rendering decisions on projects that have the potential to affect cultural resources.

### a. Federal

### National Register of Historic Places

Resources listed in the National Register of Historic Places (NRHP) are considered historical resources for the purposes of CEQA. The NRHP was established by the National Historic Preservation Act of 1966 as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (CFR 36 CFR 60.2). The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. A property is eligible for the NRHP if it meets one of the following Criteria:

**Criterion A:** Is associated with events that have made a significant contribution to the broad patterns of our history

**Criterion B:** Is associated with the lives of persons significant in our past

**Criterion C:** Embodies the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

**Criterion D:** Has yielded, or may be likely to yield, information important in prehistory or history

To be eligible for listing in the NRHP, districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. The National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, defined in the following manner:

**Location:** The place where the historic property was constructed or the place where the historic event occurred

| | |
|---|---|
| **Design:** | The combination of elements that create the form, plan, space, structure, and style of a property |
| **Setting:** | The physical environment of a historic property |
| **Materials:** | Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property |
| **Workmanship:** | The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory |
| **Feeling:** | A property's expression of the aesthetic or historic sense of a particular period of time |
| **Association:** | The direct link between an important historic event or person and a historic property |

## b. State

### California Register of Historical Resources

The California Register of Historical Resources (CRHR) was created by Assembly Bill 2881, which was established in 1992. The CRHR is an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (Public Resources Code, 5024.1(a)). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for state use in order to include a range of historical resources that better reflect the history of California (Public Resources Code, 5024.1(b)). Certain properties are determined by the statute to be automatically included in the CRHR by operation of law, including California properties formally determined eligible for, or listed in, the NRHP.

The CRHR consists of properties that are listed automatically and those that must be nominated through an application and public hearing process. The CRHR automatically includes the following:

| | |
|---|---|
| **Criterion 1:** | Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage |
| **Criterion 2:** | Is associated with the lives of persons important to our past |
| **Criterion 3:** | Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values |
| **Criterion 4:** | Has yielded, or may be likely to yield, information important in prehistory or history |

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

PRC Section 21083.2(g) defines a *unique archaeological resource* as an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

**Criterion 1:** Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information

**Criterion 2:** Has a special and particular quality such as being the oldest of its type or the best available example of its type

**Criterion 3:** Is directly associated with a scientifically recognized important prehistoric or historic event or person

### California Public Resources Code

Section 5097.5 of the PRC states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Here "public lands" means those owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with PRC Section 5097.5 for their own activities, including construction and maintenance, and for permit actions (e.g., encroachment permits) undertaken by others.

## c. Local

### City of Berkeley General Plan (2001)

The Urban Design and Preservation Element of the City's General Plan, approved in 2001, contains the following goals and policies related to cultural resources and relevant to the current project:

**Policy UD-1 Techniques.** Use a wide variety of regulatory, incentive, and outreach techniques to suitably protect Berkeley's existing built environment and cultural heritage.

**Policy UD-2 Regulation of Significant Properties.** Increase the extent of regulatory protection that applies to structures, sites, and areas that are historically or culturally significant.

**Policy UD-3 Regulation of Neighborhood Character.** Use regulations to protect the character of neighborhoods and districts, and respect the particular conditions of each area.

**Policy UD-5 Architectural Features**. Encourage, and where appropriate require, retention of ornaments and other architecturally interesting features in the course of seismic retrofit and other rehabilitation work.

**Policy UD-6 Adaptive Reuse.** Encourage adaptive reuse of historically or architecturally interesting buildings in cases where the new use would be compatible with the structure itself and the surrounding area.

**Policy UD-8 Public Works Projects.** In public works projects, seek to preserve desirable historic elements such as ornamental sidewalk features, lampposts, and benches.

**Policy UD-12 Range of Incentives**. Seek to maintain and substantially expand the range and scale of incentives that the City and/or other entities make available in Berkeley for the preservation of historic and cultural resources.

**Policy UD-16 Context.** The design and scale of new or remodeled buildings should respect the built environment in the area, particularly where the character of the built environment is largely defined by the aggregation of historically and architecturally significant buildings.

**Policy UD-17 Design Elements.** In relating a new design to the surrounding area, the factors to consider should include height, massing, materials, color, and detailing or ornament.

**Policy UD-20 Alterations.** Alterations to a worthwhile building should be compatible with the buildings original architectural character.

**Policy UD-21 Directing Development.** Use City incentives and zoning provisions to direct new development toward locations where significant historic structures or structures contributing to the character of an area will not need to be removed.

**Policy UD-24 Area Character.** Regulate new construction and alterations to ensure that they are truly compatible with and, where feasible, reinforce the desirable design characteristics of the particular area they are in.

**Policy UD-25 Facades and Exterior Features.** Buildings should have significant exterior features and facades that stimulate the eye and invite interested perusal.

**Policy UD-36 Information on Heritage.** Promote, and encourage others to promote, understanding of Berkeley's built and cultural heritage, the benefits of conserving it, and how to sensitively do that.

**Policy UD-38 Tourism**. As an economic development strategy, promote the city's cultural and architectural heritage.

## City of Berkeley Landmarks Preservation Ordinance

Under Ordinance 6106-N.S., development on the North Properties under the terms of the previous DA was not subject to the provisions of Chapter to 3.24 of the Berkeley Municipal Code (Landmarks Preservation Ordinance). However, given the DA is expiring and the terms of the future DA have yet to be defined, the City of the Berkeley as the lead agency under CEQA directed Rincon to utilize criteria established by this ordinance to designate structures, sites and areas, including landmarks and historic districts, having a special historical, architectural, or aesthetic interest or value. Criteria for designation are as follows.

A. Landmarks and historic districts. General criteria which the commission shall use when considering structures, sites, and areas for landmark or historic district designation are:
    1. Architectural merit:
        a) Property that is the first, last, only or most significant architectural property of its type in the region;
        b) Properties that are prototypes of or outstanding examples of periods, styles, architectural movements or construction, or examples of the more notable works of the best surviving work in a region of an architect, designer or master builder;

c) or Architectural examples worth preserving for the exceptional values they add as part of the neighborhood fabric.

2. Cultural value: Structures, sites and areas associated with the movement or evolution of religious, cultural, governmental, social and economic developments of the City;
3. Educational value: Structures worth preserving for their usefulness as an educational force;
4. Historic value: Preservation and enhancement of structures, sites and areas that embody and express the history of Berkeley/Alameda County/California/United States. History may be social, cultural, economic, political, religious or military;
5. Any property which is listed on the National Register described in Section 470A of Title 16 of the United States Code.

B. Structures of merit. Criteria which the commission shall use when considering a structure for structure of merit designation are as follows:

1. General criteria shall be architectural merit and/or cultural, educational, or historic interest or value. If upon assessment of a structure, the commission finds that the structure does not currently meet the criteria as set out for a landmark, but it is worthy of preservation as part of a neighborhood, a block or a street frontage, or as part of a group of buildings which includes landmarks, that structure may be designated a structure of merit.
2. Specific criteria include, but are not limited to one or more of the following:
   a) The age of the structure is contemporary with (1) a designated landmark within its neighborhood, block, street frontage, or group of buildings, or (2) an historic period or event of significance to the City, or to the structure's neighborhood, block, street frontage, or group of buildings.
   b) The structure is compatible in size, scale, style, materials or design with a designated landmark structure within its neighborhood, block, street frontage, or group of buildings.
   c) The structure is a good example of architectural design.
   d) The structure has historical significance to the City and/or to the structure's neighborhood, block, street frontage, or group of buildings. (Ord. 5686-NS Section 1 (part), 1985: Ord. 4694-NS Section 3.1, 1974)

The LPC is also responsible for reviewing and deciding on permit applications for alterations to such structures and sites. According to Section 3.24.200, "No person shall carry out or cause to be carried out on a designated landmark, in a designated historic district or structure of merit, any construction, alteration, or demolition for which a City permit is required, without approval by the commission." To allow demolition of a landmark, the LPC must find that it "is in such condition that it is not feasible to preserve or restore it, taking into consideration the economic feasibility of alternatives to the proposal, and balancing the interest of the public in preserving the designated landmark, historic district or structure of merit or portion thereof and the interest of the owner of the landmark site, historic district, or structure of merit site in its utilization.

## 4.2.2 Cultural Setting

### a. Cultural Setting

### Prehistoric Context

The project lies in the San Francisco Bay archaeological region (Milliken et al. 2007; Moratto 1984). As described in the Cultural Resources Technical Report prepared for the project, the prehistoric cultural chronology for the Bay Area can be generally divided generally into five periods: Early Holocene (8000-3500 BCE), Early (3500-500 BCE), Lower Middle (500 BCE-CE 430), Upper Middle (CE 430-1050), and the Late Period (CE 1050-Historic Contact) (Appendix D).

The earliest intensive study of the archaeology of the San Francisco Bay Area began with N. C. Nelson of the University of California Berkeley, between 1906 and 1908. He documented over 100 shell mounds along the shores of Alameda and Contra Costa counties. Nelson was the first to identify the Bay Area as a discrete archaeological region (Moratto 1984).

### Historic Context

*West Berkeley (1853-1979)*

The following historic context is excerpted from the West Berkeley Strategic Statement (City of Berkeley n.d.):

> West Berkeley's history is intertwined with, yet clearly a quite distinct part of, the broader history of Berkeley in the Bay Area. West Berkeley originated as the community of Ocean View, separated by miles of fields from the Campus-based community of "Berkeley." Ocean View and then West Berkeley was a working class community whose residents held jobs in local factories, while "uptown" Berkeley was dominated by academics and professionals. By the end of the 19th century, West Berkeley was a predominantly immigrant community, but native born Whites dominated most of the rest of Berkeley until World War II. Even today, the residents, jobs, and buildings of West Berkeley are distinctive within Berkeley. Thus, West Berkeley's history demonstrates both tension with and participation in the broader city of Berkeley.

*Developmental History of the Project Site*

As described in Appendix D, the earliest known development in the project site was associated with the farm and residence of the family of Henry Erksine Carleton, who arrived in California during the Gold Rush and began growing wheat in the project site in the early 1850s. By 1872, the Hardwick family had begun cultivating an area centered on Parker and Seventh streets. Five years later, the Northern Railway Company laid its tracks along the existing right-of-way immediately west of the project site (Chavez and Hupman 2000).

United States Geological Survey (USGS) topographical maps of the project site show that, by 1895, the extant street grid was in place and much of the northern part of the project site was occupied by what appear to have been houses. The surrounding area was also predominantly residential (USGS 1895; Basin Research 2000). In 1903, Cutter Laboratories (later acquired by Bayer) established facilities in the project site located at 700-730 Parker Street (Basin Research 2000; Arrigoni 2014). Those buildings are no longer extant. Maps show that, as of 1911, industrial and residential development was scattered through the

project site and rail spurs were constructed to serve some of these properties. The California Corrugated Culvert Company was located at the southwest corner of Parker and 5th streets. Along the north side of Parker between 5th and 6th there were two industrial buildings, one a warehouse and the other labeled "E. Griswold Sal-Soda Mfrs." The Byron Jackson Ironworks was located on the north side of Carleton Street, between 4th and 5th. It consisted of chiefly of a large, central shop building fronting the Carleton Street and warehouses situated north of the shop. Six one-story, single-family residences were located in the southeast quadrant of the project site, loosely clustered around what was then the intersection of 7th and Pardee streets. Just outside what is not the project site, on the north side of Carleton Street, between 5th and 6th streets was the location the H.C. MacAulay Foundry Co. complex. Main foundry building occupied the northeast corner of Carleton and 5th streets, with the pattern shop/lumber shed situated nearby to the east; minor buildings were scattered to the north (ProQuest 1911).

As described in Appendix D, the earliest available aerial photograph of the area, taken in 1931 (Figure 3 in Appendix D), suggests the project site was by then converted exclusively to industrial purposes. Several blocks in the north end of the project site were either substantially or wholly undeveloped, but industrial complexes had grown denser south of Cutter Way were found throughout the area. Several were served by a growing number of rail spurs that branched off from the Southern Pacific tracks to the west. Facilities associated with the Cutter Laboratories, Colgate-Palmolive-Peet, Armco Drainage and Metal Production, Philadelphia Quartz, Pacific Silicate, MacAualay Foundry, and Pan-American engineering companies were extensively built out. Many former residential properties in the project site had been cleared (UCSB Map and Imagery Lab 1931). A comparison of the 1931 aerial photo with one taken in 1946 (Figure 4 in Appendix D), shows that a limited degree new development took place between those years. This included construction of the Cutter complex (near 4th street and Cutter Way), the Armco Drainage and Metal Production Company offices, and three surface parking lots (UCSB Map and Imagery Lab 1931; 1947; NETROnline 1946).

By 1950, following the development of the prior two decades, much of the project site was occupied by a handful of large industrial complexes. A few sizeable pieces of land immediately south of Dwight Way were the only remaining undeveloped areas (ProQuest 1950). The 1950 edition of the Sanborn Fire Insurance Company map for the area offers the following details:

- Cutter Laboratories developed three complexes in the area bounded generally between 3rd, 5th, Dwight, and Parker streets with a complex of laboratory, experimentation, and testing, warehouse, production, and office buildings, in addition to a hog pen associated with the Cholera Laboratory building. At the southwest corner of 5th and Dwight streets a "metal ladder factory" is depicted, though it predated the neighboring Cutter complex and may not have been associated with Cutter. Between 7th and 8th streets south of Dwight Way were a warehouse and a Disinfectant's Department laboratory.
- Pan-American Engineering Company owned several buildings on the south side of Parker Street between 5th and 6th streets. Although the 1950 Sanborn map indicates the buildings were vacant, the complex is depicted as warehouse, laboratory, and office buildings and other workspaces.
- The Armco Drainage and Metal Products Company occupied the superblock bounded by between 4th, 7th, and Parker streets and Cutter Way with a complex consisting of several warehouse, welding, testing, and office buildings. A large parking lot was located at the northwest corner of 7th and Parker streets, while the company's office building

(currently designated as Building SC-6), auto garages, and sheds were located near the intersection of Parker and 7th streets.

- Built sometime before 1946, the extant building at 921 Parker Street housed the offices, factory, and warehouse of the Johnson Gear and Manufacturing Company.
- The Philadelphia Quartz Company operated from several adjoining buildings located at 727-743 Grayson Street. Buildings fronting Grayson Street were mostly office and laboratory facilities, while a laboratory, sheds, and a silicate tank were among the major buildings situated along the rail spur to the north.
- Pacific Silicate Company was located to the immediate west and appears to have owned several minor buildings and tanks situated along the spur behind the main Pacific Silicate and Philadelphia Quartz Company properties.
- Colgate-Palmolive-Peet Company was situated north of the Pacific Silicate and Philadelphia Quartz properties. Its facilities consisted of a densely built collection of manufactories, warehouses, and industrial storage structures.

In the following decades, much of the project site was gradually redeveloped through the demolition and construction of new buildings and facilities. An aerial photograph taken in 1965 shows that, except for some locations adjacent to the railroad right-of-way, the area was thoroughly developed with industrial buildings and in a few locations, surface parking lots (Figure 5 in Appendix D). Several extant buildings dating from between 1965 and 1980 are scattered throughout the project site, located in areas historically associated with Cutter Laboratories, Armco Drainage and Metal Products, and the Colgate-Palmolive Company. While new construction halted during the 1980s, redevelopment resumed in the 1990s under the direction of Bayer Corporation (which acquired Cutter Laboratories in 1974). The pharmaceutical company razed or refurbished several buildings historically associated with Philadelphia Quartz and Colgate-Palmolive following the signing of a Development Agreement with the City of Berkeley. The bulk of this activity took place between 1995 and 2006 and resulted in the construction of five new buildings and several surface parking lots (UCSB Map and Imagery Lab 1965; NETROnline 1946; 1958; 1959; 1968; 1980; 1993; 2002; 2005; 2009; 2016).

## 4.2.3 Background Research

### a. Cultural Resources Records Search

In October 2020, staff at NWIC completed a search of the California Historical Resources Information System (CHRIS). The purpose of the records search was to identify all previously recorded cultural resources, as well as previously conducted cultural resources studies within the project site and a 0.25-mile radius. The records search included a review of the NRHP, the CRHR, the California Built Environment Resources Directory and the Archaeological Determinations of Eligibility list.

As described in Appendix D, the cultural resources records search identified twelve previously recorded cultural resources within a 0.25-mile radius of the project site, one of which is located within the project site (P-01-011561). P-01-011561 is comprised of three historic-period buildings that have been evaluated and recommended ineligible for the CRHR by Arrigoni in 2014. Of the recorded resources in the records search radius, one is a prehistoric archaeological resource containing habitation debris and is located less than 150 feet from the project site's northern boundary. The SLF search conducted by the NAHC was returned with positive results and the Amah Mutsun Tribal Band of Mission San Juan Bautista recommended cultural sensitivity training for all crews involved in ground

disturbance, as well as archaeological and Native American monitoring. Although the project site has experienced extensive urban development, the results of the records search and Native American outreach indicate that the area is archaeologically sensitive and buried archaeological resources may exist on the project site.

## b. Previous Environmental Documentation

The project site has been subject to previous environmental review stemming from its acquisition and use by Bayer (previously Cutter) for biomanufacturing. These reviews have addressed cultural resources in various capacities and are discussed further below.

### 1991 Environmental Impact Report-Miles Inc./Cutter Biological Long Range Plan

Historic resources within the Northern Properties were addressed as part of the 1991 EIR prepared for the Miles, Inc./Cutter Biological Long Range Plan. Information presented in the EIR was based on Berkeley's Landmarks Preservation Commission (LPC) files. Based on LPC data, one building was identified as being historically significant, Building 12, which was designated as a Structure of Merit by the LPC as a unique wood-finished industrial building. Constructed in 1917 as a mill machine shop for the Byron Jackson Industrial Park, the building was located at the southwestern section of the Northern Properties. The EIR concluded the building's demolition would not result in a significant impact and it was demolished following certification of the EIR.

The EIR notes that the LPC investigated several additional buildings in the study area but declined to designate any as Landmarks or Structures of Merit. Buildings 4, 5, and 14 were subject to focused study due to their proximity to Building 12 and were found ineligible because they were not architecturally significant. The EIR also identified four historic resources adjacent to the current project site. Two of the previously identified resources are locally designated Landmarks: the Pfister Knitting Company at 910-920 Parker Street/2600-2602 Eighth Street and the Kawneer Manufacturing Company at 927 Parker/2547 Eighth Street. Additionally, the Macaulay Foundry Complex at 801 Carleton Street and the Colgate Factory Complex, located on the 2600 and 2700 blocks of Seventh Street, were noted as having been identified in the West Berkeley Historic Inventory.

### Initial Study and Mitigated Negative Declaration – Bayer South Properties Project

In 2000, an Initial Study and Mitigated Negative Declaration (IS-MND) was prepared for the Bayer South Properties. The proposed project included the demolition of all buildings associated with the former Philadelphia Quartz (PQ) facility in addition to the demolition of two buildings (Buildings W and X) and reuse of four buildings at the former Colgate property. The demolition of Buildings W and X was covered in a separate permit, and therefore the environmental impact of the demolition of these buildings was not addressed in the report or any attached studies.

The 2000 IS-MND noted the LPC found several of the buildings formally comprising the PQ facility to be eligible City of Berkeley Structures of Merit; however, the Berkeley City Council ultimately determined that none of the buildings satisfied the requirements for consideration as Landmarks of Structures of Merit. The report concluded the project would have no significant impacts on historical resources because buildings comprising the former PQ property were previously determined ineligible for designation as City of Berkeley Structures of Merit or Landmarks and there were no NRHP-eligible or locally designated properties

adjacent to the project site. The study does not explicitly address the potential for CRHR eligibility. The EIR also found "little or no likelihood of the presence of shellmounds" or other prehistoric archaeological resources in the project site.

Four cultural resources studies conducted in support of the IS-MND are presumed to have formed the basis of the conclusions presented in the IS-MND. In March 2000, Basin Research Associates prepared the "Archaeological Resources Assessment—Bayer South Properties Project," letter report. The study consisted of the review of a CHRIS cultural records search and additional research carried out at the University of California, Berkeley Bancroft Library and other sources. This effort found no cultural resources reports pertaining to any part of the project site and identified no known historical resources located in or adjacent to the project site that were eligible for listing in the CRHR. The report commented further that the nearest prehistoric archaeological site (CA-ALA-390) most likely consisted of materials transported to the site from another location for use as landfill.

In addition to the above report which addressed archaeological resources, three additional historical resources evaluations appear to have been completed to inform the IS-MND. However, the documentation made available to Rincon did not include these studies and they were unable to be located or reviewed following coordination with the City. Documents supplied by the City of Berkeley for the present study include a partial copy of the "Philadelphia Quartz of California Plant, Supplemental Report #3," a memorandum completed by D.A. Peterson in April 2000. The report is identified as the fourth in a series of historic resources assessments of the former PQ property. The previous studies cited in the report include an unnamed report by Betty Marvin, completed in 1998; Supplemental Report, completed by Tim Kelley in January 2000; and Supplemental Report #2, completed by Kelley in February 2000. None of the previous reports were available for this study. The one available page of Peterson's memorandum does not include any conclusions but notes that his study consisted of a review of the previous reports and a field survey of the PQ property.

### Historic Resources Evaluation – Buildings 28, 28A, and 50/Archaeological Sensitivity Assessment-Bayer Manufacturing Quality Control Testing Facility, South Properties

In 2014, the Bayer Healthcare Product Testing Facility Initial Study was completed. The study supported a proposal to demolish three existing buildings constructed between 1956 and 1973 and redevelop the site with a new quality control and testing facility. In support of the study, William Self Associates completed the "Historic Resources Evaluation of Buildings 28, 28A, and 50 and Archaeological Sensitivity Assessment for the Bayer Manufacturing Quality Control Testing Facility, South Properties" letter report in August 2014. The cultural resources study consisted of a CRHIS records search, Native American consultation, and the recordation and evaluation of the built-environment resources within the project site: buildings #28, #28A, and #50. As a result of the study, it was recommended that there was "a moderate potential for encountering potentially significant cultural resources within the footprint of the proposed Quality Control Facility." The study noted that none of the buildings had been previously recorded or designated and that, in 1991, the City of Berkeley LPC was made aware of plans to demolish the buildings and did not take action to designate buildings #28 or #50. Building #28A, which was constructed in 1973, was not considered for designation at the time, likely due to its age. For the 2014 study, all three properties were recorded on a single set of Department of Parks and Recreation (DPR) 523 forms and evaluated for CRHR eligibility. The report recommended the properties ineligible due to their lack of historical significance.

### c. Archival and Historical Background Research

Archival research was completed from September to December 2020. Research methodology focused on the review of primary and secondary source materials relating to the history and development of the project site. Sources included, but were not limited to historic-era maps, aerial photographs, and written histories of the area. Rincon also consulted with City of Berkeley Planning & Development staff to gain additional historical and architectural context to support thorough and consistent historical resource evaluations. Due to research effort constraints further described in the Cultural Resources Technical Report prepared for the project, efforts were limited to requests with staff at organizations such as the Berkeley Architectural Heritage Association (BAHA) and a review of available online digital materials. Repositories consulted to identify pertinent materials include the following: historical building permits obtained via the City of Berkeley Planning Department, historic aerial photographs accessed via Nationwide Environmental Title Research Online (NETROnline) and the University of California Santa Barbara digital aerial photography collections, historic topographic maps accessed via U.S. Geological Survey, historic-era newspaper articles accessed via newspapers.com, building permits and published materials obtained via BAHA, the Online Archive of California, Calisphere, including records of the Bancroft Digital Collections a variety of published materials via Internet Archive and Google Books.

### d. Native American Outreach

Rincon Consultants contacted the Native American Heritage Commission (NAHC) on September 14, 2020 to request a Sacred Lands File (SLF) search of the project site. The NAHC replied on September 18, 2020, stating that the SLF search was returned with "positive" results. The response from the NAHC also included a contact list of ten local Native American groups and individuals that may have knowledge of cultural resources within the project site. The NAHC contacted two tribes that submitted the positive search results, the Amah Mutsun Tribal Band of Mission San Juan Bautista and the North Valley Yokuts Tribe.

On September 21, 2020, the Amah Mutsun Tribal Band of Mission San Juan Bautista responded via email. The tribe recommended cultural sensitivity training for all crews involved in any earth movement, as well as archaeological and Native American monitoring.

Appendix D provides the results of the Native American outreach. This informal outreach does not constitute formal Assembly Bill (AB) 52 consultation as required by CEQA. AB 52 consultation for the amended DA is described in Section 4.7, Tribal Cultural Resources.

## 4.2.4 Field Survey

As described in Appendix D, the field survey for this study was conducted on November 11 and 12, 2020 by Rincon Consultants. The City as the lead agency under CEQA directed Rincon Consultants to evaluate the historical resources eligibility of 12 properties which are proposed to be demolished or altered under the amended DA. The rest of the site was surveyed at the reconnaissance level to account for the programmatic nature of the amended DA which would guide future development over the course of the proposed 30-year amended DA.

Eleven buildings were surveyed at the intensive level, which included subsequent property-specific research and evaluations for NRHP, CRHR, and local City of Berkeley and Structure of Merit eligibility pursuant to BMC 3.24. All buildings proposed for alteration or

demolition as part of the proposed project were formally recorded and evaluated on DPR forms. The entire site and remaining buildings were surveyed at the reconnaissance level to consider potential architectural significance and to assess the presence of a potential historic district.

**Table 4.2-1 Buildings Evaluated for Historical Significance**

| Building Name | Construction Date | Historical Resource's Eligibility |
|---|---|---|
| Building B28 | 1967 | Ineligible |
| Building B28A | 1973 | Ineligible |
| Building B53 | 1976 | Ineligible |
| Building B56A | ca. 1940 | Ineligible |
| Building B56B | ca. 1940 | Ineligible |
| Building B57 | 1980 | Ineligible |
| Building B83 | 1946 | Eligible for listing as a City of Berkeley Structure of Merit; ineligible for NRHP, CRHR, or as a City of Berkeley Landmark |
| Building B84 | 1960 | Ineligible |
| Building B85 | 1960 | Ineligible |
| Building BB56 | 1939-1940 | Ineligible |
| Building SC-6 | ca. 1950-ca. 1980 | Ineligible |

Sources: City of Berkeley 1940; Bayer 2020; ProQuest 1950; NETROnline 1958; 1959; 1968; UCSB 1965

### Evaluation of Historic District

National Register Bulletin 15 defines a district as that which possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects unified historically or aesthetically by plan or physical development (U.S. Department of the Interior 1995). Developed intermittently by multiple property owners and over several decades, the Bayer Campus does not possess a concentration of buildings unified by history or aesthetics. Buildings on the campus vary in their date of construction, architectural style and design aesthetic and possess associations with numerous companies, many of which do not appear significant in the context of West Berkeley's industrialization. In addition, most buildings on the campus were constructed by or came under the ownership of Cutter/Bayer since the second half of the twentieth century and have not collectively acquired significance since that time. Based on the intensive and reconnaissance survey, the Bayer Campus does not constitute a historic district.

## 4.2.5 Impact Analysis

### a. Methodology and Significance Thresholds

Consistent with the *CEQA Guidelines*, impacts related to Cultural Resources would be considered potentially significant if implementation of the project would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* §15064.5;
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* §15064.5; or
3. Disturb any human remains, including those interred outside of dedicated cemeteries.

The significance of an archaeological deposit and subsequently the significance of an impact are determined by the criteria established in the *CEQA Guidelines*. If an archaeological resource does not meet either the historical resource or the more specific "unique archaeological resource" definition, impacts do not need to be mitigated [13 PRC 15064.5 (e)]. Where the significance of a site is unknown, it is presumed to be significant for the purpose of the EIR investigation.

## b. Prior Environmental Analysis

Chapter 5D (Historic Resources) of the 1991 analyzes impacts related to historic resources (Significance Threshold 1). However, as discussed in Section 1, *Introduction*, this Subsequent EIR is being prepared to the 1991 EIR because of substantial changes to the project and the circumstances under which the project is being undertaken, including proposed demolition of existing structures and construction of new structures. Therefore, additional analysis of the project's impacts on historical resources is needed. Moreover, the 1991 EIR does not address impacts related to archaeological resources (Significance Threshold 2) or human remains (Significance Threshold 3). Therefore, all of the CEQA checklist items listed above under Significance Criteria are addressed in this analysis.

## c. Project Impacts and Mitigation Measures

| | |
|---|---|
| **Threshold 1:** | Would the proposed cause a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5? |

**Impact CR-1 THE PROPOSED AMENDED DA WOULD INVOLVE RENOVATION OF BUILDING B83, WHICH IS A HISTORICAL RESOURCE UNDER CEQA. MOREOVER, THERE IS POTENTIAL FOR ADDITIONAL PROPERTIES WHICH ARE OLDER THAN 40 YEARS OLD TO BE ALTERED AND DEMOLISHED UNDER THE TERMS OF THE 30-YEAR DA. MITIGATION MEASURES ARE REQUIRED TO REDUCE IMPACTS TO HISTORICAL RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

As shown in Figure 2-10 in Section 2, *Project Description,* under the amended DA, Bayer is proposing to demolish or renovate 12 buildings. Eleven of these buildings were constructed prior to 1980 and therefore were evaluated as part of the Cultural Resources Technical Study to determine if they qualify as historical resources under CEQA (Appendix D). (The 12th building, Building B80, which is proposed to be expanded, was constructed in 2002 and therefore does not currently meet the age threshold for historical resources eligibility). Of the 11 evaluated buildings, one building (B83) was recommended eligible for listing as a City of Berkeley Structure of Merit and therefore qualifies as historical resources under the *CEQA Guidelines*. The remaining ten evaluated buildings were found ineligible for the NRHP, CRHR, or local designation and therefore are not historical resources.

Pursuant to *CEQA Guidelines* §15064.5(b), a significant effect on the environment would occur if a project causes a substantial adverse change, or materially impairs, the significance of a historical resource. Material impairment occurs when a project involves demolition or alteration in an adverse manner of those physical characteristics which convey a resources historical significance and justify its eligibility for the CRHR or a local register (*CEQA Guidelines* §15064.5(b)). Building B83 is proposed to be renovated; however, plans are currently conceptual and there is insufficient information at this time to assess whether the future renovation would materially impair the building. Pursuant to *CEQA Guidelines* §15064.5(b)(3), projects which comply with the Secretary of the Interior's Standards for the

Treatment of Historic Properties (the "Standards") generally are considered mitigated to a less than significant level. This impact is potentially significant and mitigation is required.

Based on the 30-year concept plan (see Figure 2-9 in Section 2, *Project Description)* there is the potential for additional building expansions or renovations. Portions of the concept plan show different concepts for buildings, such as expanded or modified building footprints for Building B60 and B80. Therefore, it is foreseeable that additional work may be done on specific buildings. These buildings were not evaluated as they are not currently planned to be demolished or altered and many of these buildings have also not exceeded the 40-year threshold used to evaluate buildings for historical resources issue. Should future project activities occur which would involve demolition or alteration of a building which is over 40 years old at the time of the project, this activity could have the potential to significantly impact a yet-to-be identified historical resources. (Indirect impacts to known or potential historical resources are not anticipated as no historic district was identified and is anticipated future development under the DA would be generally consistent with the existing character of the Bayer Campus.) Mitigation Measure CR-1 is required to identify historical resources and avoid impacts to the greatest extent feasible. With adherence to these measures to identify and ensure appropriate treatment of historical resources such as Building B83, impacts to historical resources would be less than significant.

## Mitigation Measures

The following new mitigation measures are required. These measures were not included in the 1991 EIR, which did not include mitigation for historical resources impacts.

### *CR-1 Architectural History Evaluation*

Demolition or alteration of a building or structure that is at least 40 years old at the time of permit application and has not previously been evaluated for demolition or renovation within the last five years from the time demolition or alternation is proposed shall be subject to review at the request of the City by a qualified architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards (PQS) in architectural history or history. The qualified architectural historian or historian shall conduct an intensive-level evaluation in accordance with the guidelines and best practices recommended by the State Office of Historic Preservation to identify if the building or structure proposed for demolition or alteration qualifies as a historical resource under CEQA guidelines. Buildings and structures shall be evaluated within their historic context and documented in a technical report and on Department of Parks and Recreation Series 523 forms. The report shall be submitted to the City for review and approval prior to the issuance of a building permit. If no historic resources are identified, no further analysis is warranted. If historic resources are identified, the applicant shall be required to implement Mitigation Measure CR-2.

### *CR-2 Architectural History Mitigation*

For renovations involving Building B83 or historical resources identified through the process described in the architectural history evaluation mitigation measure (CR-1), project activities shall comply with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Standards). During the project planning phase (prior to any construction activities), input shall be sought from a qualified architectural historian or historic architect meeting the *Secretary of the Interior's Professional Qualifications Standards* to ensure project compliance with the Standards for Rehabilitation. This input will ensure the avoidance of any direct/indirect physical changes to historical resources. The findings and recommendations of the architectural historian or historic architect shall be documented in a

Standards Project Review Memorandum at the schematic design phase. This memorandum shall analyze all project components for compliance with the Standards for Rehabilitation. The memorandum should recommend design modifications necessary to bring projects into compliance with the Standards for Rehabilitation, which shall be incorporated into project designs to ensure compliance with the Standards. The memorandum shall be submitted to the City for review and approval prior to the issuance of a building permit.

## Significance After Mitigation

Implementation of Mitigation Measures CR-1 and CR-2 would reduce impacts on historic resources, as actions would be taken to identify, avoid, retain, or treat resources in accordance with pertinent laws and regulations, including the *Secretary's Standards*. Impacts would be less than significant with mitigation incorporated.

**Threshold 2:** Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5?

**Impact CR-2 RECORDS SEARCH RESULTS INDICATE THAT THE AREA IS ARCHAEOLOGICALLY SENSITIVE. BURIED ARCHAEOLOGICAL RESOURCES MAY EXIST ON THE PROJECT SITE, AND GROUND DISTURBANCE WITHIN THE PROJECT SITE HAS THE POTENTIAL TO IMPACT ARCHAEOLOGICAL RESOURCES. MITIGATION MEASURES ARE REQUIRED TO REDUCE IMPACTS TO SUCH RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

As described above in Section 4.2.3, the cultural resources records search identified twelve previously recorded cultural resources within a 0.25-mile radius of the project site, including P-01-011561, which is comprised of three historic-period buildings that have been evaluated and recommended ineligible for the CRHR by Arrigoni in 2014. Of the recorded resources in the records search radius, one is a prehistoric archaeological resource containing habitation debris and is located less than 150 feet from the project site's northern boundary. In addition, the SLF search conducted by the NAHC was returned with positive results and the Amah Mutsun Tribal Band of Mission San Juan Bautista recommended cultural sensitivity training for all crews involved in ground disturbance, as well as archaeological and Native American monitoring. Therefore, although the project site has experienced extensive urban development, the results of the records search and Native American outreach indicate that the area is archaeologically sensitive and buried archaeological resources may exist on the project site.

Due to the sensitivity of the area, ground disturbance within the project site has the potential to impact archaeological resources over the 30-year life of the DA. Therefore, impacts would be potentially significant, and mitigation measures are required to reduce impacts to archaeological resources.

## Mitigation Measures

The following new mitigation measures are required. These measures were not included in the 1991 EIR, which did not address impacts related to archaeological resources.

### *CR-3 Cultural Resources Desktop Analysis*

Prior to demolition, grading, new construction, or underground work such as utility installation, a cultural resources Desktop Analysis, consisting of a review of existing information regarding cultural resources on a given project site, shall be conducted. The Desktop Analysis shall include, but not be limited to, a review of the project description and extent of proposed ground disturbance, a review of recent cultural resources records on file

at the California Historical Resources Information System, and a review of available historic maps and aerial photography. If a project would solely involve the refurbishment of an existing building and no ground disturbance would occur, this measure would not be required. If no resource impacts are identified, no further analysis is warranted. If potential impacts to resources are identified, the applicant shall be required to implement Mitigation Measure CR-4. If the desktop analysis identifies that an area has been subject to a Phase I cultural resources study in the previous five years, Measure CR-4 would not be required. If the Desktop Analysis identifies that no further analysis is warranted, the results will be documented in a memorandum for review and approval by the City prior to issuance of a building permit.

### *CR-4 Phase I Archaeological Resources Study*

If the desktop analysis described in Mitigation Measure CR-3 identifies the potential to encounter cultural resources, a Phase I cultural resources study shall be performed by a qualified professional meeting the Secretary of the Interior's (SOI) Professional Qualifications Standards (PQS) for archaeology (National Park Service 1983). The Phase I cultural resources study shall include a pedestrian survey of the project site and sufficient background research and fieldwork to determine whether archaeological resources may be present. Archival research shall include a records search of the California Historical Resources Information System and a Sacred Lands File search with the Native American Heritage Commission. The report will be submitted to the City for review and approval prior to the issuance of a building permit. Recommendations in the Phase I Report must be implemented prior to and/or during construction to avoid or reduce impacts on archaeological resources. Adherence to recommendations included in the Phase I report shall be documented as appropriate for verification by the City. If the Phase I identifies an archaeological site and/or a high likelihood of subsurface deposits, Measure CR-5 shall be implemented.

### *CR-5 Extended Phase I Testing*

For any projects proposed within 100 feet of a known archaeological site or in areas that have not been subject to previous archaeological testing, monitoring, or other subsurface investigation, as determined by the Desktop Analysis (Mitigation Measure CR-3) or Phase I Report (Mitigation Measure CR-4), the project applicant shall retain a qualified archaeologist to conduct an Extended Phase I (XPI) study to determine the presence/absence and extent of archaeological resources on the project site. If the boundaries of the archaeological site are already well understood based on previous work and are clearly interpretable as such by a qualified cultural resource professional, or if there is documentation that fill is already present to the depth of the current project, XPI testing will not be required. XPI testing shall include a series of shovel test pits and/or hand augured units and/or mechanical trenching to establish the boundaries of archaeological site(s) on the project site. All archaeological excavation shall be conducted by a qualified archaeologist(s) under the direction of a principal investigator meeting the SOI's PQS for archaeology (National Park Service 1983).The results of the XPI will be documented in a technical report and submitted to the City for review and approval prior to the issuance of a building permit. If the archaeological resource(s) of concern are Native American in origin, the qualified archaeologist shall confer with local California Native American Tribe(s) and, if applicable, a Native American monitor shall be present in accordance with Mitigation Measure TCR-2. Recommendations in the XPI Report shall be implemented for all ground disturbance activities and documented as appropriate for verification by the City.

### *CR-6 Archaeological Site Avoidance*

Avoidance will be the preferred treatment measure for an archaeological site identified on the Bayer campus. Any identified archaeological sites will be avoided by project-related construction activities, to the maximum extent feasible to still be able to fulfill the project objectives as determined by Bayer and confirmed by the City. The determination of feasibility will include an assessment of project redesign options, including but not limited to relocation of a proposed building, realignment of utilities, redesign of building plans to build above the existing ground surface and/or to minimize the proposed depth of disturbance, or other options as appropriate for a given project. A barrier (temporary fencing) and flagging will be placed between the work location and any resources within 60 feet of a work location to minimize the potential for inadvertent impacts. The 60-foot avoidance buffer may be reduced as appropriate if recommended by the qualified archaeologist. If the feasibility of avoidance of an archaeological resource of Native American origin is not immediately apparent, Bayer and the City of Berkeley shall contact consulting Tribes to discuss appropriate treatment of the resource, including the implementation of MM CR-7 and CR-8. If, after a good faith effort at resolution, the City, Bayer, and consulting Tribe conclude that agreement is not possible, MM CR-7 shall be implemented.

### *CR-7 Phase II Site Evaluation*

If the results of the Phase I Report and/or XPI indicate the presence of archaeological resources that cannot be avoided by the project and that have not been adequately evaluated for CRHR listing at the project site, the project applicant shall retain a qualified archaeologist to conduct a Phase II investigation to determine if intact deposits are present and if they may be eligible for the CRHR or qualify as unique archaeological resources. A Phase II evaluation shall include necessary archival research to identify significant historical associations and mapping of surface artifacts, collection of functionally or temporally diagnostic tools and debris, and excavation of a sample of the cultural deposit. The sample excavation will characterize the nature of the site, define the artifact and feature contents, determine horizontal and vertical boundaries, and retrieve representative samples of artifacts and other remains.

If the archeologist and, if applicable, a Native American monitor or other interested tribal representative from a locally affiliated Tribe as listed by the Native American Heritage Commission determine it is appropriate, cultural materials collected from the site shall be processed and analyzed in a laboratory according to standard archaeological procedures. The age of the materials shall be determined using radiocarbon dating and/or other appropriate procedures; lithic artifacts, faunal remains, and other cultural materials shall be identified and analyzed according to current professional standards. The significance of the sites shall be evaluated according to the criteria of the CRHR. The results of the investigations shall be presented in a technical report following the standards of the California Office of Historic Preservation publication “Archaeological Resource Management Reports: Recommended Content and Format (1990 or latest edition).” The report shall be submitted to the City for review and approval prior to the issuance of any building or engineering permits that could disturb identified resources. Recommendations in the Phase II report shall be implemented for all ground disturbance activities and documented as appropriate for verification by the City.

### *CR-8 Phase III Data Recovery*

If the Phase II site evaluation identifies resources that meet CRHR significance standards and if the resources cannot be avoided, the project applicant shall incorporate recommendations for mitigation of archaeological impacts into the final design as per CR-7 above prior to construction. If the resource is significant for its data potential and if recommended by the archaeologist and approved by consulting Tribes if appropriate, Phase III data recovery may be required, including excavation, to exhaust the data potential of significant archaeological sites, and shall be carried out by a qualified archaeologist meeting the SOI standards for archaeology according to a research design reviewed and approved by the City and prepared in advance of fieldwork and using appropriate archaeological field and laboratory methods consistent with the California Office of Historic Preservation Planning Bulletin 5, Guidelines for Archaeological Research Design (1991or the latest edition thereof). Methods of artifact disposition may include curation for historic-era archaeological resources and reburial onsite within a tribal cultural resources easement as identified in TCR-3 for tribal cultural resources. Curation is not appropriate for tribal cultural resources unless agreed to and/or requested by consulting tribes.

The final Phase III Data Recovery reports shall be submitted to the City of Berkeley prior to issuance of any building permit for grading or construction. Recommendations contained therein shall be implemented throughout all ground disturbance activities.

### *CR-9 Worker's Environmental Awareness Program*

Prior to any ground disturbing activities, the project applicant shall retain an SOI qualified archaeologist to conduct a Worker's Environmental Awareness Program (WEAP) training. The WEAP training shall be focused on archaeological sensitivity and shall be provided to all construction personnel prior to the commencement of any ground-disturbing activities. The WEAP training shall include a description of the types of cultural material that may be encountered, cultural sensitivity issues, the regulatory environment, and the proper protocol for treatment of the materials in the event of a find. Attendance at the WEAP training shall be documented with a sign-in sheet to be submitted to the City for verification of adherence to this measure. This WEAP training may be presented in tandem with the training required under TCR-1.

### *CR-10 Archaeological Monitoring*

If recommended by the Desktop Analysis, Phase I, XPI, Phase II, or Phase III studies, the project applicant shall retain a qualified archaeologist (Monitor) to observe project-related ground-disturbing activities. The Monitor will have the authority to halt and redirect work if any archaeological resources are identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find must be evaluated for listing in the CRHR. Archaeological monitoring may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of ground disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance activity moves to a new location within the project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Following the completion of monitoring, a report documenting the monitoring effort shall be prepared and submitted to the City of Berkeley and the Northwest Information Center.

*CR-11 Unanticipated Discovery of Archaeological Resources*

If archaeological resources are encountered during ground-disturbing activities, whether or not an archaeological monitor is present, work within 60 feet shall be halted. The project applicant shall notify the City and retain an archaeologist meeting the SOI's Professional Qualification Standards for archaeology (National Park Service 1983) to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for CRHR eligibility. If the discovery proves to be eligible for the CRHR and impacts cannot be avoided, data recovery excavation may be required. Reports prepared to document and/or evaluate unanticipated discoveries and their treatment shall be submitted to the City of Berkeley for review and approval. Recommendations contained therein shall be implemented throughout the remainder of ground disturbance activities.

## Significance After Mitigation

With implementation of the above mitigation measures, impacts to archaeological resources would be less than significant.

**Threshold 3:** Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

**Impact CR-3 GROUND-DISTURBING ACTIVITIES ASSOCIATED WITH DEVELOPMENT UNDER THE AMENDED DA COULD RESULT IN DAMAGE TO OR DESTRUCTION OF HUMAN BURIALS. HOWEVER, ADHERENCE TO EXISTING REGULATIONS REGARDING THE DISCOVERY OF HUMAN REMAINS WOULD REDUCE POTENTIAL IMPACTS TO A LESS THAN SIGNIFICANT LEVEL.**

Human burials outside of formal cemeteries often occur in prehistoric archeological contexts. Although the project site is built out, the potential still exists for these resources to be present. Excavation during construction activities within the site would have the potential to disturb these resources, which could include Native American burial sites.

Human burials, in addition to being potential archaeological resources, have specific provisions for treatment in Section 5097 of the California PRC. The California Health and Safety Code (Section 7050.5, 7051, and 7054) has specific provisions for the protection of human burial remains. Existing regulations address the illegality of interfering with human burial remains, and protect them from disturbance, vandalism, or destruction. They also include established procedures to be implemented if Native American skeletal remains are discovered. PRC §5097.98 also addresses the disposition of Native American burials, protects such remains, and established the NAHC to resolve any related disputes. With adherence to existing regulations, impacts to human remains would be less than significant.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

## d. Cumulative Impacts

Cumulative development in the Berkeley would disturb areas that may contain historic or archaeological resources or human remains. While there is the potential for significant cumulative impacts to historic or archaeological resources in the City, it is anticipated that potential impacts associated with individual development projects would be addressed on a case-by-case basis and would be subject to City policies and local and state regulations

regarding the protection of such resources. With compliance with existing policies, standard conditions of approval, and regulations, future development in the City and region would be required to avoid or mitigate the loss of these resources. With mitigation, significant cumulative impacts would not occur. The proposed project's impacts can be reduced to below a level of significance with implementation of the Mitigation Measures described above. Therefore, the project would not result in a cumulatively considerable impact related to cultural resources.

# 4.3 Greenhouse Gas Emissions

This section evaluates the impacts of the proposed amendment to Bayer HealthCare LLC's Development Agreement related to greenhouse gas (GHG) emissions and climate change. Assessment of impacts is based on pertinent analysis provided in the 1991 EIR, which evaluated impacts of buildout under the existing DA, and additional impacts that could occur as a result of buildout under the amended DA. The project-specific analysis is based on a Greenhouse Gas Environmental Impact Report prepared by Ramboll US Consulting, Inc. in January 2021. This study is included as Appendix E to this Subsequent EIR.

## 4.3.1 Setting

### a. Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. The term "climate change" is often used interchangeably with the term "global warming," but climate change is preferred because it conveys that other changes are happening in addition to rising temperatures. The baseline against which these changes are measured originates in historical records that identify temperature changes that occurred in the past, such as during previous ice ages. The global climate is changing continuously, as evidenced in the geologic record which indicates repeated episodes of substantial warming and cooling. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming over the past 150 years. The United Nations Intergovernmental Panel on Climate Change (IPCC) has expressed a high degree of confidence (95 percent or greater chance) that the global average net effect of human activities has been the dominant cause of warming since the mid-twentieth century (IPCC 2014a).

Gases that absorb and re-emit infrared radiation in the atmosphere are called GHGs. The GHGs widely seen as the principal contributors to human-induced climate change include carbon dioxide ($CO_2$), methane, nitrous oxide, fluorinated gases such as hydrofluorocarbons and perfluorocarbons, and sulfur hexafluoride. Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and natural processes, such as oceanic evaporation, largely determine its atmospheric concentrations.

GHGs are emitted by natural processes and human activities. Of these gases, $CO_2$ and methane are emitted in the greatest quantities from human activities. Emissions of $CO_2$ are usually by-products of fossil fuel combustion, and methane typically results from off-gassing associated with agricultural practices and landfills as well as leakages in the extraction and distribution of natural gas (natural gas is approximately 90% methane). Human-made GHGs, many of which have greater heat-absorption potential than $CO_2$, include fluorinated gases and sulfur hexafluoride (United States Environmental Protection Agency [U.S. EPA] 2020). Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas ($CO_2$) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" ($CO_2e$), and is the amount of

GHG emitted multiplied by its GWP-34 (and a 20-year GWP of 84-86). Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 28, meaning its global warming effect is 28-34 times greater than carbon dioxide on a molecule per molecule basis (IPCC 2014b).[1]

The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without the natural heat-trapping effect of GHGs, the Earth's surface would be about 33 degrees Celsius (°C) cooler (World Meteorological Organization 2020). However, emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, are believed to have elevated the concentration of these gases in the atmosphere beyond the level of concentrations that occur naturally.

## b. Greenhouse Gas Emissions Inventory

Worldwide anthropogenic emissions (i.e., emissions resulting from human activity) of GHGs were approximately 46,000 million metric tons (MMT or gigatonne) of $CO_2e$ in 2010 (IPCC 2014a). Carbon dioxide emissions from fossil fuel combustion and industrial processes contributed about 65 percent of total emissions in 2010. Of anthropogenic GHGs, carbon dioxide was the most abundant, accounting for 76 percent of total 2010 emissions. Methane emissions accounted for 16 percent of the 2010 total, while nitrous oxide and fluorinated gases accounted for 6 percent and 2 percent respectively (IPCC 2014a).

### Federal Emissions Inventory

Total United States (U.S.) GHG emissions were 6,676.6 MMT of $CO_2e$ in 2018. Since 1990, total U.S. emissions have increased by an average annual rate of 0.13 percent for a total increase of 3.7 percent since 1990. Emissions increased by 2.9 percent from 2017 to 2018. The increase from 2017 to 2018 was primarily driven by increased fossil fuel combustion as a result of multiple factors, including increased energy usage from greater heating and cooling needs due to a colder winter and hotter summer in 2018 as compared to 2017. In 2018, the transportation and industrial end-use sectors accounted for 36 percent and 26 percent, respectively, of GHG emissions while the residential and commercial end-use sectors accounted for 20 percent and 17 percent of GHG emissions, respectively, with electricity emissions distributed among the various sectors (U.S. EPA 2020).

### California Emissions Inventory

Based on the California Air Resource Board's (CARB) California Greenhouse Gas Inventory for 2000-2017, California produced 424.1 MMT of $CO_2e$ in 2017. The major source of GHG emissions in California is transportation, contributing 41 percent of the state's total GHG emissions. The industrial sector is the second largest source, contributing 24 percent of the state's GHG emissions while electric power accounts for approximately 15 percent (CARB 2019). California emissions are due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. In 2016, the State of California achieved its 2020 GHG emission reduction targets as emissions fell below 431 MMT of $CO_2e$ (CARB 2019). The annual 2030 statewide target emissions level is 260 MMT of $CO_2e$ (CARB 2017).

[1] The IPCC's (2014b) *Fifth Assessment Report* determined that methane has a GWP of 28. However, modeling of GHG emissions was completed using the California Emissions Estimator Model version 2016.3.2, which uses a GWP of 25 for methane, consistent with the IPCC's (2007) *Fourth Assessment Report*.

### Local Emissions Inventory

The City of Berkeley completed a baseline 2005 GHG emissions inventory that estimated communitywide emissions of 575,889 MT of $CO_2e$ per year. The primary emissions sources were transportation (approximately 47 percent), commercial uses (approximately 27 percent), and residential uses (approximately 26 percent) (City of Berkeley 2009). Based on the most recent 2018 inventory, communitywide GHG emissions have decreased by approximately 26 percent since 2000 even though Berkeley's population has increased by approximately 18 percent over the same time period (City of Berkeley 2020a). In the 2018 inventory, transportation accounted for 59 percent of GHG emissions, commercial uses were 18 percent, and residential uses were 20 percent.

## c. Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The observed global mean surface temperature (GMST) from 2015 to 2017 was approximately 1.0°C higher than the average GMST over the period from 1880 to 1900 (National Oceanic and Atmospheric Administration 2020). Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations jointly indicate that LSAT and sea surface temperatures have increased. Due to past and current activities, anthropogenic GHG emissions are increasing global mean surface temperature at a rate of 0.2°C per decade. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2014a and 2018).

According to *California's Fourth Climate Change Assessment*, statewide temperatures from 1986 to 2016 were approximately 0.6 to 1.1°C higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include reduced water supply from snow pack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years (State of California 2018). While there is growing scientific consensus about the possible effects of climate change at a global and statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. A summary follows of some of the potential effects that could be experienced in California as a result of climate change.

### Air Quality

From 1950 to 2005, average annual maximum temperature in the Bay Area increased by approximately 0.95°C, consistent with the global mean temperature change attributable to anthropogenic influences over a similar time period. Even with significant efforts to mitigate climate change, the Bay Area will likely see annual mean warming of approximately 1.8°C by 2050 as compared to 2005 (State of California 2018). Higher temperatures are conducive to air pollution formation and could worsen air quality in California as they rise. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. As temperatures have increased in recent years, the area burned by wildfires throughout the state has increased, and wildfires

have occurred at higher elevations in the Sierra Nevada Mountains (State of California 2018). If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality would worsen, but if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution. This would effectively reduce the number of large wildfires, thereby ameliorating the pollution associated with them. Severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (California Natural Resources Agency 2009).

## Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the West, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California. Year-to-year variability in statewide precipitation levels has increased since 1980, meaning that wet and dry precipitation extremes have become more common (California Department of Water Resources 2018). This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The average early spring snowpack in the western U.S., including the Sierra Nevada Mountains, decreased by about ten percent during the last century. During the same period, sea level rose over 0.15 meter along the central and southern California coasts (State of California 2018). The Sierra snowpack provides the majority of California's water supply, as snow that accumulates during wet winters is released slowly during the dry months of spring and summer. A warmer climate is predicted to reduce the fraction of precipitation that falls as snow and result in less snowfall at lower elevations, thereby reducing the total snowpack (State of California 2018). Projections indicate that average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050 (State of California 2018).

## Hydrology and Sea Level Rise

Climate change could affect the intensity and frequency of storms and flooding, and the Bay Area’s largest winter storms are likely to become more intense and potentially more damaging in future decades (State of California 2018). Furthermore, climate change could induce substantial sea level rise in the coming century. Rising sea level increases the likelihood of and risk from flooding. The rate of increase of global mean sea levels over the 2001-2010 decade, observed by satellites, ocean buoys, and land gauges, was approximately 3.2 millimeters per year, double the twentieth century trend of 1.6 millimeters per year. Global mean sea levels averaged over the last decade were about 0.20 meter higher than those of 1880 (World Meteorological Organization 2013). Sea levels are rising faster now than in the previous two millennia, and the rise will probably accelerate, even with robust GHG emission control measures. The most recent IPCC report predicts a mean sea-level rise of 0.25 to 0.94 meter by 2100 (IPCC 2018). Over the past century, the sea level in the Bay Area has risen by over 0.2 meter. A rise in sea levels could erode 31 to 67 percent of southern California beaches and cause flooding of approximately 370 miles of coastal highways during 100-year storm events. This would also jeopardize California’s water supply due to saltwater intrusion and induce groundwater flooding and/or exposure of

buried infrastructure (State of California 2018). Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

### Agriculture

California has an over $50 billion annual agricultural industry (approximately $2.2 billion of which is from the Bay Area) that produces over a third of the country's vegetables and two-thirds of the country's fruits and nuts (California Department of Food and Agriculture 2020). Higher $CO_2$ levels can stimulate plant production and increase plant water-use efficiency, but if temperatures rise and drier conditions prevail, certain regions of agricultural production could experience water shortages of up to 16 percent. This would increase water demand as hotter conditions lead to the loss of soil moisture; crop-yield could be threatened by water-induced stress and extreme heat waves; and plants may be susceptible to new and changing pest and disease outbreaks (State of California 2018). Temperature increases could change the time of year certain crops bloom or ripen, thereby affecting their quality (California Climate Change Center 2006). In particular, nearly 70 percent of California's existing area of wine production will be vulnerable under future climate change projections by 2050, and wine grape production in the Bay Area could suffer from extreme temperatures and temperature-related water scarcity (State of California 2018).

### Ecosystems and Wildlife

Climate change and the potential resulting changes in weather patterns could have ecological effects on the global and local scales. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the annual average maximum daily temperatures in California could rise by 2.4 to 3.2°C in the next 50 years and by 3.1 to 4.9°C in the next century (State of California 2018). Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: timing of ecological events; geographic distribution and range of species; species composition and the incidence of nonnative species within communities; and ecosystem processes, such as carbon cycling and storage (Parmesan 2006; State of California 2018). In the Bay Area, the future climate will become less suitable for evergreen forests such as redwoods and Douglas fir and more favorable for heat-adapted vegetation such as chaparral shrubland (State of California 2018).

## 4.3.2 Regulatory Setting

### a. Federal

### Federal Clean Air Act

The U.S. Supreme Court determined in *Massachusetts et al. v. Environmental Protection Agency et al.* ([2007] 549 U.S. 05-1120) that the U.S. EPA has the authority to regulate motor vehicle GHG emissions under the federal Clean Air Act. The U.S. EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines and requires annual reporting of emissions. In 2012, the U.S. EPA issued a Final Rule that established the GHG permitting thresholds that determine when Clean Air Act permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities.

In *Utility Air Regulatory Group v. Environmental Protection Agency* (134 S. Ct. 2427 [2014]), the U.S. Supreme Court held the U.S. EPA may not treat GHGs as an air pollutant for purposes of determining whether a source can be considered a major source required to obtain a Prevention of Significant Deterioration or Title V permit. The Court also held that Prevention of Significant Deterioration permits otherwise required based on emissions of other pollutants may continue to require limitations on GHG emissions based on the application of Best Available Control Technology.

### Safer Affordable Fuel-Efficient Vehicles Rule

On September 27, 2019, the U.S. EPA and the National Highway Safety Administration published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program. The Part One Rule revoked California's authority to set its own GHG emissions standards and zero-emission vehicle mandates in California. The U.S. EPA and the National Highway Traffic Safety Administration have finalized rulemaking for Part Two of the SAFE Vehicles Rule, which revises corporate average fuel economy and $CO_2$ emissions standards for model years 2021-2026 passenger cars and trucks such that the standards increase by approximately 1.5 percent each year through model year 2026 as compared to the 2012 standards which required an approximately five percent annual increase (National Highway Traffic Safety Administration 2020). Part Two of the SAFE Vehicles Rule was published in the Federal Register (85 Federal Register 24174) and became effective on June 29, 2020. To account for the effects of the Part Two Rule, CARB released off-model adjustment factors on June 26, 2020 to adjust GHG emissions outputs from the EMFAC model.

## b. State

The CARB is responsible for the coordination and oversight of state and local air pollution control programs in California. There are numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

### California Global Warming Solutions Act of 2006 (Assembly Bill 32 and Senate Bill 32)

The "California Global Warming Solutions Act of 2006," Assembly Bill (AB) 32, outlines California's major legislative initiative for reducing GHG emissions. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires the CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHG emissions to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 target of 431 MMT of $CO_2e$. CARB approved the Scoping Plan on December 11, 2008 and the Plan included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among others (CARB 2008). Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since the Plan's approval.

The CARB approved the 2013 Scoping Plan update in May 2014. The update defined the CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 statewide goals. The update highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the State's longer term GHG reduction strategies with other State

policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2014).

On September 8, 2016, the governor signed Senate Bill (SB) 32 into law, extending the California Global Warming Solutions Act of 2006 by requiring the State to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, and implementation of recently adopted policies and legislation, such as SB 1383 (discussed later). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of six MT of $CO_2e$ by 2030 and two MT of $CO_2e$ by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, sub-regional, or regional level), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017).

## Senate Bill 375

SB 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing the CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and affordable housing allocations. Metropolitan Planning Organizations (MPOs) are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the MPO's Regional Transportation Plan (RTP). Qualified projects consistent with an approved SCS or Alternative Planning Strategy (categorized as "transit priority projects") would receive incentives to streamline CEQA processing.

On March 22, 2018, CARB adopted updated regional targets for reducing per capita GHG emissions from passenger vehicles from 2005 levels by 2020 and 2035. The Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) were assigned targets of a ten percent reduction in per capita GHG emissions from passenger vehicle sources below 2005 levels by 2020 and a 19 percent reduction in per capita GHG emissions from passenger vehicle sources below 2005 levels by 2035. MTC and ABAG adopted *Plan Bay Area 2040* in July 2017, which includes the region's SCS and meets the requirements of SB 375 in place at its time of adoption (i.e., a 7 percent reduction by 2020 and a 15 percent reduction by 2035) (MTC and ABAG 2017a and 2017b). The updated 2018 SB 375 targets will be addressed in the next plan update, *Plan Bay Area 2050*.

## Senate Bill 1383

Adopted in September 2016, SB 1383 requires the CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. SB 1383 requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

SB 1383 also requires the California Department of Resources Recycling and Recovery, in consultation with the CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

## Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the State's Renewables Portfolio Standard (RPS) Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

## Executive Order B-55-18

On September 10, 2018, the former Governor Brown issued Executive Order (EO) B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

## California Building Standards Code

### *California Code of Regulations, Title 24 – California Building Code*

The California Code of Regulations (CCR) Title 24 is referred to as the California Building Standards Code, or CBC. It consists of a compilation of several distinct standards and codes related to building construction including plumbing, electrical, interior acoustics, energy efficiency, and handicap accessibility for persons with physical and sensory disabilities. The CBC's energy-efficiency and green building standards are outlined below.

### *Part 6 – Building Energy Efficiency Standards/Energy Code*

CCR Title 24, Part 6 is the Building Energy Efficiency Standards or California Energy Code. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy demand. The Energy Code is updated periodically (currently every three years) to incorporate and consider new energy-efficiency technologies and methodologies as they become available. New construction and major renovations must demonstrate their compliance with the current Energy Code through submittal and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission (CEC).

The City of Berkeley has adopted amendments to the 2019 California Energy Code in BMC Chapter 19.36, which require more stringent energy measures including:

- Requiring non-residential buildings to reduce energy use through more efficient lighting requirements
- Extending the solar PV requirement to nonresidential buildings
- Providing two pathways to demonstrate compliance with the 2019 California Energy Code. New all-electric buildings must simply demonstrate compliance with the California Energy Code. However, new mixed-fuel buildings (i.e., electricity and natural gas used within the building) must exceed the energy efficiency requirements of the California Energy Code by ten percent for non-residential buildings, high-rise residential buildings, and hotels/motels or by ten Total Energy Design Rating points for single-family or low-

rise residential buildings, or meet a set of prescriptive requirements with equivalent efficiency savings.

- Requiring electric-ready infrastructure for any natural gas appliance in new mixed-fuel buildings to support future electrification

*Part 11 – California Green Building Standards/CALGreen*

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11, first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). The 2019 CALGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of non-residential and residential structures. It also includes voluntary tiers (I and II) with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory CALGreen standards and may adopt additional amendments for stricter requirements.

The 2019 mandatory standards require:

- 20 percent reduction in indoor water use relative to specified baseline levels;[2]
- 65 percent construction/demolition waste diverted from landfills;
- Inspections of energy systems to ensure optimal working efficiency;
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards;
- Dedicated circuitry to facilitate installation of electric vehicle charging stations newly constructed garages for single family and duplex buildings; and
- Designation of a certain quantity (depending on the total number of parking spaces) of parking spaces for non-residential developments as electric vehicle charging spaces capable of supporting future electric vehicle supply equipment

The voluntary standards require:

- **Tier I:** stricter energy efficiency requirements, stricter water conservation requirements for specific fixtures, 65 percent reduction in construction waste with third-party verification, ten percent recycled content for building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar reflective roof; and
- **Tier II:** stricter energy efficiency requirements, stricter water conservation requirements for specific fixtures, 75 percent reduction in construction waste with third-party verification, 15 percent recycled content for building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar reflective roof.

The City of Berkeley has adopted amendments to 2019 CALGreen in BMC Chapter 19.37, which require more stringent sustainability features. These amendments include requiring at least ten percent of parking spaces at new non-residential developments to include electric vehicle chargers and at least 40 percent of parking spaces to include raceways to facilitate future electric vehicle supply equipment. In addition to a 65 percent diversion of construction/demolition waste, the City of Berkeley requires recycling and salvage of 100

[2] Similar to the compliance reporting procedure for demonstrating Energy Code compliance in new buildings and major renovations, compliance with the CALGreen water reduction requirements must be demonstrated through completion of water use reporting forms. Buildings must demonstrate a 20 percent reduction in indoor water use by either showing a 20 percent reduction in the overall baseline water use as identified in CALGreen or a reduced per-plumbing-fixture water use rate.

percent of excavated soil and land-clearing debris, 100 percent of concrete, and 100 percent of asphalt during construction and demolition activities.

### California Integrated Waste Management Act (Assembly Bill 341)

The California Integrated Waste Management Act of 1989, as modified by AB 341 in 2011, requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities and (2) diversion of 50 percent of all solid waste on and after January 1, 2000.

## c. Regional

### Bay Area Air Quality Management District

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

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

The BAAQMD has outlined the 10-point work program, which includes policy approaches, assistance to local governments, and technical programs that will help the region make progress toward the 2050 GHG emissions goal, and has adopted the 2017 Clean Air Plan, which includes a control strategy to protect the climate by reducing GHG emissions and developing a long-range vision of how the Bay Area could look and function in a post-carbon economy in 2050 (BAAQMD 2017a).

### Plan Bay Area 2040

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

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

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

## d. Local

### City of Berkeley Climate Action Plan

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

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

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

- 100 percent renewable electricity by 2035
- Carbon neutrality by 2045, in alignment with Gov. Brown's Executive Order B-55-18
- Declaration of a Climate Emergency and resolution to become a Fossil Fuel Free City

### City of Berkeley General Plan

The City's General Plan Environmental Management Element contains the following policies related to GHG emissions (City of Berkeley 2003):

> **Policy EM-5 "Green" Buildings**. Promote and encourage compliance with "green" building standards
>
> **Policy EM-8 Building Reuse and Construction Waste.** Encourage rehabilitation and reuse of buildings whenever appropriate and feasible in order to reduce waste, conserve resources and energy, and reduce construction costs.

### Berkeley Resilience Strategy

In 2016, the City released its Resilience Strategy to advance the City's resilience, or the ability of the individuals, institutions, businesses, and systems within the community to survive, adapt, and grow no matter what chronic stress or acute shock it experiences. Berkeley's interconnected resilience challenges include earthquakes, wildfires, climate change impacts such as drought and flooding, and racial inequity. The City's Resilience Strategy emphasizing building community resilience by facilitating stronger connections between neighbors; between public, private, nonprofit, and academic institutions; between departments within the City government; and between Bay Area local and regional governments. The six goals of the Resilience Strategy are (City of Berkeley 2016):

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

### Natural Gas Prohibition in New Buildings

In 2019, the Berkeley City Council added Chapter 12.80 to the Berkeley Municipal Code (BMC) via Ordinance No. 7,672-N.S., which prohibits the installation of natural gas infrastructure in newly constructed buildings. Natural gas infrastructure may be permitted if the applicant establishes, subject to City approval, that it is not physically feasible to construct the building without natural gas infrastructure or if its use serves the public interest.

### Electric Mobility Roadmap

In July 2020, the City adopted its first Electric Mobility Roadmap, which outlines the City's plan to implement its vision of a fossil fuel-free transportation system that integrates with and supports the City's ongoing efforts to increase walking, biking, and public transportation use in Berkeley and ensures equitable and affordable access to the benefits of clean transportation. The Electric Mobility Roadmap includes strategies to increase electric vehicle charging stations in new and existing development, provide public electric vehicle charging on City properties, advance electric bus rapid transit routes, electrify shared transportation fleets and private fleets, and increase the share of electric vehicle charging powered by 100 percent renewable energy (City of Berkeley 2020b).

## 4.3.3 Impact Analysis

### a. Methodology and Significance Criteria

### Significance Thresholds

Based on Appendix G of the *CEQA Guidelines*, impacts related to GHG emissions from the proposed DA amendment would be significant if the project would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

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

*CEQA Guidelines* §15064.4 recommends that lead agencies quantify GHG emissions of projects and consider several other factors that may be used in the determination of significance of GHG emissions from a project, including the extent to which the project may increase or reduce GHG emissions; whether a project exceeds an applicable significance threshold; and the extent to which the project complies with regulations or requirements adopted to implement a plan for the reduction or mitigation of GHG emissions.

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

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

A key aspect of a "qualified" GHG reduction plan's ability to provide "substantial evidence" is that the identified reduction target establishes a threshold at which GHG emissions would not be cumulatively considerable. The AEP Beyond Newhall white paper identifies this criterion as being a local target that aligns with statewide legislative targets. The City of Berkeley adopted a Climate Action Plan (CAP) that sets a 2020 year target to achieve a 33 percent absolute reduction below 2000 community-wide emissions and identifies actions to achieve the target with the ultimate goal of 80 percent emissions reductions by 2050 (City of Berkeley 2009). The City of Berkeley's CAP is not a qualified GHG reduction strategy pursuant to the BAAQMD's *CEQA Air Quality Guidelines* because the CAP does not establish a level below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable (BAAQMD 2017). Therefore, Berkeley's CAP does not qualify as a GHG reduction plan for projects with horizon years beyond 2020 and consistency with the CAP cannot be used as the basis of the CEQA analysis for the proposed amended DA.

In its 2017 CEQA Air Quality Guidelines, the BAAQMD outlines an approach to determine the significance of GHG emissions associated with land use development projects. For residential, commercial, industrial, and public projects, the thresholds of significance for operational-related GHG emissions are as follows:

- Compliance with a qualified GHG Reduction Strategy
- Annual emissions less than 1,100 MT per year of $CO_2e$
- Per service person emissions of 4.6 MT of $CO_2e$ per service person per year (residents + employees)

As discussed above, the City has not adopted a qualified GHG Reduction Strategy; therefore, it is not appropriate to use the first recommended threshold of significance. The BAAQMD mass emissions threshold of 1,100 MT of $CO_2e$ per year was designed to capture 90 percent of all emissions associated with projects in the SFBAAB and require implementation of mitigation so that a considerable reduction in emissions from new projects would be achieved. According to the California Air Pollution Control Officers Association white paper CEQA & Climate Change, a quantitative threshold based on a 90 percent market capture rate is generally consistent with AB 32 (California Air Pollution Control Officers Association 2008). However, SB 32, codified in 2016, sets a more stringent emission reduction target of 40 percent below the 1990 level by 2030.

In addition, BAAQMD has a stationary source threshold of 10,000 MT of $CO_2e$ per year. This is based upon a determination that approximately 95 percent of all GHG emissions from new permit applications for stationary sources in the San Francisco Bay Area would be captured by this threshold (Appendix E).

In light of the above discussion of potential significance thresholds, this Subsequent EIR evaluates the proposed DA amendment for consistency with project-specific thresholds selected by the city of Berkeley. The proposed amended DA would be deemed to have a significant adverse impact related to GHG emissions if it would:

1. Exceed BAAQMD's de minimis threshold for construction and operations or exceed BAAQMD's stationary source threshold for stationary sources; or
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (i.e., AB 32, SB 32, Plan Bay Area 2040, EO S-3-05, and EO B-55-18).

The de minimis threshold for land use development projects was originally proposed by BAAQMD for year 2020 at 1,100 MT $CO_2e$ per year for the operational emissions of a project. It assumed that 59 percent of all projects would be above this mass emissions threshold and that each project above the threshold would mitigate its GHG emissions by 26 percent. However, since the BAAQMD thresholds were first promulgated, the state has implemented additional stringent regulations to control and reduce statewide GHG emissions, including updated Title 24 standards, additional RPS electricity requirements, expanded Cap-and- Trade coverage, and improved mobile vehicle regulations. Therefore, more projects would fall under the de minimis threshold now than under BAAQMD's original analysis. This threshold might decrease in future years to remain consistent with the State's longer-term climate goals, but additional analyses would be needed to substantiate any change to the threshold in future years. To be conservative, this analysis uses a project-specific threshold of 0 MT $CO_2e$ per year (e.g., no net increase in emissions) to evaluate the land use development component of the project. The use of a net zero de minimis threshold does not establish a precedent for use as a CEQA threshold for any other project within the City. For the stationary source component of the project, this analysis utilizes the BAAQMD-recommended stationary source threshold of 10,000 MT of $CO_2e$ per year.

## Methodology

GHG emissions associated with construction and operation of the project were calculated in Excel-based models using methods consistent with the latest version of the California Emissions Estimator Model (CalEEMod; version 2016.3.2). As described in Section 2, *Project Description*, the CEQA baseline for the GHG analysis is existing (2020) conditions.

Construction emissions were calculated for the use of off-road equipment, on-road worker commutes, and construction delivery and haul trucks. Construction of the Year 10 Project is assumed to occur in 2024 and 2029, and construction of the Year 30 Project is assumed to occur in 2034 and 2049. Construction emissions modeling assumed demolition of approximately 24,900 cubic yards of material during 2024 for the Year 10 Project (Appendix E). Please refer to the Greenhouse Gas Environmental Impact Report included in Appendix E for a detailed discussion of the methodology used to calculate GHG emissions associated with project construction.

Operational emissions were calculated for a variety of sources, including area sources (landscaping equipment), building energy use (natural gas and electricity), mobile sources (vehicle trips), stationary sources (diesel emergency generators, natural gas boilers, solvent cleanup), solid waste disposal, water usage, and wastewater generation. Emissions modeling for building energy usage accounts for the 2019 Title 24 standards, BMC Chapter 12.80, and the project's applicant's commitment to utilize 100 percent renewable energy sources for electricity consistent with Bayer's 2030 Sustainability Initiative. Mobile source emissions were estimated using the vehicle trip estimates from the transportation analysis prepared for the proposed project by Fehr & Peers and EMission FACtor model (EMFAC) 2017 vehicle emissions factors. Emissions associated with the six emergency diesel generators were estimated based on emission factors from manufacturer specification sheets, assuming that the Year 10 Project would include replacement of two of the existing generators with two new 2,000-kilowatt diesel generators and the Year 30 Project would include replacement of the remaining four existing generators with three new 2,00-kilowatt generators.[3] Hours of operation for existing emergency generators were based on permit limits of 50 hours per generator for annual non-emergency operation. Emissions from the three existing natural gas boilers were estimated based on the boiler capacity, the total annual operating hours, and natural gas consumption rates. In addition, it was assumed that steam consumption for the Year 10 and Year 30 Projects would increase by approximately 17 percent as compared to existing permitted levels, and to accommodate this increase in usage, the modeling assumes the Year 10 Project would include an additional boiler (400 brake horsepower). Solid waste disposal rates were calculated based on existing conditions and the proposed employee count for the Years 10 and 30 Projects. Water usage and wastewater generation rates for the Years 10 and 30 Projects are assumed to be the same as those under existing conditions. Although the proposed amendments would result in a net increase in trees and vegetation on-site, no GHG emissions reductions were quantified for the change in vegetation in order to provide a conservative estimate of project emissions (Appendix E). Please refer to the Greenhouse Gas Environmental Impact Report included in Appendix E for a detailed discussion of the methodology used to calculate GHG emissions associated with project operation.

## b. Prior Environmental Analysis

The 1991 EIR did not analyze impacts associated with GHG emissions. Further, the project would involve demolition of existing buildings and construction and operation of new buildings that were not analyzed in the 1991 EIR and could therefore result in new impacts related to greenhouse gas emissions. Therefore, all of the CEQA checklist items listed above under Significance Criteria are addressed in the analysis below.

[3] The assumption that backup power would be provided by diesel generators provides a conservative estimate of project impacts. It is possible that battery energy storage systems supplied by renewable energy may be used in lieu of diesel generators as the feasibility and practicality of this option evolves over the timeframe of the proposed DA.

## c. Project Impacts and Mitigation

**Threshold 1:** Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

**IMPACT GHG-1 PROJECT CONSTRUCTION AND OPERATION WOULD GENERATE TEMPORARY AND LONG-TERM INCREASES IN GHG EMISSIONS. HOWEVER, THE PROJECT'S EMISSIONS WOULD NOT EXCEED THE LOCALLY APPLICABLE, PROJECT-SPECIFIC *DE MINIMIS* THRESHOLD OR STATIONARY THRESHOLD IN COMPARISON WITH BASELINE EMISSIONS (EXISTING CONDITIONS). IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

The proposed project would generate GHG emissions during both construction and operation. Construction activities facilitated by the proposed amendments would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. The BAAQMD has not established a quantitative significance threshold for evaluating construction-related emissions; however, the BAAQMD does recommend quantifying and disclosing construction-related GHG emissions. To provide a conservative estimate of project impacts, construction-related GHG emissions were quantified and amortized over 30 years, then added to the project's annual operational emissions. Operational GHG emissions associated with the land use development component of the project would be generated by electricity and natural gas usage, mobile sources (i.e., vehicle trips), solid waste disposal, water usage, wastewater generation, and landscaping equipment. Operational GHG emissions associated with the stationary source component of the project would be generated by emergency generators and boilers.

As shown in Table 4.3-1, emissions generated by construction under the proposed amended DA would be approximately 31 MT of $CO_2e$ per year for the Year 10 Project when amortized over a 30-year period (i.e., the lifetime of the project); and approximately 32 MT of $CO_2e$ per year for the Year 30 Project when amortized over a 30-year period.

Table 4.3-1 summarizes construction and operational GHG emissions from the land use development component of the proposed amended DA and summarizes the net increase in emissions generated by the amended DA as compared to existing uses for Year 10 and Year 30 project conditions for stationary and non-stationary thresholds. As shown therein, the Year 10 Project would result in a net decrease of approximately 5,573 MT of $CO_2e$ per year as compared to existing conditions, and the Year 30 Project would result in a net decrease of approximately 4,500 MT of $CO_2e$ per year as compared to existing conditions. The decrease is primarily the result of the applicant's commitment to use 100 percent carbon-free electricity consistent with Bayer's 2030 Sustainability Initiative (as described in Section 2, *Project Description)* and an expected decrease in natural gas usage due to BMC Chapter 12.80, which would prohibit the installation of natural gas infrastructure in the new administration, production, maintenance, and warehouse buildings. (This analysis conservatively assumes that natural gas usage for manufacturing and laboratory operations would qualify for an exception to or exemption from BMC Chapter 12.80; however, ultimate determination of the use of an exception or exemption would be at the discretion of the City.) Therefore, with mitigation to ensure that the applicant's commitment to use 100 percent carbon-free electricity by 2030 is achieved, project emissions associated with the land use development component would not exceed the *de minimis* threshold of 0 MT of $CO_2e$ per year, and impacts would be less than significant.

**Table 4.3-1 Annual GHG Emissions – Land Use Development (MT of $CO_2e$)**

| Emission Source | Year 10 Project[1] | Year 30 Project[1] |
|---|---|---|
| Construction (Amortized)[2] | 31 | 32 |
| Landscaping Equipment | <1 | <1 |
| Natural Gas Usage | 585 | 741 |
| Mobile Sources | 5,618 | 6,308 |
| Solid Waste | 697 | 929 |
| Water | 79 | 71 |
| **Total Project Emissions (Land Use Development)** | **7,009** | **8,081** |
| Existing Use Emissions (Land Use Development) | 12,582 | 12,582 |
| **Net Change from Existing Conditions** | **(5,573)** | **(4,500)** |
| *De Minimis* Threshold | 0 | 0 |
| **Exceeds Threshold?** | **No** | **No** |

[1] Numbers in parenthesis are negative values. These decreases are primarily the result of the applicant's commitment to use 100 percent carbon-free electricity consistent with Bayer's 2030 Sustainability Initiative (as described in Section 2, *Project Description*) and an expected decrease in natural gas usage due to BMC Chapter 12.80, which would prohibit the installation of natural gas infrastructure in the new administration, production, maintenance, and warehouse buildings. (This analysis conservatively assumes that natural gas usage for manufacturing and laboratory operations would qualify for an exception to or exemption from BMC Chapter 12.80; however, ultimate determination of the use of an exception or exemption would be at the discretion of the City's entitling body.)

[2] Construction emissions amortized over 30 years.

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

Source: Ramboll 2021 (Appendix E)

Table 4.3-2 summarizes operational GHG emissions from the stationary source component of the proposed amendments (i.e., the emergency generators and boilers). As shown therein, the Year 10 Project would result in a net increase of approximately 7,586 MT of $CO_2e$ per year as compared to existing conditions, and the Year 30 Project would result in a net increase of approximately 7,584 MT of $CO_2e$ per year as compared to existing conditions, which would be less than the *de minimis* threshold of 10,000 MT of $CO_2e$ per year. Therefore, the project's stationary source emissions would be less than significant.

**Table 4.3-2 Annual GHG Emissions - Stationary Sources (MT of CO2e)**

| Emission Source | Year 10 Project[1] | Year 30 Project[1] |
|---|---|---|
| Emergency Generators | 355 | 353 |
| Natural Gas Boilers | 19,681 | 19,681 |
| **Total Project Emissions (Stationary)** | **20,036** | **20,034** |
| Existing Use Emissions (Stationary) | 12,450 | 12,450 |
| **Net Change from Existing Conditions** | **7,586** | **7,584** |
| Stationary Source Threshold | 10,000 | 10,000 |
| **Exceeds Threshold?** | **No** | **No** |

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

[1] Numbers in parenthesis are negative values.

[2] Construction emissions amortized over 30 years.

Source: Ramboll 2021 (Appendix E)

## Mitigation Measures

The following mitigation measure is required.

*GHG-1 Renewable Electricity Resources*

Electricity used at the site shall be sourced from 100 percent renewable energy resources by 2030. Bayer shall submit documentation showing as such to the City every five years, or at intervals required by the City, to ensure compliance.

## Significance After Mitigation

With adherence to Mitigation Measure GHG-1, the proposed amended DA would utilize electricity sourced from 100 percent renewable energy resources by 2030, which would reduce GHG emissions associated with the land use development component of the project below existing conditions, as shown in Table 4.3-1, thus not exceeding the *de minimis* threshold of 0 MT of $CO_2e$ per year. Impacts would be less than significant.

**Threshold 2:** Would the proposed project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

**IMPACT GHG –2 THE PROPOSED AMENDED DA WOULD BE CONSISTENT WITH THE GOALS OF THE CITY'S CLIMATE ACTION PLAN, PLAN BAY AREA 2040, AB 32, CARB SCOPING PLAN, EXECUTIVE ORDER S-3-05, EXECUTIVE ORDER B-16-12, EXECUTIVE ORDER B-55-18, AND SB 32. THEREFORE, THE PROJECT WOULD NOT CONFLICT WITH AN APPLICABLE PLAN, POLICY, OR REGULATION ADOPTED FOR THE PURPOSE OF REDUCING GHG EMISSIONS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

## City of Berkeley Climate Action Plan

The City's CAP recommends 30 goals to reduce communitywide and municipal GHG emissions in order to achieve the City's interim target of a 33 percent reduction in

communitywide GHG emissions below 2000 levels by 2020 with the ultimate goal of reducing emissions by 80 percent below 2000 levels by 2050. The measures included in the CAP cover the main sectors of GHG emissions including transportation and land use, building energy usage, and waste reduction and recycling. The measures applicable to the project are summarized in Table 4.3-3. As shown therein, the project would be consistent with applicable GHG reduction measures in the City's CAP.

**Table 4.3-3 Project Consistency with Applicable Climate Action Plan Measures**

| Recommended Goals | Project Consistency |
|---|---|
| **Sustainable Transportation and Land Use** | |
| **Goal 2:** Increase and enhance urban green and open space, including local food production, to improve the health and quality of life for residents, protect biodiversity, conserve natural resources, and foster walking and cycling. | **Consistent**: The project would facilitate infill redevelopment in the existing urban footprint of Berkeley. Additionally, the proposed amended DA would not require the removal of trees, and proposed open space would accommodate an increase of trees along bicycle and pedestrian paths, public sidewalks and parking areas. Therefore, the project would not adversely impact urban green and open space. |
| **Goal 3:** Manage parking more effectively to minimize driving demand and to encourage and support alternatives to driving. | **Consistent**: As described in Section 4.6, *Transportation,* with Mitigation Measure T-1 the proposed DA amendment would include implementation of a Trip Reduction Program to increase average vehicle ridership (i.e., the average number of people per vehicle) and thus reduce vehicle emissions by Bayer employees.<br>Additionally, the fact that many of Bayer's employees currently live in Berkeley (and are expected to continue doing so under the proposed DA) and an overall low employee head count per floor area reduce impacts of vehicular emissions. Bayer would provide for continuous implementation of swing/graveyard employment (traffic off peak hours) which averages 18 percent of total work force throughout term of Agreement (2022).<br>This program (which is currently in effect) would be continued under the proposed project, which would reduce both parking and traffic impacts. |
| **Goal 8:** Encourage the use of low-carbon vehicles and fuels. | **Consistent:** The proposed amended DA would be subject to the requirements of the most recent iteration of CALGreen and the City's associated amendments, which includes provisions for electric vehicle charging infrastructure. The amended DA would include electric vehicle charging stations that meet the City's requirements for electric vehicle charging stations, at a minimum. (Currently under BMC Chapter 19.37 ten percent of parking spaces must include electric vehicle chargers and 40 percent of parking spaces must include raceways to facilitate future electric vehicle supply equipment.) |
| **Building Energy Use** | |
| **Goal 1:** Make green building business as usual in the new construction & remodel market. | **Consistent**: Individual development projects facilitated by the proposed amended DA would be required to be constructed in accordance with the latest iteration of CALGreen and the California Energy Code, including locally adopted amendments, which include green building practices. In addition, the new administration, production, maintenance, and warehouse buildings would be required to be all electric pursuant to BMC Chapter 12.80, which would reduce GHG emissions associated with energy usage. (This analysis conservatively assumes that natural gas usage for manufacturing and laboratory operations would qualify for an exception to or exemption from BMC Chapter 12.80; however, ultimate determination of the use of an exception or exemption would be at the discretion of the City's entitling body.) |

| Recommended Goals | Project Consistency |
|---|---|
| **Goal 4:** Increase residential and commercial renewable energy use. | **Consistent**: The proposed amended DA would include implementation of an Energy Conservation Program and would use 100 percent renewable electricity. |
| **Waste Reduction and Recycling** | |
| **Goal 2:** Increase recycling, composting, and waste reduction in the commercial sector. | **Consistent**: As described in Table 2-6 in Section 2, *Project Description,* the amended DA would include waste reduction measures such as a construction and demolition recycling program. As described in Section 4.8, *Utilities and Service Systems,* the amended DA would comply with requirements related to waste reduction and recycling. |
| **Goal 3**: Increase recycling of construction & demolition (C&D) debris. | **Consistent**: The proposed amended DA would be required to divert at least 65 percent of construction and demolition debris per the requirements of CALGreen. In addition to a 65 percent diversion of construction/demolition waste, the proposed amended DA would be required to comply with local City requirements for recycling and salvage of 100 percent of excavated soil and land-clearing debris, 100 percent of concrete, and 100 percent of asphalt during construction and demolition activities. |

[1] Linear interpolation between SB 100 targets of 60 percent for 2030 and 100 percent for 2045.

Source: City of Berkeley 2009

## Plan Bay Area 2040

The project site is located within the existing urban footprint of Berkeley. In addition, as described in Section 4.6, *Transportation,* with Mitigation Measure T-1 the amended DA would continue to include implementation of a Transportation Demand Management (TDM) Program. The TDM program would include continued funding for the shuttle system, which runs from the Ashby BART Station and the Bayer site, and is used by approximately 120 people daily (under normal, non-pandemic conditions). During normal conditions (i.e., non-pandemic conditions), the shuttles run every 15 minutes during peak hours and are timed to align with BART trains with service as needed to meet demand. In accordance with Mitigation Measure T-1, in the event that demand increases under the proposed DA, Bayer would either increase shuttle capacity, increase service frequency, or both, which would reduce vehicle trips associated with the proposed DA below those estimated herein. In addition to shuttle services, the program reduces single-occupancy vehicle use through a combination of pre-tax benefits, bicycle commuting incentives, and telecommuting options for qualified employment positions as further described in Section 4.6, *Transportation*.

## AB 32

The Advanced Clean Cars Program applies to vehicle manufacturers. While Bayer is not a regulated entity under this regulation, the vehicles used by Bayer employees, visitors, and contractors will reflect the GHG emission limits required by the regulation. Implementation of these regulations combined with CARB's Low Carbon Fuel Standard (aimed at decreasing the carbon intensity of California's transportation fuel pool) will reduce the campus's vehicular GHG emissions. Additional emissions reductions will result from installation of electric vehicle chargers.

The State of California and federal mandatory GHG emissions reporting regulations require facilities exceeding a specified threshold of GHG emissions to report their emissions inventory. Both regulations require reporting of emissions from stationary combustion. This does not include non-stationary combustion sources such as from vehicle travel and trucking or indirect emissions from water and electricity usage. Further, the California

regulation requires emissions reports to be verified by a third party if emissions exceed 25,000 MT $CO_2e$. Bayer submits its emissions inventory reports to CARB. Because Bayer does not directly emit more than 25,000 MT $CO_2e$ annually, third-party verification, California Cap-and-Trade, and Federal reporting requirements do not apply

## Executive Order B-30-15 and SB 32

The project's 2035 emissions total represents the emissions inventory for the amended DA at full build-out. As explained in GHG-1, the project's emissions would be lower than the existing emissions. Several regulatory requirements reduce the proposed amended DA's emissions and help ensure that the state's 2030 GHG target is achieved, including the following:

- SB 100 requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 60% by 2030 (from 33% by 2020).
- Under SB 375, CARB adopted Regional Targets of 15% reduction in VMT for 2035 for the area under ABAG's jurisdiction, which includes the Project site. The MTC and ABAG approved the final Plan Bay Area, which establishes strategies for meeting the Bay Area's Regional Targets.
- The Advanced Clean Cars Program will reduce GHG emissions by nearly 35% for new cars of model years 2017-2025.
- CPUC, CEC, and CARB have a shared, established goal of achieving ZNE.
- Executive Order N-82-20 sets targets for State ZEV sales to increase to 100% of new light- and medium-duty vehicle sales by 2035.

The measures above will all help ensure that the State meets the 2030 GHG target. The Project would be consistent with these initiatives and regulatory requirements.

## Executive Order S-3-05 and B-55-18

Studies have shown that, in order to meet the 2050 target, aggressive technology changes in the transportation and energy sectors, such as electrification and maturation of technologies still in development (e.g., advanced batteries and more efficient biofuels), will be required (Lawrence Berkeley National Laboratory 2011). In August 2020, Energy + Environmental Economics (E3) developed modeling scenarios for CARB that demonstrate potential pathways for the State to achieve the 2045 and 2050 targets. These scenarios all require ambitious reductions including "high levels of energy efficiency across all sectors, high levels of renewable electricity generation, high levels of electrification in the transportation and buildings sector, and deep reductions in non-energy, non-combustion GHG emissions like methane $CH_4$ and HFCs. As a result, all scenarios achieve at least an 80% reduction in gross GHG emissions (under AB 32) by 2045" (E3 2020).

While it would be speculative to quantitatively estimate the project's emissions level in 2045 and 2050 and to assess the impacts to the Executive Order's horizon-year goals, statewide efforts are underway to facilitate the State's achievement of these goals and it is reasonable to expect the project's emissions level to decline as the regulatory initiatives identified by CARB in the First Update to the Climate Change Scoping Plan and 2017 Scoping Plan are implemented, and other technological innovations occur. Many of these initiatives include reducing the carbon content of motor fuels and fuels for electricity generation. Reducing the carbon content of motor fuels and fuels for electricity generation will reduce $CO_2e$ emissions from the proposed project over time. Stated differently, the emissions associated with the amended DA total at build-out represents the maximum emissions inventory for the project

as California's emissions sources are being regulated (and foreseeably expected to continue to be regulated in the future) in furtherance of the State's environmental policy objectives. Given the reasonably anticipated decline in project emissions once fully constructed and operational, the project is consistent with the Executive Orders horizon-year goals.

For example, CARB's First Update to the Scoping Plan "lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050." And many of the emission reduction strategies recommended by CARB would serve to reduce the project's post-2020 emissions level to the extent applicable by law:

- Energy Sector: Continued improvements in California's appliance and building energy efficiency programs and initiatives would serve to reduce the Project's emissions level. Additionally, further additions to California's renewable resource portfolio would favorably influence the project's emissions level.
- Transportation Sector: Anticipated deployment of improved vehicle efficiency, zero emission technologies, lower carbon fuels, and improvement of existing transportation systems all will serve to reduce the project's emissions level.
- Water Sector: The project's emissions level will be reduced as a result of further desired enhancements to water conservation technologies.
- Waste Management Sector: Plans to further improve recycling, reuse and reduction of solid waste will beneficially reduce the Project's emissions level.

In addition to CARB's First Update, in January 2015, during his inaugural address, Governor Jerry Brown expressed a commitment to achieve "three ambitious goals" that he would like to see accomplished by 2030 to reduce the State's GHG emissions: (1) increasing the State's RPS from 33 percent in 2020 to 50 percent in 2030; (2) cutting the petroleum use in cars and trucks in half; and, (3) doubling the efficiency of existing buildings and making heating fuels cleaner. Two of these expressions of Executive Branch policy – (1) and (3) – already have been manifested in adopted legislative action (i.e., SB 350). SB 100 further increased the emissions reductions for (1), while Governor Newsom's 2020 EO N-79-20 sets the stage to improve upon the target set in (2).

The project would include electrification of building energy systems, heating, and appliances to the extent feasible; land use and site enhancements to enable the use of zero-emission transportation; and waste reduction strategies.

## Summary

Overall, the proposed amended DA would not conflict with the goals of the City's Climate Action Plan, Plan Bay Area 2040, AB 32, CARB's Scoping Plan, EO S-3-05, EOB-16-12, EO B-55-18, or SB 32. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. This impact would be less than significant.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

## d. Cumulative Impacts

The geographic scope for related projects considered in the cumulative impact analysis for GHG emissions is global because impacts of climate change are experienced on a global scale regardless of the location of GHG emission sources. Therefore, GHG emissions and climate change are, by definition, cumulative impacts. As discussed under Section 4.3.1(c), *Potential Effects of Climate Change*, the adverse environmental impacts of cumulative GHG emissions, including sea level rise, increased average temperatures, more drought years, and more large forest fires, are already occurring. As a result, cumulative impacts related to GHG emissions are significant. Thus, the issue of climate change involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. Refer to Impacts GHG-1 and GHG-2 for detailed discussions of the impacts of the proposed amendments related to climate change and GHG emissions. As discussed therein, project impacts would be less than significant and would therefore not be cumulatively considerable.

*This page intentionally left blank.*

# 4.4 Hazards and Hazardous Materials

This section evaluates potential impacts relating to hazards and hazardous materials in the soil, groundwater, and existing structures in and around the project site, as well as the use of hazardous materials during operation. The information related to historic uses and the presence of contamination in this section is based on a Phase I Environmental Site Assessment (ESA) report prepared by Farallon Consulting, L.L.C. (Farallon) dated October 21, 2020 included in Appendix F (Farallon 2020) and a Soil and Groundwater Management Plan prepared by Farallon dated December 28, 2020 (Appendix G). Geologic hazards are discussed in the Initial Study, which is included as Appendix A to of this Subsequent EIR.

## 4.4.1 Setting

### a. Historical Uses on the Project Site and Adjacent Properties

Based on review of the historical aerial photographs, topographic maps, and fire insurance maps provided in the 2020 Phase I ESA, the project site and adjacent properties have been developed with commercial and industrial buildings since at least 1911, as follows (Appendix F):

- The northern portion of the North Properties, between Dwight Way and Parker Street, was formerly occupied by a corrugated culvert pipe company and a soda manufacturer in 1911. By 1950, the area was occupied by a drainage and metal products company, which included machine welding and pipe dipping, testing, and wrapping. By 1965, The Cutter Laboratories Inc. had expanded from the south into this area, which included laboratories. The northern portion of the North Properties was also occupied by a metals supply company by 1965, which included sheet and bar steel warehouses and a railroad spur.
- The southern portion of the North Properties, between Parker Street and Carleton Street, was formerly occupied by Byron Jackson Iron Works Inc. (including a blacksmith, warehouses, a machine shop, and railroad spurs) in 1911. By 1950, the area was occupied by The Cutter Laboratories Inc., which included laboratories, a chemical building, a machine shop, a repair shop, and railroad spurs. By 1965, The Cutter Laboratories Inc. facility also included paint and printing shops.
- The South Properties consisted of vacant lots and single-family residences in 1911. By 1950, the area was occupied by Colgate-Palmolive-Peet Co., which included multiple aboveground storage tanks (ASTs), a machine shop, a drum storage shed, soap rooms, laboratories, a gasoline pump, and railroad spurs. By 1965, the Colgate-Palmolive-Peet Co. facility was renamed Colgate-Palmolive Co. and included multiple ASTs, a soap factory, a crude oil underground storage tank (UST) beneath Carleton Street. The Philadelphia Quartz Co. of California Ltd, a manufacturing company that produced chemicals including soaps, cleaning agents, paper products, and adhesives, and railroad spurs were also present on the South Properties in 1965.
- Railroad tracks historically branched off from the western adjacent railroad tracks onto both the North Properties and South Properties and extended eastward along Parker Street, Carleton Street, and Grayson Street.
- A centrally located adjacent property at 811 Carleton Street (north of Carleton Street) has been occupied by H.C. Macaulay Foundry since at least 1911. In 1911, this property included a blacksmith and “elevated tanks.” By 1950, the foundry included a machine

shop, a “foundry with an earth floor,” and one 80-gallon chemical AST. By 1965, this property included a machinery shop and a plating shop.

- Notable historical uses of adjacent properties include an adjacent brass foundry to the east of the North Properties across Seventh Street (2629 Seventh Street, approximately 120 feet north of Carleton Street), an adjacent California Packing Co. plant (including a machine shop) to the north of Dwight Way (733-743 Dwight Way, between Fourth and Fifth Street), and an adjacent chemical laboratory in 1950 (north of Dwight Way).
- The adjacent properties located south of Grayson Street were occupied by “Formerly Stauffer Chemical Works” which included machinery and warehouses that were noted to have been “removed" on the 1911 Sanborn Fire Insurance Map. The 1911 map also indicated that that the following were also present south of Grayson Street: six wooden USTs, two ASTs, a railroad spur, a tin fence company, Hall Scott-Motor Car Co. (manufacturer of automotive and airplane engines which included a machine shop and an elevated tank), the Cutter Laboratory Biologic Products facility (a manufacturer of vaccines and “antitoxin” which included an elevated tank/windmill, concrete vaults, and gasoline as fuel for incubators), and a single-family residence. By 1950, these properties were occupied by Wesco Waterpaints Inc. (including a repair shop and a railroad spur) and Hall-Scott Motor Division of ACR Brill Motors Co. (manufacturer of automotive, bus, marine, and railcar engines) which included grinding/polishing, parts washing, machine shops, heat treating, bus engine assembling, a paint shop, a maintenance building, sheet metal welding, and a railroad spur. By 1965, these properties were occupied by National Starch & Chemical Corp. with a factory building, solvent tanks, and railroad spurs, and by Airco Temescal Division (including a factory building, cleaning, a machine shop, metal fabricating, motor repair, and a research laboratory).

## b. Underground Features

The North Properties of the project site historically featured one oil-water separator sump and 20 USTs, which were used for storage of hazardous materials, including acetone, denatured alcohol, total petroleum hydrocarbons (TPH) as gasoline (TPHg), TPH as diesel (TPHd), and waste oil. A list of historical USTs on the project site is included in Table 1 of the Farallon Phase I ESA and the former locations of the USTs are shown in Figure 4.4-1. Based on the Farallon Phase I ESA and the site map provided in the report, the former location of the oil-water separator sump is unclear. The former location of UST-20 is also unclear, as it is depicted approximately 150 feet north of an area of “remediated soil” on the report’s site map.

According to a site map in the Farallon Phase I ESA, three USTs were formerly located within the South Properties. The Farallon Phase I ESA indicates that one of these three former USTs (UST-21) was removed in 1984, oil and grease were detected in soil samples collected from beneath the former UST, visibly stained soil was removed, confirmation soil samples did not contain TPH at concentrations above the regulatory screening levels used at that time, and the case was subsequently closed. No other information was provided in the Farallon Phase I ESA regarding UST-21, whether contaminated soil was left in place at UST-21, or information on the other two USTs (unnumbered) depicted on the South Properties on the report’s site map.

## Figure 4.4-1 Underground Features of Concern


RETAIN BUILDINGS
REPURPOSE/REFURBISH
FUTURE DEMOLISH
REMEDIATED SOIL SITE
CONTAMINATED SOIL LEFT IN PLACE
FORMER COLGATE-PALMOLIVE FACILITY
FORMER UST
\# UST NUMBER
U UNNUMBERED UST
V - Area in Which Volatile Organic Compounds Were Previously Detected in Groundwater

0 175 350 N
Feet

A - 800 Dwight Way (Closed Release Case)
B - 801 Grayson Street (Closed Release Case)
C - 2700 7th Street (Closed Release Case)
D - 25550 7th Street (Open Release Case)

*Source: Farallon Consulting, 2020.*

Based on the Farallon report, it appears that an oil/water separator and all 23 USTs have been removed (two USTs on the south parcel in the southwest and southeast corners of the property are reportedly removed but without documentation).

## c. Other Hazardous Material Features of Concern

Other hazardous material features that have been identified at the project site include:

- 14 elevators – Farallon did not observe all on-site elevators to confirm if they are operated hydraulically. If the elevators are operated hydraulically, oil reservoirs (possibly containing polychlorinated biphenyl (PCB) oil) may be present onsite. Potential releases at the reservoirs and pistons of these elevators may have impacted the soil and groundwater in the vicinity of the elevator and the associated reservoir.
- Known asbestos and lead-based paint (LBP) in buildings built before 1977 - Demolition or redevelopment of these structures could result in health hazard impacts to workers if not abated prior to construction activities.
- Multiple ASTs (including nine tanks used to store diesel for generators and water, acids, bases, and gases for various industrial processes) – Potential releases at the diesel ASTs could have impacted the soil, soil vapor, and groundwater in the vicinity of the ASTs.
- Ongoing use of hazardous and toxic substances/chemicals onsite – If spilled, these substances could pose a risk to the environment and to human health. The existing DA authorizes the research, development, quality assurance, and production of pharmaceutical therapies, which involves the use of biological materials, including cells, cell lines, and viruses and chemicals, including acids, bases, and cleaning supplies. The amended DA would continue to authorize similar types of research.
- Sumps (reportedly, no chemicals currently drain to the sumps) – Potential past releases of hazardous materials from the sumps could have impacted the soil, soil vapor, and groundwater at the project site.

## d. Remediation and Remaining Onsite Contamination

Remediation was performed for some of the former UST locations on the project site, consisting of soil excavation and/or groundwater extraction and offsite disposal. However, as shown in Figure 4.4-1, contaminated soil was left in place near several of the former USTs due to proximity to buildings or utility lines or cost as discussed in Table 4.4-1 below.

Seventeen USTs were discovered and removed from the project site between 1986 and 1993, and are associated with leaking UST cases filed with the San Francisco Bay Regional Water Quality Control Board (SFB RWQCB). SFB RWQCB then granted low-threat closure for the cases in 2016 after the completion of soil, soil vapor, and/or groundwater investigations and groundwater monitoring (which occurred from 1986 to 2009).

One UST was discovered on parcel 54-1770-8-1 of the North Properties in May 2020, the UST reportedly stored gasoline, and was suspected to be UST-12, which was not located during investigations at the project site in the early 1990s. TPH-impacted soil was reportedly removed from the UST excavation and disposed offsite; final confirmation soil samples did not contain concentrations of TPHg or TPHd above the residential or commercial/industrial Environmental Screening Levels (ESLs). The closure report for this UST is reportedly under review by the SFB RWQCB.

**Table 4.4-1 Contaminated Soil Left in Place at the Project Site**

| Area of Contaminated Soil Left in Place | Constituent(s) in Soil Left in Place | Maximum Concentration of Constituent(s) | Notes |
|---|---|---|---|
| Vicinity of UST-1 through UST-3 | TPHd | 960 milligrams per kilogram (mg/kg) | Maximum concentration was detected at a depth of nine feet below ground surface (bgs) or deeper. |
| Vicinity of UST-4, UST-8, and UST-9 | Acetone | 1,100 mg/kg in soil, 1,300,000 micrograms per liter (µg/L) in groundwater | Acetone-contaminated soil was not removed in the vicinity of UST-4, UST-8, and UST-9 "due to risk of undermining building B49." |
| | TPHg | 660 mg/kg in soil, 1,800 µg/L in groundwater | |
| Vicinity of UST-11 | TPHd | 2,000 mg/kg | TPHd-contaminated soil was left in place due to "proximity to utilities and a building." Maximum concentration was detected at a depth of 11 feet bgs. |
| Vicinity of UST-13 through UST-16 | TPHg<br>TPHd | 130 mg/kg<br>370 mg/kg | Approximately 7,500 square feet of contaminated soil was left in place "due to cost constraints." Grab groundwater samples collected from the excavation indicated that TPHg and TPHd were present at concentrations that did not exceed the SFB RWQCB Tier 1 ESLs. |
| Unnumbered UST – South Property East | N/A | N/A | This UST was reportedly removed; however, details of the removal and the residual presence of contamination in the vicinity are unknown. |
| Unnumbered UST – South Property West | N/A | N/A | This UST was reportedly removed; however, details of the removal and the residual presence of contamination in the vicinity are unknown. |

Source: Farallon 2020

N/A = not available

## e. Former Colgate-Palmolive Facility

According to the Farallon Phase I ESA report, a prior 2014 Phase I ESA indicated that the South Properties formerly operated as part of the former Colgate-Palmolive facility from at least 1939 to 1980 as shown in Figure 4.4-2. Environmental investigation cleanup activities were reportedly performed in this area from 1983 to 1986. Chlorinated solvents attributed to an offsite source were reportedly detected in groundwater samples collected . Metals were reportedly detected in soil samples collected at the former Colgate-Palmolive facility and soil remediation activities included the excavation and offsite disposal of metals-impacted soil from the South Properties.

## Figure 4.4-2 Adjacent Sites of Concern


*Imagery provided by Microsoft Bing and its licensors © 2020.*

In 1988, the California Department of Toxic Substances Control (DTSC) indicated that soil with low concentrations of metals had been left in place in the southwestern portion of the project site and had been covered by parking lots. A soil vapor survey conducted on the southwestern portion of the site in 2015 indicated that the concentrations of chlorinated- and hydrocarbon-related volatile organic compounds (VOCs) were detected at low concentrations that did not exceed the ESLs for potential risk of vapor intrusion.

Surficial soil profiling conducted at the South Properties by Farallon in 2019 reportedly indicated that "the concentrations of contaminants detected in all soil samples collected at [the South Properties] were less than ESLs for commercial land use and construction worker exposure scenario."

### f. Hazardous Material Handling, Generation, Transportation, and Disposal

The Farallon Phase I ESA report indicates that the project site was listed on various environmental databases as several facilities, current and former, pertaining to hazardous materials handling, hazardous waste generation and transportation, and construction waste generation, with no reported violations.

An adjacent property, a biomaterials manufacturer at 2800 Seventh Street (east across Seventh Street), was identified on environmental databases as a hazardous waste generator. As described in the 2020 Phase I ESA, Farallon did not consider this facility to be an environmental concern with respect to this topic at the project site.

### g. Regional Chlorinated VOC Groundwater Plume

Depth of groundwater in the vicinity of the project site is estimated to be between eight and 16 feet below ground surface and groundwater flow is generally to the southwest, toward San Francisco Bay.

Based on the research conducted as part of the Farallon Phase I ESA report, "the area of west Berkeley [hydrologically] up-gradient of the [project site] is associated with a regional chlorinated VOC groundwater plume originating from a variety of point and non-point sources. Low concentrations of VOCs, particularly trichloroethene (TCE), have been detected on the [project site] in the plume" at concentrations that exceed the regulatory drinking water standard of 5 micrograms per liter. The report indicates that because the detected VOC concentrations at the project site are below the 2019 ESLs for vapor intrusion risk for commercial/industrial land use, the presence of VOCs in groundwater up-gradient of the site is not considered an environmental concern with respect to the project site.

### h. Adjacent Heinz/Grayson Plume

The Heinz/Grayson Plume site is located at the southwestern corner of Seventh Street and Grayson Street, south of the site. The source of this plume was identified on environmental databases as several former facilities that historically manufactured automobiles, rebuilt large marine engines, stored old equipment, neutralized chemical metal etching waste prior to disposal, manufactured solvent-based and water-based adhesives, and operated a lumber distribution warehouse. The Farallon Phase I ESA report indicates that although groundwater contaminated with chlorinated solvents, PCBs, lead, nickel, and petroleum hydrocarbons is present at this adjacent site, the plume flows to the south (away from the project site). Based on VOC concentrations and downgradient location, the plume site is not considered an environmental concern with respect to the project site.

## i. Adjacent Macaulay Foundry/Closed Release Site

A review of a 1911 fire insurance map available online (Library of Congress, 2020) shows that Macaulay Foundry (811 Carleton Street) has been present at a centrally located adjacent property (north of Carleton Street) since 1911. The Macaulay Foundry was identified on environmental databases as a facility that historically stored hazardous materials and was associated with a leaking UST. In 1994, the SFB RWQCB closed the leaking UST case and reported it to be a release of Stoddard solvent/mineral spirits/distillates to soil. The case documents available do not identify the location of the former UST; therefore, it is unknown if this leaking UST case impacted the project site.

Based on this adjacent, long term, location of a foundry, there is the potential for shallow soil within the project site (in the vicinity of Macaulay Foundry) to be impacted from past air emissions and construction conducted near the Foundry could create a public health and environmental hazard in the vicinity of the project site.

## j. Hazardous Material Pipelines

Two active non-highly volatile liquid (non-HVL) pipelines are located west of the North and South Properties along the railroad tracks. No pipeline-related releases have occurred within one-half mile of the project site. However, undocumented or future releases from the pipelines could create a public health and environmental hazard in the vicinity.

Two active natural gas transmission pipelines are located within the North and South Properties of the project site along Carleton Street and Parker Street, and two active natural gas transmission pipelines are located along the eastern and southern boundaries of the site along Seventh Street and Grayson streets, respectively. No pipeline-related releases have been reported within one-half mile of the project site. However, undocumented or future releases from the pipelines could create a public health and environmental hazard in the project vicinity.

## k. Railroad Corridor and Railroad Spurs

Based on review of case documents for the former onsite Colgate-Palmolive facility (2700 Seventh Street), four railroad spurs were formerly located on the South Properties. In addition, a north-south trending railroad corridor is present to the west of the project site and several former railroad spurs extended from the corridor onto the North and South Properties. Shallow soils located along railroad corridors are commonly impacted with hazardous materials such as petroleum hydrocarbons, metals, naphthalene, poly-aromatic hydrocarbons (PAHs), and semi-volatile organic compounds (SVOCs). Therefore, construction conducted near the former railroad spurs or railroad corridor could create a public health and environmental hazard in the vicinity of the project site.

## l. Per- and Polyfluoroalkyl Substances (PFAS) Investigations

In March and April 2019, the SWRCB issued letters to landfill and airport facilities that have accepted, stored, or used materials that may contain per- and polyfluoroalkyl substances (PFAS) around the state that included a SWRCB Water Code Section 13267 Order (Investigative Order). An Investigative Order is a directive from the Water Board to conduct on-site testing. The SWRCB also issued Investigative Orders to water systems in the vicinity of those airports and landfills and required sampling of the public water supply in those areas. This does not mean that PFAS has been produced, used, or discharged at these sites.

In October 2019, the SWRCB issued Investigative Orders to Chrome Plating Facilities that may have stored or used fume suppressants or other substances that may have contained PFAS. The Investigative Orders require groundwater and leachate sampling for PFAS at landfills, groundwater testing for PFAS at airports and chrome plating facilities, and preparation of a work plan to sample groundwater and leachate.

"PFAS compounds are ubiquitous in many consumer and industrial products (i.e., cosmetics, food packaging, carpeting, etc.). Municipal solid waste landfills do not manufacture or generate these compounds, but instead receive PFAS containing materials in their role as managers of consumer waste. PFAS studies completed nationwide indicate that PFAS compounds are prevalent in landfill leachate (SRWCB PFAS 2020)."

According to the SWRCB's online PFAS database, one PFAS Investigative Order has been issued within one mile of the project site: Electro-Coatings of California (893 Carleton Street). This facility is located immediately adjacent to the project site, northwest of the Carleton Street and Seventh Street intersection. According to GeoTracker, this facility is associated with a PFAS Investigative Order for chrome plating facilities issued by the SFB RWQCB in October 2019. A workplan for sampling stormwater runoff, wastewater, and groundwater at the facility was submitted to the SFB RWQCB in September 2020. The workplan indicates that groundwater at this adjacent facility is approximately 10 feet bgs and flows toward the southwest or west-southwest, toward the South Properties of the project site. Therefore, construction conducted adjacent to 893 Carleton Street could create a public health and environmental hazard in the vicinity of the project site.

Review of the California 2019 Statewide Drinking Water System Quarterly Testing Results online Public Map Viewer indicates that drinking water wells within a 10-mile radius of the project site do not appear to have been tested for PFAS.

### m. Landfills

Four municipal landfills are located within two miles of the project site as follows:

- Albany Landfill: SWIS No. 01-AA-0011, closed solid waste disposal site located approximately 1.7 miles north of the project site
- Berkeley Landfill: SWIS No. 01-AC-0001, closed solid waste disposal site located approximately 0.6 mile north of the project site
- Emeryville Dump: SWIS No. 01-CR-0003, closed solid waste disposal site located approximately one mile south of the project site
- Santa Fe Pacific Berkeley Landfill: SWIS No. 01-AC-0039, closed solid waste disposal site located approximately 1.4 miles north of the project site

Based on the distance of these landfills from the project site, methane vapor migration associated with Landfills is not anticipated at the project site.

## 4.4.2 Regulatory Setting

The management of hazardous materials and hazardous wastes is regulated at the federal, state, and local levels through programs administered by the U.S. Environmental Protection Agency (USEPA), agencies under the California Environmental Protection Agency (CalEPA), such as the DTSC, federal and state occupational safety agencies, the Bay Area Air Quality Management District (BAAQMD), SWRCB, City of Berkeley Toxics Management Division (TMD), and Alameda County Department of Environmental Health.

## a. Federal

At the federal level, the USEPA is the principal regulatory agency. The Occupational Safety and Health Administration (OSHA) regulates the use of hazardous materials, including hazardous building materials, insofar as these affect worker safety through a delegated state program. Furthermore, at the federal level, the Department of Transportation (DOT) regulates transportation of hazardous materials.

### Resource Conservation and Recovery Act of 1974

The Resource Conservation and Recovery Act (RCRA) was enacted in 1974 to provide a general framework for the national hazardous waste management system, including the determination of whether hazardous wastes are being generated, techniques for tracking wastes to eventual disposal, and the design and permitting of hazardous waste management facilities.

### The Hazardous and Solid Waste Amendments

The Hazardous and Solid Waste Amendments were enacted in 1984 to better address hazardous waste; this amendment began the process of eliminating land disposal as the principal hazardous waste disposal method.

### Bioterrorism Preparedness Response Act

The Bioterrorism Preparedness Response Act of 2002 requires that entities that possess, use, or transfer agents or toxins deemed a severe threat to animal or plant health must notify and register with the Secretary of the U.S. Department of Agriculture (USDA). The USDA'S animal and Plant Health Inspection Service has been designated as the agency for implementing the law.

### Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, was enacted in 1980 to ensure that funds were available to clean up abandoned hazardous waste sites, compensate victims, address releases of hazardous materials, and establish liability standards for responsible parties.

### The Superfund Amendments and Reauthorization Act of 1986

The Superfund Amendments and Reauthorization Act amended CERCLA in 1986 to increase Superfund budget, modify contaminated site cleanup criteria and schedules, and revise settlement procedures. Superfund Amendments and Reauthorization Act also provides a regulatory program and fund for UST clean ups.

### Centers for Disease Control and National Institute of Health

The Centers for Disease Control and Prevention (CDC) is a federal agency that develops information and tools to protect communities' health through health promotion, prevention of disease, injury and disability, and preparedness for new health threats. The National Institutes of Health (NIH) is a federal agency responsible for biomedical and public health research. The CDC and NIH partner to publish biosafety guidelines for protecting workers and preventing exposures in biological laboratories across the United States.

The CDC and the NIH have issued federal guidelines addressing biological safety. Compliance with these guidelines is required in any research within the United States that involves recombinant or synthetic nucleic acid, including current and future research within the project site. These guidelines govern containment and handling in microbiological and biomedical research laboratories. In 2019, the NIH issued updated Guidelines for Research involving Recombinant or Synthetic Nucleic Acid Molecules, which classifies biohazardous agents into four safety levels:

- **Risk Group 1:** agents that are not associated with disease in healthy adult humans. This group includes a list of animal viral etiologic agents in common use. These agents represent no or little risk to an individual and no or little risk to the community.
- **Risk Group 2:** agents associated with human disease which is rarely serious and for which preventive or therapeutic interventions are often available. These agents represent a moderate risk to an individual but a low risk to the community.
- **Risk Group 3:** agents associated with serious or lethal human disease for which preventive or therapeutic interventions may be available. These agents represent a high risk to an individual but a low risk to the community.
- **Risk Group 4:** agents likely to cause serious or lethal human disease for which preventive or therapeutic interventions are not usually available. These agents represent a high risk to the individual and a high risk to the community.

The NIH guidelines also describe regulations and industry standards for laboratories in the United States that use each type of risk group for recombinant or synthetic nucleic acid research. Regulations include requirements for personal protective equipment, such as splash shields, face protection, gowns, and gloves, secondary barriers, such as hand washing sinks, self-closing laboratory doors, specially controlled and limited laboratory windows, restrictions on the location of biological safety cabinets, vacuum lines protected with liquid disinfectant traps, HEPA filtered exhaust systems, eye-wash stations, and waste decontamination facilities. Occupational and public safety is protected by selecting the appropriate biological and physical containment levels for each biological material handled. Standard microbiological practices reduce risks resulting from exposure to biohazardous materials.

*United States Department of Transportation*

The USDOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the Code of Federal Regulations and implemented by Title 13 of the California Code of Regulations. Transportation of hazardous materials along any City or state roadways within or near the project site is also subject to all hazardous materials transportation regulations established by the California Highway Patrol pursuant to the California Vehicle Code and the Berkeley Fire Department (BFD).

## b. State

At the state level, agencies such as the California Occupational Safety and Health Administration (CalOSHA), the Office of Emergency Services (OES), and the Department of Health Services (DHS) have rules governing the use of hazardous materials that parallel federal regulations and are sometimes more stringent. DTSC is the primary state agency governing the storage, transportation, and disposal of hazardous wastes. DTSC is authorized by the USEPA to enforce and implement federal hazardous materials laws and regulations. DTSC has oversight of Annual Work Plan sites (commonly known as State

Superfund sites), sites designated as having the greatest potential to affect human health and the environment.

The California Department of Public Health (CDPH, formerly California Department of Health Services) regulates the generation, handling, storage, treatment, and disposal of medical waste in accordance with the California Medical Waste Management Act (California Health and Safety Code, Sections 117600–118360). This law requires medical waste generators to register with the CDPH, Medical Waste Management Program, and submit a medical waste management plan to the local enforcement agency.

The primary California State laws for hazardous waste are the California Hazardous Waste Control Law, which is the state equivalent of Resource Conservation and Recovery Act, and the Carpenter-Presley-Tanner Hazardous Substance Account Act, which is the state equivalent of CERCLA. State hazardous materials and waste laws are in the California Code of Regulations, Titles 22 and 26. The state regulation concerning the use of hazardous materials in the workplace is included in Title 8 of the California Code of Regulations.

Government Code Section 65962.5 requires CalEPA to develop and update the Hazardous Waste and Substance Sites (Cortese) List. The Cortese List is a planning document used by state and local agencies and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites.

## California Hazardous Materials Release Response Plans and Inventory Law

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a Business Plan. That Business Plan must include details of the facility and business conducted at the site, an inventory of hazardous materials that are handled or stored on site, an emergency response plan and a training program for safety and emergency response for new employees, with annual refresher courses.

## California Environmental Protection Agency

The Cal EPA's regulations pursuant to the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program addresses (among other matters) a number of programs specifically designed to minimize such risks. These programs require all businesses that handle hazardous materials to prepare a Hazardous Materials Release Response Plan and inventory, a Risk Management and Prevention program, and compliance with Unified Fire Code requirements. These programs are implemented at the local level, including by the City of Berkeley Toxics Management Division (TMD).

## The California Radiation Control Law

The California Radiation Control Law (California Health & Safety Code Sections 114960-114985) is a regulatory program designed to provide for compatibility with the standards and regulatory programs of the federal government and integrate an effective system of regulation within the state. The program regulates sources of ionizing radiation and establishes procedures for performance of certain regulatory responsibilities with respect to the use and regulation of radiation sources. These laws and regulations govern the receipt, storage, use, transportation and disposal of sources of ionizing radiation (radioactive material) and protect the users of these materials and the public from radiation hazards.

### California State Water Resources Control Board

The California State Water Resources Control Board (SWRCB) has regulatory responsibility for protecting water quality in the state. In March and April 2019, the SWRCB issued Investigative Orders for airports and landfills to determine whether soil and/or groundwater at these sites were impacted by per- and polyfluoroalkyl substances (PFAS), and issued Sampling Orders to water systems to sample the public water supply in the vicinity of those airports and landfills. In October 2019, the SWRCB issued Investigative Orders for chrome plating facilities, and on July 9, 2020 issued Investigative Orders to publicly owned treatment works facilities.

### California Fire Code

California Code of Regulations, Title 24, also known as the California Building Standards Code, contains the California Fire Code (CFC), included as Part 9 of that Title. Updated every three years, the CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution.

## c. Regional and Local

### Regional Water Quality Control Board

The SFB RWQCB is authorized by the SWRCB to enforce provisions of the Porter-Cologne Water Quality Control Act of 1969. This act gives the SFB RWQCB authority to require groundwater investigations when the quality of groundwater or surface waters of the State is threatened and to require remediation of a site, if necessary. Both of these agencies are part of the CalEPA. In the Bay Area, BAAQMD may impose specific requirements on remediation activities to protect ambient air quality from dust or other airborne contaminates.

Administration and enforcement of the major environmental programs were transferred to local agencies as Certified Unified Program Agencies (CUPA) beginning in 1996. The purpose of this was to simplify environmental reporting by reducing the number of regulatory agency contacts a facility must maintain and requiring the use of more standardized forms and reports.

### Alameda County Department of Environmental Health

The Alameda County Department of Environmental Health (DEH) is the CUPA for various cities and unincorporated areas within Alameda County. The Alameda County CUPA program coordinates and enforces local, state, and federal hazardous materials management and environmental protection programs in the county. Alameda County DEH's Local Oversight Program (LOP) oversees the investigation and cleanup of hazardous materials releases to the environment under the Leaking Underground Fuel Tank Program and the Site Cleanup Program. In certain circumstances, Alameda County DEH does oversee cases in Berkeley with SFB RWQCB concurrence.

### City of Berkeley Toxics Management Division

The City of Berkeley TMD is the CUPA for the City of Berkeley. It is responsible for regulating the storage, use, treatment, and disposal of hazardous materials and wastes in Berkeley.

The TMD manages a map of areas in Berkeley known or suspected to have contamination issues, known as Environmental Management Areas (EMA), to advise permit applicants of potential health and environmental concerns that may be encountered during construction involving excavation or dewatering. The TMD reviews proposed development projects in an EMA to determine if special requirements should apply to reduce exposure to contaminants. The project site is within an EMA (City of Berkeley 2010).

## City of Berkeley 2019 Local Hazard Mitigation Plan

The City of Berkeley 2019 Local Hazard Mitigation Plan (LHMP) is intended to prepare the community for potential life-threatening emergencies, such as fire, flood, and earthquakes. The LHMP is essentially a "road map" for action involving hazard mitigation and emergency preparedness. In general, the LHMP includes guiding objectives and actions, organized into high, medium, and low priority actions for emergency preparedness (City of Berkeley 2019).

## City of Berkeley General Plan

The Berkeley General Plan Disaster Preparedness and Safety Element includes goals and policies to reduce the risk of death, injuries, and property damage in the city. Relevant goals and policies are listed below:

**Policy S-1 Response Planning.** Ensure that the City's emergency response plans are current and incorporate the latest information on hazards, vulnerability, and resources.

**Policy S-10 Mitigation of Potentially Hazardous Buildings.** Pursue all feasible methods, programs, and financing to mitigate potentially hazardous buildings.

**Policy S-12 Utility and Transpiration Systems.** Improve the disaster-resistance of utility and transportation systems to increase public safety and to minimize damage and service disruption following a disaster.

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

**Policy S-14 Land Use Regulation.** Require appropriate mitigation in new development, in redevelopment/reuse, or in other applications.

**Policy S-15 Construction Standards.** Maintain construction standards that minimize risks to human lives and property from environmental and human-caused hazards for both new and existing buildings.

**Policy S-21 Fire Preventative Design Standards.** Develop and enforce construction and design standards that ensure new structures incorporate appropriate fire prevention features and meet current fire safety standards.

**Policy S-22 Fire Fighting Infrastructure.** Reduce fire hazard risks in existing developed areas.

**Policy S-23 Property Maintenance.** Reduce fire hazard risks in existing developed areas by ensuring that private property is maintained to minimize vulnerability to fire hazards.

**Policy S-24 Mutual Aid.** Continue to fulfill legal obligations and support mutual aid efforts to coordinate fire suppression in Alameda and Contra Costa Counties, Oakland, the East Bay Regional Park District, and the State of California to prevent and suppress major wildland and urban fire destruction.

### West Berkeley Area Plan

The project site is subject to the City's West Berkeley Plan, which was adopted and incorporated into the Berkeley General Plan in 1993 and includes the following goals and policies related to hazards and hazardous materials:

**Goal 2:** Reduce the generation of, importing into West Berkeley, transportation, use, storage, and disposal of all hazardous material/hazardous waste.

**Policy 2.1:** Reduce to the greatest feasible extent the amount and/or hazard intensity of hazardous materials and hazardous waste imported into West Berkeley, transported through West Berkeley, used or stored in West Berkeley, and disposed of by West Berkeley businesses, institutions, and households.

**Policy 2.2:** Promote risk management and communication.

**Policy 2.3:** Promote hazardous waste reduction and recycling.

**Goal 3:** Assure that biohazardous materials are appropriately regulated, by the City or other agencies.

**Policy 3.1:** Implement the City's new biohazards amendments to the Hazardous Materials Disclosure Ordinance

**Policy 3.2:** Coordinate City regulatory action with other agencies.

**Goal 4:** Decrease the level of contamination in West Berkeley soils and groundwater.

**Policy 4.1:** Increase contaminated site clean-up efforts.

## 4.4.3 Impact Analysis

### a. Methodology and Significance Thresholds

Based on Appendix G of the *CEQA Guidelines*, a significant impact would occur if the proposed project would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
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;
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
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, create a significant hazard to the public or the environment;
5. 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;
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Impacts regarding proximity to airports (Significance Threshold 5) are discussed in the Initial Study, which is provided as Appendix A. As described therein, the nearest airport to the project site is Oakland International Airport, which is located approximately 8.5 miles to the south. The project site is outside of the area of the land use plan for the airport, and there are no private airstrips near the project site. Because there are no airports or airstrips near the project site, the project would not result in a safety hazard for people residing or working in the project area. No impact would occur.

Impacts regarding wildland fires (Significance Threshold 7) are discussed in the Initial Study (Appendix A). As described therein, the project site is not located in or near a very high fire hazard severity zone mapped by CAL FIRE, and is outside the City's Wildland-Urban Interface Fire Area. Therefore, the project would not expose people or structures to significant risks involving wildland fires. This impact would be less than significant.

As described in Section 2, *Project Description*, the CEQA baseline for the hazards and hazardous materials analysis is buildout under the existing (1992) DA on the North Properties (1,346,000 square feet of development) and existing development on the South Properties (520,000 square feet of development). The total square footage analyzed in the baseline scenario is therefore 1,866,000 square feet across the project site.

## b. Prior Environmental Analysis

Chapter 5H (Bio Safety) of the 1991 EIR analyzed the existing DA's impacts related to biological hazards, which are defined as conditions that could result in the release of infectious agents capable of harming people or the natural environment. This chapter covers potential biohazards associated with the manufacture of vaccines and human plasma products, and with the use of mammalian cell lines. The 1991 EIR determines that impacts related to the following biohazards would be less than significant with mitigation incorporated: Epstein-Barr Virus, plasma and fractionation products, plague bacilli, Class 1 and 2 microorganisms, and other infectious materials.

Chapter 5I (Chemical Hazards) of the 1991 EIR analyzed the existing DA's impacts related to chemicals, carcinogens, and radioactive materials. The 1991 EIR determined that impacts related to the following issues would be less than significant with mitigation incorporated: chemical inventory reporting, release of laboratory chemicals or radionuclides, upset in the laboratory, upset during preparation of hazardous materials for disposal, chemical use in production, delivery and storage of caustic materials and gas, acid storage and delivery, accidental mixing of acid and caustic materials, release of fuel during delivery, release of hazardous materials from storage tanks, and use and release of ammonia.

The project would involve demolition of existing buildings and construction and operation of new buildings that were not analyzed in the 1991 EIR and could therefore result in new impacts related to hazardous materials. In addition, the 1991 EIR did not directly address the issues of hazardous materials in proximity to schools, listed hazardous material sites, airport safety hazards, or conflicts with emergency response and evacuation plans. Therefore, all the CEQA checklist items listed above under Significance Criteria are addressed in this analysis except Thresholds 5 and 7, which, as described above, are addressed in the Initial Study, Appendix A to this EIR.

## c. Project Impacts and Mitigation Measures

| | |
|---|---|
| **Threshold 1:** | Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? |
| **Threshold 2:** | Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? |
| **Threshold 4:** | Would the project 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? |

**Impact HAZ-1** **THERE ARE KNOWN RELEASES OF HAZARDOUS SUBSTANCES WITHIN AND ADJACENT TO THE PROJECT SITE WITH POTENTIALLY LOCALIZED CONTAMINATION OR CONCENTRATIONS OF HAZARDOUS SUBSTANCES. ADDITIONALLY, THERE ARE SEVERAL HISTORICAL USES OF THE PROPERTY AND ADJACENT PROPERTIES THAT MAY HAVE RESULTED IN THE PRESENCE OF HAZARDOUS MATERIALS OR WASTES IN ONSITE SOIL, SOIL VAPOR, AND/OR GROUNDWATER. ALTHOUGH THE PROJECT WOULD BE REQUIRED TO COMPLY WITH EXISTING REGULATIONS RELATED TO KNOWN HAZARDOUS MATERIALS AND WASTES, UNANTICIPATED HAZARDOUS MATERIALS AND WASTES COULD BE DISTURBED DURING DEMOLITION, GRADING, AND OTHER SOIL OR GROUNDWATER DISTURBANCE UNDER THE PROPOSED AMENDED DA. THEREFORE, WORKERS WITHIN THE PROJECT SITE COULD BE EXPOSED TO HAZARDS MATERIALS DURING CONSTRUCTION ACTIVITIES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

### Grading and Ground Disturbance for Development

Although there are no Cortese sites identified onsite, there are four known release cases present on the project site with residual soil and/or groundwater impacts. These onsite known releases are listed below and shown in Figure 4.4-1:

- 800 Dwight Way: Bayer, Former Miles/Cutter/Berkeley Unified School District, SFB RWQCB LUST Cleanup Site Case #01-0972, closed groundwater case as of June 2017.
- 801 Grayson Street: PQ Corp., SFB RWQCB/City of Berkeley LUST Cleanup Site Case #01-1203, closed groundwater case as of April 2003.
- 2700 Seventh Street: Colgate-Palmolive, DTSC Evaluation Site, “certified” case #01280047 as of March 1988; SFB RWQCB LUST Cleanup site, closed case #01-0280 as of 1992; SFB RWQCB Cleanup Program Site, closed case #01S0107 as of 2020.
- 2550 Seventh Street: Miles Labs Cutter, SFB RWQCB Cleanup Program Case #01S0045, open inactive case as of 2009.

Additionally, as described in Table 4.4-1, there are several former locations onsite where impacted soil remains in place.

Two open and one closed release sites with residual soil and/or groundwater impacts are also present adjacent to the project site and could be encountered during construction on the project site. The adjacent known releases are listed below and shown in Figure 4.4-2:

- 811 Carleton Street: Macaulay Foundry, City of Berkeley LUST Cleanup Site Case #01-0932, closed soil case as of August 1994; SFB RWQCB Cleanup Program Case #01S0066, closed soil case as of August 1994

- 742 and 800 Grayson Avenue: National Starch and Chemical Company, SFB RWQCB Cleanup Program Case #01S0386 – soil and groundwater, open site assessment case as of August 2020
- 893 Carleton Street: Electro-Coatings of California, SFB RWQCB Cleanup Program Site Case #01S0742 – open groundwater cleanup case as of July 2013; PFAS investigation site – open PFAS groundwater investigation as of October 2019

The four known release cases present on the project site (with open and closed release cases) can be redeveloped, although agency restrictions and notification requirements are typically in place to prevent inappropriate land uses based on the current sub-surface conditions of the property, proposed land use, and design of the proposed building. Specifically, regulatory agencies typically require notification prior to redevelopment and/or the disturbance of soil and/or groundwater at these open or closed case sites. In these situations, the agency typically will review, and possibly re-open, the release case and require agency oversight of the assessment and/or remediation activities prior to redevelopment of the open or closed release case.

Grading, or soil and groundwater disturbance, associated with implementation of the project would involve transport, storage, and use of potentially hazardous materials, including, soils and groundwater impacted with hydrocarbons, metals, VOCs, and PFAS, as described in the Phase I ESA report. As grading and excavation for development under the amended DA would require the removal of contaminated soil, grading or excavation would also result in the transport and disposal of hazardous materials as they are unearthed and removed from the site. The transport, storage, use, or disposal of hazardous materials would be subject to applicable federal, state, and local regulations, which would assure that risks associated with hazardous materials are minimized. In addition, transportation of hazardous materials would be required to occur along designated roadways in the city and county, thereby limiting risk of upset.

While the Phase I ESA report prepared by Farallon provides information about the potential presence and source of contamination within the site, additional studies would be required to fully evaluate the extent of contamination and to develop measures that would resolve potential hazards associated with the contamination as development occurs on the project site. For example, a Phase II ESA may be needed to identify recommendations for construction within specific areas of the project site. Therefore, without additional studies, grading and soil disturbance during implementation of the project could result in impacts related to exposure to and release of hazardous materials. This impact is potentially significant and mitigation is required. In addition, the project site is associated with multiple former USTs and soil impacted with acetone, metals, and petroleum hydrocarbons left in place. A former onsite Colgate-Palmolive facility (2700 Seventh Street) and four railroad spurs were formerly located on the South Properties. Additionally, an adjacent foundry has been in operation for over 100 years and a regional VOC-impacted groundwater plume is present beneath a portion of the project site. Potential health and environmental concerns related to contaminated groundwater and soil may occur during demolition, grading, excavation, and groundwater dewatering for new construction. Therefore, impacts are potentially significant, and mitigation measures that require oversight by regulatory agencies are required.

## Demolition of Existing Structures

The project site contains nine commercial and industrial buildings that are planned for demolition and three commercial or industrial buildings that are planned to be renovated during implementation of the project. Due to their age, these structures may contain asbestos and/or LBP. Structures built before the 1970s typically contained asbestos-containing materials (ACM). In addition, demolition activities may include temporary transport, storage, and use of other hazardous materials such as mercury in light ballasts, PCBs in elevator equipment, and abandoned chemicals from past site uses. Therefore, demolition or redevelopment of these structures could result in health hazard impacts to workers if not remediated prior to construction activities. However, construction activities would be subject to City of Berkeley standard conditions of approval that would avoid or minimize these impacts. This includes the following standard condition of approval from the City's TMD:

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

This standard condition of approval requires that a building materials survey be conducted by a qualified professional. The survey must include plans on hazardous waste or hazardous materials removal, reuse, or disposal procedures to be implemented that fully comply state hazardous waste generator requirements. Construction activities during implementation of the proposed amended DA would also be required to adhere to BAAQMD Regulation 11, Rule 2, which governs the proper handling and disposal of ACM for demolition, renovation, and manufacturing activities in the Bay Area, and CalOSHA regulations regarding lead-based materials. The California Code of Regulations Section 1532.1, requires testing, monitoring, containment, and disposal of lead-based materials, such that exposure levels do not exceed CalOSHA standards. With adherence to standard conditions of approval and BAAQMD and CalOSHA policies regarding ACM and LBP, impacts at the program level would be less than significant.

## Construction of Structures

Construction associated with the proposed amended DA may include the temporary transport, storage, and use of potentially hazardous materials including fuels, lubricating fluids, cleaners, or solvents. If spilled, these substances could pose a risk to the environment and to human health. In addition, construction activities that transport hazardous materials would be required to transport such materials along designated roadways in the city and county, thereby limiting risk of upset. The transport, storage, use,

or disposal of hazardous materials would also be subject to federal, state, and local regulations pertaining to the transport, use, storage, and disposal of hazardous materials, which would assure that risks associated with hazardous materials are minimized. Impacts associated with the use of hazardous materials during construction would be less than significant.

## Mitigation Measures

The following new mitigation measures are required. These measures were not included in the 1991 EIR, which did not address impacts related to release of hazards during demolition, grading, and construction activities.

*HAZ-1 Property Assessment – Phase I and II Environmental Site Assessments (ESA)*

The project applicant shall prepare a site-specific Phase I ESA for each development area / Block, in accordance with standard ASTM methodologies, to assess the land use history of the project site. Phase II ESAs (i.e., soil, groundwater, soil vapor subsurface investigations) shall be completed where a building is proposed south of Carleton Street or based on the results of the Phase I ESAs. Specifically, if the Phase I ESAs identify recognized environmental conditions or potential concern areas, a Phase II ESA would be conducted to determine whether the soil, groundwater, and/or soil vapor has concentrations exceeding regulatory screening levels for commercial/industrial land uses.

If the Phase II ESA concludes that the site is or may be impacted and could affect the planned development, then an assessment, remediation, or corrective action (e.g., removal of contaminated soil, in-situ treatment, capping, engineering controls) shall be conducted prior to or during construction under the oversight of federal, state, and/or local agencies (e.g., USEPA, DTSC, SFB RWQCB, City of Berkeley TMD, Alameda County DEH) and in full compliance with current and applicable federal and state laws and regulations. Additionally, Voluntary Cleanup Agreements may be used for parcels where remediation or long-term monitoring is necessary.

*HAZ-2 Regulatory Agency UST Involvement – City of Berkeley TMD and SFB RWQCB*

Because the project site and immediately adjacent properties are associated with open and closed LUST and Cleanup Program cases overseen by the SFB RWQCB, the project applicant shall notify the SFB RWQCB of the following:

- Development plans for each Block located south of Carleton Street and for Block B North east of Fourth Street
- Completion of subsequent Phase I ESAs
- Identification of unanticipated stained or odorous soils during demolition, grading, and/or construction activity
- Identification of additional underground tanks and associated piping, or other underground features such as railroad spurs or ties, unknown piping, cisterns, wells, waste/burn pits, etc., if encountered

Additionally, all onsite UST removals and associated assessment work shall be completed under the direction of the City of Berkeley TMD and/or the SFB RWQCB. To the extent there are any pending LUST and Cleanup Program cases on the project site, the UST closure and agency approval documents shall be reviewed and approved by the City of Berkeley TMD and/or the SFB RWQCB prior to issuance of building permits for grading or any other ground disturbance.

Upon identification of stained soil, odorous soil, USTs, or other underground features onsite, City of Berkeley TMD and/or SFB RWQCB could require actions such as: preparation of removal action workplans; obtaining permits for removal of USTs or other underground features; excavation and offsite disposal of soil; assessment of soil and/or groundwater beneath the excavation; and/or completion of UST removal reports or case closure documents.

*HAZ-3 Regulatory Agency Subsurface Involvement – ACPWA, SFB RWQCB and City of Berkeley*

The City of Berkeley TMD and the SFB RWQCB shall continue to provide agency oversight of assessment and remediation of the open Cleanup Program case (case #01S0045) on the project site. Additionally, the applicant shall notify the City of Berkeley and SFB RWQCB Cleanup Program project manager of the following:

- Development plans for Block B North east of Fourth Street and development south of Carleton Street
- Onsite use of 14 hydraulic elevators that may have contained oils containing PCBs (Farallon, 2020)
- Onsite use of above-ground storage tanks used to store diesel for generators (Farallon, 2020)
- Other regulatory UST case listings (City of Berkeley and SFB RWQCB) and assessment work that will be completed under the direction of other regulatory agencies
- All former environmental documents completed for the site of development disturbance, including this SEIR

Upon notification of the information listed above, the City of Berkeley and the SFB RWQCB could require actions such as: preparation of subsurface investigation workplans; completion of soil, soil vapor, and/or groundwater subsurface investigations; installation of soil vapor or groundwater monitoring wells; excavation and offsite disposal of soil; completion of human health risk assessments; and/or completion of remediation reports or case closure documents.

If groundwater wells or soil vapor monitoring probes are identified within the construction area during demolition, subsurface demolition, or construction at the project site, they will be abandoned/destroyed under permit from the Alameda County Public Works Agency (ACPWA). Demolition activities will be documented in a letter report submitted to the ACPWA and SFB RWQCB within 60 days of the completion of abandonment activities. Abandonment of sub-slab vapor points will be completed with SFB RWQCB approval and demolition activities will be documented in a letter report to SFB RWQCB.

The SFB RWQCB non-objection, concurrence, no further action, closure, and/or agency approval documents shall be delivered to and reviewed by the City of Berkeley prior to issuance of any building permit authorizing grading or construction on the site. The SFB RWQCB may determine that City of Berkeley TMD or DTSC may be best suited to perform the lead agency duties for assessment and/or remediation at the project site, in which case this and other mitigation measures will still apply.

*HAZ-4 Soil and Groundwater Management Plan*

The project applicant shall implement the recommendations of the Soil and Groundwater Management Plan (SGMP) prepared by Farallon Consulting LLC dated December 28, 2020. The SGMP shall be reviewed by the City of Berkeley Toxics Management Division prior to issuance of permits for grading or other ground disturbance and the report shall be updated if needed. The SGMP recommendations are related to:

- Management of Unanticipated Subsurface Conditions
- Health and Safety Requirements
- Onsite Soil Management
- Groundwater Management
- Stormwater Management
- Soil and Groundwater Management Plan Reporting Requirements

Construction workers shall be informed about environmental conditions and measures to mitigate potential risks to the environment, construction workers, and other nearby receptors from potential exposure to hazardous substances that may be associated with unknown conditions or unexpected underground structures, and known contaminated soil or groundwater encountered during construction activities.

The SGMP shall be updated and the updated recommendations shall be implemented in the following cases:

- A change in project site uses;
- Receipt of additional information pertaining to project site environmental conditions;
- Updated chemical toxicity information for contaminants detected at the project site based on revised regulatory screening levels; or,
- New legal or regulatory soil or groundwater management requirements applicable to the project site.

## Significance After Mitigation

With implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ 3, and HAZ-4, the project applicant would be required to:

- Identify potential hazards associated with demolition, grading (soil and groundwater disturbance), and construction
- Assess the potential or known presence of contaminants
- Involve regulatory agency for oversite of UST or underground feature removal; soil, soil vapor, and groundwater assessment; and remediation (as necessary)
- Identity and manage potential safety issues during demolition, grading, and construction

With mitigation, this impact would be less than significant.

| | |
|---|---|
| **Threshold 1:** | Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? |
| **Threshold 2:** | Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? |

**Impact HAZ-2 IMPLEMENTATION OF THE PROPOSED AMENDED DA WOULD INCLUDE OPERATION OF LABORATORY, PRODUCTION, STORAGE, AND MANUFACTURING BUILDINGS THAT COULD INVOLVE THE USE, STORAGE, DISPOSAL, OR TRANSPORTATION OF HAZARDOUS MATERIALS, INCLUDING BIOHAZARDOUS AND CHEMICAL MATERIALS. UPSET OR ACCIDENT CONDITIONS AT THE PROJECT SITE COULD INVOLVE THE RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT. REQUIRED ADHERENCE TO EXISTING REGULATIONS AND IMPLEMENTATION OF MITIGATION WOULD ENSURE LESS THAN SIGNIFICANT IMPACTS CONCERNING HAZARDOUS MATERIALS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

## Biological Hazards

The existing DA authorizes the research, development, quality assurance, and production of pharmaceutical therapies. This work involves the use of biological materials, including cells, cell lines, and viruses within Risk Groups 1 and 2, as defined in the NIH guidelines. As described above in Section 4.4.2, *Regulatory Setting*, Group 1 agents consist of agents that are found in the environment and do not cause disease in healthy humans, and Group 2 agents are moderate-risk agents present in the community and associated with human disease of varying severity. Risks associated with Group 2 agents are generally similar to the risks one encounters at an outpatient medical facility The existing DA prohibits use of materials within Risk Groups 3 and 4 and the use of non-mammalian cells.

The amended DA would authorize continuation of the same operations expressly identified in the existing DA, as well as therapies similar in nature (i.e., requiring similar development and manufacturing processes and safety measures, and involving biological agents of the same class). Moreover, as with the existing DA, the amended DA would continue to prohibit use of materials in Risk Groups 3 and 4. The amended DA would allow expansion of one type of research: the use of non-mammalian cells in the research, which is currently prohibited under the existing DA. Since the existing DA was approved, technology has advanced, and nonmammalian cell lines are routinely and safely used in pharmaceutical research and production processes laboratories where Risk Group 1 and 2 agents are used.

Since the adoption of the DA in 1991, safety protocols for handling biological agents and other hazardous materials have improved significantly. For instance, viral vectors now can be engineered to be non-replicative competent (i.e. they are not able to replicate inside host cells), and closed systems are more commonly employed, which reduces risks to employee and public health significantly. These safety protocols have been developed and codified in various governing regulations and documents, as described above under Section 4.4.2, *Regulatory Setting*. Under the amended DA, operations would be required to comply with all applicable requirements, guidelines, and policies adopted by the NIH, CDC, the Food and Drug Administration, the United States Department of Agriculture, the State of California, and the City of Berkeley, including requirements described in the NIH Guidelines for Research involving Recombinant or Synthetic Nucleic Acid Molecules. The NIH Guidelines include measures related to risk assessment and emergency preparedness, personnel training, type, storage, and maintenance of equipment, use of personal protective equipment, and secondary barriers. For example, closed processing, which involves

equipment designed and operated such that a given product is not exposed to the room environment, would be employed where possible to protect manufacturing personnel and the products being manufactured. Where closed processes are not feasible or provide insufficient protection, environmental controls such as cleanrooms, airlocks, and facility segregation would be employed to protect manufacturing personnel and products. Moreover, personal protective equipment would be used by manufacturing personnel as specified by government regulations.

As described under Section 4.4.2, *Regulatory Setting,* Cal/OSHA requires all institutions that use hazardous materials to implement a Hazard Communication Program and to train employees that use hazardous chemicals in the safe use of those materials. Under the amended DA, Bayer would be required to implement all safety procedures required by Cal/OSHA. Bayer would also be required to prepare and implement an Illness Prevention Program to provide a safe and healthful workplace under Title 8 of the California Code of Regulations. Cal/OSHA mandates methods of documenting, investigating and controlling accidents that result in skin penetration. In addition, Bayer would be required to prepare and implement a Business Plan under the Business Plan Act, which must include details of the facility and business conducted at the site, an inventory of hazardous materials that are handled or stored on site, an emergency response plan and a training program for safety and emergency response for new employees, with annual refresher courses.

Operation under the amended DA would be subject to current safety protocols under federal, state, and local laws and regulations, which would reduce impacts related to hazardous materials. However, even with implementation of current safety protocols, accidental release of hazardous materials used during project operation is possible. In the event of an accidental release, Bayer employees, emergency responders, and other people, wildlife, and plants in the area could be harmed. Accidental release of biohazardous materials could cause a variety of human health effects ranging from skin irritation and allergies to infections that could be spread. Therefore, mitigation is required to ensure Bayer and the City of Berkeley would be prepared in the event of an accidental release of biohazardous materials during project operation. This impact is potentially significant, and mitigation is required.

## Chemical Hazards

Under the existing DA, various chemicals are used during operations within the project site, including in laboratories for research, development and quality assurance, and in the production cycle for equipment cleaning and provision of nutrients to cells producing pharmaceutical products. A total of approximately 900 chemicals are currently used within the project site, including typical industrial acids such as phosphoric acid, typical industrial bases such as sodium hydroxide, compressed and liquified gases such as oxygen and nitrogen, solvents used for cleaning or protein purification, such as isopropyl alcohol, and other cleaning supplies, such as bleach and hydrogen peroxide.

Use of chemicals under the amended DA would be similar to use of chemicals under existing entitlements. While the amended DA would allow demolition and construction of buildings, as described above under *Biological Hazards*, the type of research and production conducted within the project site would remain largely the same. In addition, the location of storage containers for chemical materials would remain the same under the amended DA. Under existing entitlements, Bayer operates eight containers for liquified gases that are permanently installed and refilled by bulk delivery and eight on-site storage tanks for acid and bases currently at buildings 57, 60, 66, and 81. All acid and base tanks are located inside secondary containment. Drums of chemicals used for production are

stored in building 87, which was specifically designed as a hazardous materials warehouse and is built to Class I Division II fire code standards. Hazardous materials and petroleum products are also stored in various buildings throughout the site, including administration. Under the amended DA, hazardous materials would not be stored in buildings repurposed for administration. Therefore, impacts related to the use of chemicals under the amended DA be similar to those analyzed in the 1991 EIR.

Under the amended DA, use of chemicals within the project site would be required to comply with current federal, state, and local regulations. As described under 4.4.2, *Regulatory Setting*, the use of hazardous materials is regulated through the Resources Conservation and Recovery Act (RCRA). The California Department of Toxic Substances Control (DTSC) is responsible for implementing the RCRA program, as well as California's own hazardous waste laws. DTSC regulates hazardous waste, cleans existing contamination, and looks for ways to control and reduce the hazardous waste produced in California. It does this primarily under the authority of RCRA and in accordance with the California Hazardous Waste Control Law (California H&SC Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (Title 22, California Code of Regulations, Divisions 4 and 4.5). DTSC also oversees permitting, inspection, compliance, and corrective action programs to ensure that hazardous waste managers follow federal and State requirements and other laws that affect hazardous waste specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Operation under the amended DA would be subject to current safety protocols under federal, state, and local laws and regulations, which would reduce impacts related to hazardous chemical materials. However, even with implementation of current safety protocols, accidental release of chemical materials used during project is possible. In the event of an accidental release, Bayer employees, emergency responders, and other people, wildlife, and plants in the area could be harmed. Accidental release of biohazardous materials could cause a variety of human health effects ranging from skin irritation and allergies to infections that could be spread. Therefore, mitigation is required to ensure that Bayer and the City of Berkeley would be prepared in the event of an accidental release of hazardous chemical materials during project operation. This impact is potentially significant, and mitigation is required.

## Radiation

As described in Section 2, *Project Description*, while the existing DA does not include the use of gamma irradiation devices, the amended DA plans for the installation of up to two fully protected gamma irradiation devices within Block B in designated production spaces. Gamma irradiation devices produce electromagnetic energy that is used for laboratory sterilization and prevention of cell proliferation during research. Fully protected gamma irradiation devices have a de minimis radiation output at their surface (i.e., a dose rate of less than 3 micro-Sieverts/hour (µSv/h)). Sieverts are units that measure the amount of radiation in a given environment. According to the US EPA, the average United States home exposes inhabitants to 2,280 µSv/h of radiation annually (US EPA 2019). The proposed gamma irradiation devices require no additional protection measures to reduce radiation output, and no radiation surveillance with dosimeters is required for staff. Moreover, they would be designed to enable safe operation by employees without requiring additional personal protective equipment.

In addition, use of irradiation devices are regulated by several federal and state agencies, including the Department of Energy, Nuclear Regulatory Commission, US EPA, and California Radiation Control Law, as described under Section 4.4.2, Regulatory Setting.

These laws and regulations govern the receipt, storage, use, transportation and disposal of sources of ionizing radiation (radioactive material) and protect the users of these materials and the public from radiation hazards. Given compliance with applicable regulations, impacts related to the use of gamma radiation devices would be less than significant.

## Storage and Transport

As described in Section 2, *Project Description*, the proposed project would involve substantial changes to the existing DA, including the addition of the South Properties into the DA, and the rearranging of the campus layout through phased demolition of nine existing buildings and construction of new buildings for production, laboratory, and administrative uses. While buildout under the proposed DA would allow new and demolished buildings, the storage and transport of hazardous materials would be similar in scope to what is currently allowed existing entitlements. Under current entitlements, hazardous materials are delivered to a warehouse in the southwestern corner of the project site (B80) and stored in the B87 building and laboratories and production spaces during research, development, and manufacturing activities. Hazardous materials and petroleum products are also stored in various quantities in buildings B28, B28A, B44, B46, B47, B53, B56A, B57, B58, B59, B60, B61, B63, B64, B66, B67, B80, B81, B82, B83, B85, B88 and B90. Hazardous materials to be disposed of are collected throughout the site and delivered to the buildings B47 and B84 for collection by licensed contractors and exported through the Parker Street entrance. Under the amended DA, the B80 warehouse building would be expanded and the use of hazardous materials would occur within a slightly different development footprint, as reflected in the proposed year-30 site layout shown in Figure 2-9. Hazardous material disposal would follow a similar protocol as under existing entitlements. Materials for laboratories would be unloaded at existing docks, the location of which would not change under the amended DA. All packages containing radioactive materials would be inspected by Bayer for signs of damage, leaking, or loss of integrity, consistent with federal and state protocols. If any leakage is detected, contaminated surfaces would be cleaned, and the package would be over-packed into a larger drum and returned to the manufacturer or supplier. All chemicals would be stored inside laboratory buildings within an appropriate container, including fire-rated safety cabinets for flammables, acids, and bases. Compressed gas would be unloaded at buildings 57, 60, East of 61, 68, and 82, as is allowed under the existing DA. For deliveries of large quantities of acid, bases, or other industrial chemicals, the storage and loading area would be sloped to hold the entire capacity of one tanker truck, forming a containment area. As is required under the existing DA, the ground surface at delivery areas would continue to slope to a sump, which would include an isolation valve that is kept closed except when the drain needs to be used. Valves connected to tanks and delivery hookups would be kept locked in order to prevent accidental releases. Moreover, rainwater that would accumulate in the containment area would be periodically tested and, if not contaminated, released to the storm drain or sanitary sewer. These existing protocols would ensure that hazardous materials are stored and transported safely to, from, and within the project site.

In addition, storage and transport of hazardous materials would also be required to comply with current federal, state, and local regulations. As described under 4.4.2, *Regulatory Setting*, the Department of Transportation (DOT) regulates transportation of hazardous materials. Hazardous materials would be required to be transported under DOT regulations (U.S. DOT Hazardous Materials Transport Act, 49 Code of Federal Regulations), which stipulate the types of containers, labeling, and other restrictions to be used in the movement of such material on interstate highways. The project would also be subject to DTSC requirements and any conditions imposed by the Berkeley TMD during review of the project

plans. For example, as is currently required under exiting entitlements, all materials for the laboratories would be delivered by the manufacturers or shipping companies in the original shipping containers whose characteristics are specified by DOT regulations.

Under the existing DA, Bayer has a permit to discharge industrial wastewater with EBMUD. As described in EBMUD's most recent annual Pretreatment Report, Bayer complies with all permit conditions, including conditions that apply to laboratory wastes (EBMUD 2020). Liquid and solid chemical and medical wastes would continue to be shipped offsite for treatment and disposal. No treatment or disposal of hazardous waste would occur within the project site. In compliance with Titles 8, 14, 17 and 22 of the California Code of Regulations, spent hazardous materials generated on a daily basis in research, production and maintenance facilities are required to be placed in special containers and are kept in specially designated and ventilated accumulation areas. Under the amended DA, these hazardous wastes would be collected and accumulated in designated and secured areas designed to prevent accidental release to the environment. Wastes would transported off-site by licensed hazardous waste transporters to permitted hazardous waste disposal facilities. In addition, pursuant to Section 117635 of the California Health and Safety Code, medical wastes must be managed as a biohazardous material, in accordance with, and the management of biohazardous materials must comply with DHS regulations.

Storage and transport of hazardous materials under the amended DA would be subject to current safety protocols under federal, state, and local laws and regulations, which would reduce impacts. However, mitigation is required to ensure that Bayer and the City of Berkeley would be prepared in the event of an accidental release of hazardous chemical materials during project operation. This impact is potentially significant, and mitigation is required.

## Mitigation Measures

The following mitigation measure is required to ensure less than significant impacts concerning hazardous materials during construction activities. The measure includes portions of mitigation measures in the 1991 EIR, with updated language and requirements to reflect current regulations and the proposed project.

*HAZ-5 Hazardous Materials Safety Plan (Updated 1991 EIR MM)*

The project applicant shall prepare a Hazardous Materials Safety Plan to address potential issues that may be encountered during project operation involving the use, storage, transport, and disposal of biohazardous and chemical materials. The Hazardous Materials Safety Plan shall be updated annually and reviewed by Berkeley's Toxics Management Division. The Plan shall include, but not be limited to, the following information and measures:

- Documentation of ongoing compliance with all applicable federal, state, and local regulations related to biohazardous safety, storage, transport, and disposal procedures, and emergency response preparedness, including biosafety guidelines published by the NIH and CDC.
- Documentation that current and future operations would prohibit the use of biohazardous agents within Risk Groups 3 and 4.
- Documentation of ongoing coordination for emergency preparedness with the City of Berkeley, including preparation of an emergency response plan and an emergency disaster procedures manual for release of hazardous biological materials. The disaster preparedness plan shall include annual training for and coordination with City of

Berkeley emergency responders as to the nature of hazards on site, types of organisms likely to be encountered, where to take exposed persons to receive appropriate treatment, and staging semi-annual mock disaster drills.

- Updates to and continued compliance with the site's Risk Management Prevention Plan (RMPP) for the use of ammonia. The RMPP shall be subject to review and approval by the USEPA.
- Updates to and continued compliance with the Hazardous Materials Release Response Plan and inventory and Risk Management and Prevention program required by CalEPA.

## Significance After Mitigation

With implementation of Mitigation Measure HAZ-5, project operation would comply with safety and emergency preparedness protocol. This impact would be less than significant with mitigation.

| | |
|---|---|
| **Threshold 3:** | Would implementation of the proposed project result in land uses that emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? |

**Impact HAZ-3 IMPLEMENTATION OF THE PROPOSED AMENDED DA WOULD INVOLVE FACILITIES THAT WOULD CONTINUE TO USE, STORE, TRANSPORT, DISPOSE, AND PRODUCE HAZARDOUS MATERIALS NEAR SCHOOLS. THIS COULD RESULT IN HAZARDOUS EMISSIONS OR HAZARDOUS MATERIALS RELEASE NEAR SCHOOLS. HOWEVER, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

Two schools are located with 0.25 mile of the project site: the Center for Early Intervention on Deafness (approximately 0.2 mile to the east) and Ecole Bilingue De Berkeley (approximately 0.14 mile to the east-southeast). Buildout of the amended DA would involve the continued use of hazardous materials in proximity to schools.

## Construction Activities

As described under Impact HAZ-1 above, implementation of the proposed project would include demolition of existing structures, grading for planned development, and construction of new structures, including laboratories, manufacturing and administrative facilities, and surface parking lots, which could involve the use, storage, disposal, or transportation of transportation of hazardous materials within 0.25 mile of schools. However, handling of these hazardous materials would be subject to existing regulations, programs, policies in the Berkeley General Plan, and Mitigation Measures HAZ-1, HAZ-2, HAZ-3, and HAZ-4, which would reduce impacts to a less than significant level. Given required compliance with the rules and regulations described above under Impact HAZ-1, impacts to schools would be less than significant with mitigation incorporated.

## Operational Activities

As described under Impact HAZ-1 above, the amended DA would continue to authorize the same kind of research and production of pharmaceutical therapies as under the existing DA, including research involving biological materials and chemicals that could be hazardous to the environment, including the schools within 0.25 mile of the project site. However, use, storage, transport, and storage of such materials would be required to comply with existing regulations, including those set by the DOT, CDC, and NIH and with Mitigation Measures HAZ-5, described above, under Impact HAZ-2, which require enhanced and continued

safety protocols. Given required compliance with these regulations and mitigation measures, impacts to schools would be less than significant with mitigation incorporated.

## Mitigation Measures

Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-4, and HAZ-5 are required.

## Significance After Mitigation

With implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, and HAZ-4, Bayer would identify and manage potential safety issues related to hazardous materials during demolition, grading, and construction and take action to address those issues. Moreover, with implementation of Mitigation Measure HAZ-5 and under the DA amendment, project operation would not involve the use, storage, transport, or disposal of biohazardous materials in Risk Groups 3 and 4, which are more dangerous than materials in Risk Groups 1 and 2, and would comply with safety and emergency preparedness protocol. Given compliance with these measures, impacts related to emissions of hazardous materials near schools would be less than significant. This impact would be less than significant with mitigation.

| | |
|---|---|
| **Threshold 6:** | Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? |

**Impact HAZ-4** **IMPLEMENTATION OF THE PROPOSED AMENDED DA WOULD NOT IMPAIR IMPLEMENTATION OF OR PHYSICALLY INTERFERE WITH AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN WITH MITIGATION. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

Figure 14 of the Berkeley General Plan identifies existing emergency access and evacuation routes in the vicinity of the project site. Two designated evacuation routes, Sixth Street and Dwight Way, are adjacent to the project site (Berkeley 2001). General Plan Policy T-28 identifies actions for emergency access. These include not installing diverters or speed humps on streets identified as Emergency Access and Evacuation Routes. During project construction and operation under the amended DA, Sixth Street and Dwight Way would still serve as evacuation routes in case of emergency.

As discussed in Section 4.6, *Transportation*, the proposed project would be required to comply with all building, fire, and safety codes and specific development plans would be subject to review and approval by the City's Public Works Department, Building and Safety Department, and Fire Department. Required review by these departments would ensure the circulation system within and around the project site would provide adequate emergency access. Moreover, while traffic congestion has the potential to impede the movement of emergency vehicles, the project would not result in a significant increase in single-occupancy vehicles in the surrounding area. In addition, as described in Section 2, *Project Description,* under the amended DA, Bayer would continue to operate its own emergency vehicle and equipment to respond to most emergency needs within the project site. Bayer's emergency response team would continue to be supplemented by outside emergency response personnel, including the City of Berkeley's Fire Department, when necessary. However, the project would not involve any major modifications to the roadway network outside the project site that would affect emergency vehicle access.

As described under Impact HAZ-2 above, the project would be subject to Mitigation Measure HAZ-5, which requires that the applicant coordinate for emergency preparedness

with the City of Berkeley. Such coordination would include preparation of an emergency response plan and an emergency disaster procedures manual for release of hazardous biological materials and annual training for and coordination with City of Berkeley emergency responders as to the nature of hazards on site, types of organisms likely to be encountered, where to take exposed persons to receive appropriate treatment, and staging semi-annual mock disaster drills. These measures would ensure that designated emergency access and evacuation routes would be maintained under the amended DA.

Given required compliance with Mitigation Measure HAZ-5, buildout allowed under the amended DA would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant with mitigation incorporated.

### Mitigation Measures

Mitigation Measure HAZ-5, described above, would be required to reduce impacts related to emergency evacuation.

### Significance After Mitigation

Given compliance with Mitigation Measure HAZ-5, the project applicant would be required to coordinate emergency planning and response with the City of Berkeley. This measure would reduce impacts related to emergency evacuation planning. Impacts would be less than significant with mitigation incorporated.

## d. Cumulative Impacts

Cumulative development in Berkeley has potential to expose future area residents, employees, and visitors to current and historical use of hazardous materials. Continued urban development in Berkeley will cumulatively increase the potential for exposure to existing hazards associated with hazardous materials. Therefore, an overall increase in the potential for human health hazards will occur as intensification of development occurs. However, the magnitude of hazards for individual projects would depend upon the location, type and size of development and the specific hazards associated with individual sites. Compliance with regulatory requirements, including the federal, state, and local requirements described above, and the mitigation measures and conditions required under the existing DA, would avoid potential hazard impacts associated with the proposed project.

Overall, hazards and hazardous materials impacts associated with individual developments are site specific in nature and must be addressed on a case-by-case basis. Since hazards and hazardous materials are required to be examined as part of the permit application and environmental review process, it is anticipated that potential impacts associated with individual projects will be adequately addressed and mitigated prior to permit approval. With adherence to existing General Plan emergency evacuation policies and other federal, state, regional, and local regulations, no significant cumulative human health impacts would occur. The proposed project would also be required to comply with mitigation measures described above to mitigate project-specific impacts. With mitigation and compliance with applicable regulations, the project would not contribute to a cumulative hazards or hazardous materials impact.

# 4.5 Noise

This section evaluates noise impacts of the proposed amendment to Bayer HealthCare LLC's Development Agreement. Assessment of impacts is based partially on pertinent analysis provided in the 1991 EIR, which evaluated impacts of buildout under the existing DA, and additional impacts that could occur as a result of buildout under the amended DA. The project-specific analysis is based on a Noise Impact Analysis prepared by First Carbon Solutions in November 2020. This study is included as Appendix H of this document.

## 4.5.1 Setting

### a. Overview of Noise and Vibration Measurement

Noise is defined as unwanted sound that disturbs human activity. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with human hearing response, which is most sensitive to frequencies around 4,000 Hertz (similar to the highest note on a piano) and less sensitive to frequencies below 100 Hertz (similar to a transformer hum).

Sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dB, and a sound that is 10 dB less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a 3 dBA change in community noise levels is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while those along arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (drop off) at a rate of 6 dB per doubling of distance from point sources such as industrial machinery. Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dB per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dB per doubling of distance.

In addition to the instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level ($L_{eq}$). The $L_{eq}$ is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, $L_{eq}$ is summed over a one-hour period.

The time period in which noise occurs is also important since nighttime noise tends to disturb people more than daytime noise. Two commonly used noise metrics – the Day-Night average level ($L_{dn}$) and the Community Noise Equivalent Level (CNEL) - recognize this fact by weighting hourly $L_{eqs}$ over a 24-hour period. The $L_{dn}$ is a 24-hour average noise level that adds 10 dB to actual nighttime (10:00 PM to 7:00 AM) noise levels to account for the greater sensitivity to noise during that time period. The CNEL is identical to the $L_{dn}$, except it also

adds a 5 dB penalty for noise occurring during the evening (7:00 PM to 10:00 PM). Noise levels described by $L_{dn}$ and CNEL typically do not differ by more than 1 dBA. In practice, CNEL and $L_{dn}$ are often used interchangeably.

The relationship between peak hourly $L_{eq}$ values and associated $L_{dn}$ values depends on the distribution of traffic and other noise sources over the entire day. There is no precise way to convert a peak hourly $L_{eq}$ to $L_{dn}$. However, in urban areas near heavy traffic, such as the Plan Area, the peak hourly $L_{eq}$ is typically 2-4 dBA lower than the daily $L_{dn}$ or CNEL.

### Vibration

Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. Groundborne vibration related to human annoyance is generally related to root mean square (RMS) velocity levels expressed in vibration decibels (VdB). However, construction-related groundborne vibration in relation to its potential for building damage can also be measured in inches per second (in/sec) peak particle velocity (PPV) (Federal Transit Administration 2006). Based on the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment and Caltrans' 2013 Transportation-Related Earthborne Vibration, Technical Advisory, vibration levels decrease by 6 VdB with every doubling of distance.

The background vibration velocity level in residential areas is usually 50 VdB or lower (FTA 2018). The threshold of perception for humans is approximately 65 VdB. Frequent incidences of vibration above 70 VdB at residences can result in human annoyance, while vibration exceeding 85 VdB at residences can result in strong annoyance. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of groundborne vibration that is perceptible within buildings are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is fairly smooth, the groundborne vibration from traffic is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor cosmetic damage can occur in fragile buildings.

## b. Noise-Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. The City of Berkeley General Plan's Environmental Management Element defines noise-sensitive receivers as residences, child-care centers, hospitals, nursing homes, and other similar land uses (Berkeley 2003). These land uses have more stringent noise exposure thresholds than commercial or industrial uses that are not susceptible to certain impacts, such as sleep disturbance, pursuant to Policy EM-47 in the Environmental Management Element. The location, hours of operation, type of use, and extent of development warrant close analysis in an effort to ensure that noise-sensitive receivers are not exposed to adverse noise levels. The Regulatory Setting, below, describes the City's thresholds for the exposure of noise-sensitive receivers to noise.

The project site is bordered by a mixture of industrial, commercial, and residential land uses. Noise sensitive land uses adjacent to the North Properties of the project site are multi-family and mixed residential land uses to the north on Fifth Street and between Sixth Street and Ninth Street. A church, Dance Jam located at 2525 Eight Street, is east of the proposed parking structure on Dwight Way between Seventh and Eighth Streets. Noise sensitive land uses adjacent to the South Properties of the project site are mixed residential land uses to

the east along Seventh Street between Carleton Street and just south of Grayson Street. A middle school, Ecole Bilingue de Berkeley, located at 901 Grayson Street is east of the project site surface parking lot at the corner of Grayson Street and Seventh Street. The City's Aquatic Park is west of both the North and South Properties.

## c. Existing Noise Conditions and Sources

The primary sources of noise in the project site vicinity are motor vehicles, trains, and noise associated with operation of commercial and residential uses.

### Motor Vehicles

Motor vehicles, including passenger vehicles, trucks, and buses, are the most common and significant sources of noise in Berkeley. The primary source of traffic noise in the eastern portion of proposed project area is Seventh Street. The major source of traffic noise in the western portion of project site is Interstate 80/I-580.

### Trains

Union Pacific Railroad (UPRR) train activity contributes to the noise environment at the Bayer Campus, where the railway tracks are approximately three feet higher in elevation relative to the Bayer Campus elevation. As discussed in the Noise Impact Analysis Report (First Carbon Solutions 2020; Appendix H), the adjacent rail line has approximately 70 train passbys per day, averaging 1 to 2 minutes per passby.

### Operational Noise

Compressors, boilers, cooling tower fans, and delivery truck traffic are the primary on-site noise sources of the Bayer Campus. The compressors and boilers are housed within on-site buildings of the North Properties. Cooling towers are located approximately 20 feet above ground and noise is not detectable at ground level from these cooling towers. Delivery truck traffic typically occurs in two shifts with approximately 40 deliveries to the Bayer Campus per day. Equipment used in the operation of industrial, commercial, and residential uses in the area also contributes to ambient noise. These uses can generate noise from HVAC systems, loading docks, trash compactors, outdoor dining, music, and other sources. Residential neighborhoods generate noise from the use of home appliances, yard maintenance and home construction equipment, air conditioners, power tools, and other household activities.

## d. Regulatory Setting

### State

While there are no State standards for vibration, for continuous, frequent, and intermittent vibration, Caltrans considers the architectural damage risk level to be between 0.08 and 0.5 inches per second (in/sec) peak particle velocity (PPV), or 86 VdB to 102 VdB, depending on the type of building that is affected. For reference, typical background vibration velocity level in residential areas is usually 50 VdB or lower as a result of vehicular sources and the threshold of perception for humans is approximately 65 VdB.

## Local

### *Berkeley General Plan*

The City of Berkeley's General Plan addresses noise-related issues in the Environmental Management Element, which was adopted in April 2002. Policy EM-47 of the Environmental Management Element ensures that new noise-sensitive uses, such as residences, schools, and places of worship, are protected from detrimental noise levels. The policy sets normally acceptable, conditionally acceptable, and unacceptable exterior noise levels that apply to the placement of new noise-sensitive receivers: for new residences, noise exposure of up to 60 dBA $L_{dn}$ is considered normally acceptable; noise levels of between 60 and 75 dBA $L_{dn}$ are conditionally acceptable and would require detailed analysis of noise reduction requirements and noise insulation features; and any noise level above 75 dBA $L_{dn}$ is considered unacceptable because mitigation is not usually feasible.

### *Berkeley Municipal Code*

Section 13.40, Community Noise, of the Berkeley Municipal Code (BMC) sets the City's standards for on-site operational noise and construction noise. As shown in Table 4.5-1, Section 13.40.050, Exterior Noise Standards, provides the exterior noise limits not to be exceeded for more than 30 minutes in any hour in various zoning districts. If the measured ambient noise level exceeds these limits, the allowable noise exposure standard would be the ambient noise level.

**Table 4.5-1 City of Berkeley Exterior Noise Limits**

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

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

Source: City of Berkeley Municipal Code Section 13.40.050

Section 13.40.060 of the BMC, Interior Noise Standards, sets interior noise limits for multi-residential as shown in Table 4.5-2.

**Table 4.5-2 City of Berkeley Interior Noise Limits**

| Zone | Time Period | Noise Level, dBA ($L_{eq}$) |
|---|---|---|
| All | 7:00 AM – 10:00 PM | 45 |
| | 10:00 PM – 7:00 AM | 40 |

Source: City of Berkeley Municipal Code Section 13.40.060

Section 13.40.070 of the BMC sets standards for construction noise. This section prohibits construction activity between the hours of 7:00 PM and 7:00 AM on weekdays, 8:00 PM to 9:00 AM on weekends and holidays that creates a noise disturbance across a residential or commercial property line. Table 4.5-3 lists the City's maximum sound levels for mobile and stationary equipment that apply to construction activity "where technically and economically feasible" during permitted hours of construction (BMC Section 13.40.070.B).

**Table 4.5-3 Construction Noise Standards**

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

[1] Section 14.40.070 of the Berkeley Municipal Code defines mobile equipment as "nonscheduled, intermittent, short-term operation (less than 10 days).

[2] Section 14.40.070 of the Berkeley Municipal Code defines stationary equipment as "repetitively scheduled" and for "relatively long term operation (period of 10 days or more).

Source: adapted from Table 13.40-3 and Table 13.40-4 of the City of Berkeley's Construction Noise Standards: http://www.ci.berkeley.ca.us/uploadedFiles/Health_Human_Services/Level_3_-_General/Construction%20Noise%20Standard.pdf

## 4.5.2 Impact Analysis

### a. Significance Thresholds and Methodology

The analysis of noise impacts considers the effects of both temporary construction-related noise and long-term noise associated with ongoing operations authorized under the amended DA. Based on Appendix G of the *CEQA Guidelines,* impacts would be significant if they would:

1. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
2. Generate excessive groundborne vibration or groundborne noise levels; or
3. 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, expose people residing or working in the project area to excessive noise levels.

As described in Section 2, *Project Description*, the CEQA baseline for the noise analysis is buildout under the existing 1992 DA on the North Properties (1,346,000 square feet of development) and existing development on the South Properties (520,000 square feet of development). The total square footage analyzed in the baseline scenario is 1,866,000 square feet across the project site.

## Temporary Noise Increase from Construction

Temporary increases in ambient noise from construction activity under the amended DA were estimated based on reference noise levels reported by the Federal Highway Administration (FHWA) for typical pieces of construction equipment. Reference noise levels at a distance of 50 feet from the source were applied from the FHWA's *Highway Construction Noise Handbook* (2006). From this reference distance, noise levels were estimated at nearby sensitive receivers based on a standard noise attenuation rate of 6 dBA per doubling of distance from point sources. This analysis assumes the use of typical construction equipment for the proposed project's demolition and development activities. Construction noise level estimates do not account for the presence of intervening structures or topography, which could reduce noise levels at receptor locations. Therefore, the estimated construction noise levels represent a conservative estimate of actual construction noise. The amended DA would have a significant impact if construction noise occurs outside of permitted hours or occurs during permitted daytime hours in excess of the noise standards for stationary equipment in Zoning Districts R-1, R-2, R-3, and commercial/industrial, as shown in Table 4.5-3.

## Groundborne Vibration

The exposure of people to groundborne vibration during construction permitted in the amended DA was estimated based on reference levels provided for construction equipment in the FTA's *Transit Noise and Vibration Impact Assessment Manual* (2018). A formula in this FTA document was used to calculate the attenuation of vibration from a reference distance of 25 feet to the distances of the nearest noise-sensitive receivers:

$$PPV = PPV_{ref} \times (25/D)^{n} \text{ (in/sec)}$$

This formula takes into account the reference vibration level ($PPV_{ref}$), the distance from vibration-generating equipment to the receptor (D), and a constant value related to the attenuation rate through the ground (n). The n-value is assumed to be 1.1, Caltrans' suggested value for conservative analysis (FTA 2018).

The vibration analysis applies the following vibration thresholds established by the FTA for disturbance of people: 65 VdB for buildings where low ambient vibration is essential for interior operations (such as hospitals and recording studios), 72 VdB for residences and buildings where people normally sleep, including hotels, and 75 VdB for institutional land uses with primary daytime use (such as churches and schools). These thresholds apply to "frequent events," which the FTA defines as vibration events occurring more than 70 times per day. The thresholds for frequent events are considered appropriate because of the scale and duration of potential construction activity.

In addition, this analysis applies FTA thresholds for potential damage from construction vibration (FTA 2018). Table 4.5-4 shows these thresholds, which are expressed in terms of maximum in/sec PPV and VdB.

**Table 4.5-4 Vibration-Related Building Damage Thresholds**

| Building/Structural Category | PPV (in/sec) | Approximate VdB[1] |
|---|---|---|
| Reinforced-concrete, steel or timber (no plaster) | 0.5 | 102 |
| Engineered concrete and masonry (no plaster) | 0.3 | 98 |
| Non-engineered timber and masonry buildings | 0.2 | 94 |
| Buildings extremely susceptible to vibration damage | 0.12 | 90 |

[1] Root mean square velocity in terms of vibration decibels (VdB) re 1 micro-inch per second.

in/sec = inches per second

PPV = peak particle velocity

Source: FTA 2018

## Permanent Noise Increase from On-Site Operational Activity

The exposure of noise-sensitive receivers to on-site operational noise from the project site was estimated based on reference noise levels for on-site activity. A standard attenuation rate of 6 dBA per doubling of distance from point sources was assumed from the reference distance to the nearest noise-sensitive receivers. Noise estimates were compared to the City of Berkeley exterior noise standards shown in Table 4.5-1.

## Permanent Noise Increase from Traffic

As described in the Noise Impact Analysis Report (Appendix H), the FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions in the vicinity of the project site. Model input data includes without- and with-project average daily traffic volumes on adjacent roadway segments, day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. The roadway speeds are based on the posted speed limits along each modeled roadway segment. Traffic modeling was performed using the average daily traffic volume data obtained from the project-specific transportation analysis conducted by Fehr & Peers (see Section 4.6, *Transportation* and Appendix I). The resultant noise levels were weighed and summed over a 24-hour period to determine the $L_{dn}$ values.

Modeling of traffic noise indicates that when traffic volumes increase by certain percentages, traffic noise increases by predictable amounts. For example, a 10 percent increase in traffic volume would raise traffic noise by approximately 0.4 dBA, a 20 percent increase would raise traffic noise by about 0.8 dBA, a 30 percent increase would result in an approximately 1.1 dBA increase in traffic noise, and a 100 percent increase would increase traffic noise by about 3 dBA. For this analysis, a significant impact would occur if project-related traffic would cause the $L_{dn}$ along roadway segments in the project vicinity to increase by 4 dBA or greater.

## b. Prior Environmental Analysis

Chapter 5G (Noise) of the 1991 EIR analyzed the existing DA's impacts related to on-site operational noise, traffic noise, and construction noise. The 1991 EIR found that impacts related to mechanical equipment would be less than significant with mitigation incorporated. The 1991 EIR also found that the existing DA would increase the number of employees working during nighttime hours, which could increase noise from the parking garage,

resulting in a less than significant impact with mitigation incorporated. Overall, the 1991 EIR addressed Significance Criterion 1. However, as discussed in Section 1, *Introduction*, this Subsequent EIR is being prepared because of substantial changes to the project and the circumstances under which the project is being undertaken. Therefore, additional analysis of the project's impacts on 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 (Significance Criterion 1) is needed. The proposed site plan would be substantially different from the site plan under the current DA; therefore, additional analysis of the project's potential to generate excessive groundborne vibration or groundborne noise levels (Significance Criterion 2) is also needed.

The 1991 EIR did not address Significance Criterion 3 for projects located within vicinity of an airport. Therefore, an analysis related to this criterion is addressed in this section.

## c. Project Impacts and Mitigation Measures

| | |
|---|---|
| **Threshold:** | Would the proposed project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? |

**Impact N-1 CONSTRUCTION AND DEMOLITION ACTIVITIES ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED AMENDED DA WOULD INTERMITTENTLY GENERATE NOISE WITHIN AND ADJACENT TO THE PROJECT SITE IN EXCESS OF ESTABLISHED STANDARDS. THIS IMPACT IS LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

During implementation of the proposed amended DA, residences and businesses located adjacent and nearby to new development would be exposed to temporary construction and demolition noise during phased development implementation of the North and South Properties. Major noise-generating construction activities on the project site could include demolition, site grading and excavation, building construction, and paving. Construction activities result in the greatest disturbance when they occur during normal sleeping hours, in areas immediately adjacent to noise-sensitive land uses, or over extended periods of time. Construction and demolition could occur adjacent to existing noise-sensitive receivers located near the Bayer Campus.

For the first phase of development, lasting to year 10 of the amended DA, it is anticipated that construction would last for up to a total of 5 years (dispersed throughout the Phase 1 period, and not necessarily consecutive) and be spread throughout the North and South Properties. Therefore, a conservative estimate would be that heavy construction equipment would operate on-site for a maximum of a two-year total operational period (although not continuously). For the second phase of development, lasting from year 11 through year 30, it is anticipated that construction would also last for five years with a similar conservative estimate that heavy construction equipment could be operating over a total two-year operational time period (although not continuously). For individual buildings on Bayer's campus, it is estimated that construction of each building, from site preparation to completion of building envelope, would last up to one year, with larger production buildings, such as those contemplated in the western portion of the campus, taking longer periods of time within that range.

As described in the Noise Impact Analysis, demolition of existing buildings and construction of new buildings under the amended DA is expected to require the use of heavy

construction equipment, such as scrapers, bulldozers, water trucks, haul trucks, and pickup trucks.

Table 4.5-5 shows estimated maximum noise levels from construction equipment at distance of 50 feet. The maximum noise level generated by each scraper is assumed to be 85 dBA $L_{max}$ at 50 feet from this equipment. Each bulldozer would also generate 85 dBA $L_{max}$ at 50 feet. The maximum noise level generated by graders is approximately 85 dBA $L_{max}$ at 50 feet. A characteristic of sound is that each doubling of sound sources with equal strength increases a sound level by 3 dBA.

**Table 4.5-5 Typical Construction Equipment Maximum Noise Levels**

| | Estimated Noise Levels at Nearest Sensitive Receivers (dBA $L_{max}$) | |
|---|---|---|
| **Equipment** | **Impact Device (Yes/No)** | **50 Feet** |
| Auger Drill Rig | No | 85 |
| Vibratory Pile Driver | No | 95 |
| Jackhammers | Yes | 85 |
| Pneumatic Tools | No | 85 |
| Pumps | No | 77 |
| Scrapers | No | 85 |
| Cranes | No | 85 |
| Portable Generators | No | 82 |
| Rollers | No | 85 |
| Dozers | No | 85 |
| Tractors | No | 84 |
| Front-End Loaders | No | 80 |
| Backhoe | No | 80 |
| Excavators | No | 85 |
| Graders | No | 85 |
| Air Compressors | No | 80 |
| Dump Truck | No | 84 |
| Concrete Mixer Truck | No | 85 |
| Pickup Truck | No | 55 |

Source: FHWA 2006

Assuming that each piece of construction equipment operates at some distance from the other equipment, a reasonable combined noise level during this phase of construction would be 90 dBA $L_{max}$ at a distance of 50 feet from the acoustic center of a construction area (First Carbon Solutions 2020). This would result in a conservative hourly average of 86 dBA $L_{eq}$, at a distance of 50 feet from the acoustic center of a construction area when multiple pieces of heavy equipment operate simultaneously in relatively the same location for an hour period. Construction and demolition noise levels would reduce at a rate of 6 dBA per doubling of distance from the receptor. The most conservative construction noise levels are associated with the loudest phase of construction, the site-preparation phase, as that is when the

loudest pieces of heavy construction equipment would operate. All other phases of construction would result in significantly lower noise levels.

As discussed in the Setting, noise sensitive multi-family and mixed residential land uses on Fifth Street and between Sixth Street and Ninth Street on Dwight Way and a church east of the proposed parking structure on Dwight Way between Seventh and Eighth Streets are adjacent to the North Properties of the project site. Noise sensitive land uses adjacent to the South Properties of the project site are mixed residential land uses to the east along Seventh Street between Carleton Street and just south of Grayson Street. A middle school, Ecole Bilingue de Berkeley, located at 901 Grayson Street, is east of the project site surface parking lot at the corner of Grayson Street and Seventh Street. The City's Aquatic Park is west of both the North and South Properties.

The Noise Impact Analysis evaluated modeled construction and demolition noise levels at the nearest noise sensitive receivers at the north, south, east and west boundaries of the project site. The closest noise sensitive receptor situated north of the North Properties at 907 Dwight Way is a multi-family residential use approximately 150 feet from the acoustic center of multiple pieces of heavy construction equipment during construction at the proposed parking garage in the northeast corner of the project site. Conservative hourly heavy equipment construction related noise levels would range up to 80 dBA $L_{max}$ with an hourly noise level of 76 dBA $L_{eq}$.

The closest noise sensitive receptor situated east of the North Properties at 2525 Eighth Street is a church use, Dance Jam, located approximately 145 feet from the acoustic center of multiple pieces of heavy construction equipment at the proposed parking garage in the northeast corner of the project site. Conservative hourly heavy equipment construction related noise levels would range up to 81 dBA $L_{max}$ with an hourly noise level of 77 dBA $L_{eq}$.

The closest noise sensitive receptor situated east of the South Properties at 901 Grayson Street, is a school use, Ecole Bilinique de Berkeley, located approximately 180 feet from the acoustic center of multiple pieces of heavy construction equipment at the proposed administration building in the southeast corner of the project site. Conservative hourly heavy equipment construction related noise levels would range up to 81 dBA $L_{max}$ with an hourly noise level of 78 dBA $L_{eq}$.

The closest noise sensitive receptor situated west of the North and South Properties is a recreational use, the Aquatic Park, with the nearest picnic area located approximately 175 feet from the acoustic center of multiple pieces of heavy construction equipment operating along the western boundary of the project site. Conservative hourly heavy equipment construction related noise levels would range up to 74 dBA $L_{max}$ with an hourly noise level of 70 dBA $L_{eq,}$ when accounting for terrain shielding provided by the intervening railroad tracks.

The modeled construction and demolition noise levels discussed above would exceed the City's most conservative weekday and weekend thresholds of 60 dBA and 50 dBA $L_{eq(h)}$ for R-1 residential zone receivers and exceed the City's thresholds of 70 dBA and 60 dBA $L_{eq}(h)$ for receiving commercial/industrial zone receivers. Modeled construction and demolition noise would also exceed the City's daytime interior noise level standard of 45 dBA $L_{eq}$ at noise sensitive receivers adjacent to Bayer Campus. In addition, maximum and hourly average construction noise levels would result in temporary increases in ambient noise levels in the project vicinity. This impact would be potentially significant.

## Mitigation Measures

The following new mitigation measure is required to comply with City's exterior and interior noise thresholds. The measure has been adapted from mitigation measures required in the 1991 EIR to address impacts from the proposed project and to reflect current regulations related to construction noise.

*N-1 Construction-Related Noise Reduction Measures (Updated 1991 EIR MM)*

The following measures shall be implemented during construction for the purpose of reducing construction-related noise impacts:

- **Neighbor Notification.** At least two weeks prior to initiating construction activities requiring the use of two or more pieces of heavy construction equipment at the project site, the applicant shall provide an ongoing website of on-site construction activities and written notice to businesses and residents within 500 feet of the project site construction areas , including: (1) a description of the Project; (2) a description of construction activities; (3) a daily construction schedule (i.e., time of day) and expected duration (number of weeks or months); (4) the name and phone number of the "Noise Management Individual" for the Project; (5) a commitment to notify neighbors at least four days in advance of any authorized extended work hours and the reason for extended hours; (6) notice that construction work is about to commence; and (7) the designated "Disturbance Coordinator" responsible for responding to any local complaints about construction noise. The noise manager would determine the cause of the noise complaints (e.g., starting too early, bad muffler) and institute reasonable measures to correct the problem. A copy of such notice and methodology for distributing the notice shall be provided in advance to the City for review and approval prior to issuance of a building permit.
- **Disturbance Coordinator.** The applicant shall designate a disturbance coordinator who shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site outside the gate visible to passersby (the campus is closed).
- **Noise Reduction Program.** The applicant shall develop a site-specific construction noise reduction program prepared by a qualified acoustical consultant to reduce construction related noise impacts to the maximum extent feasible, subject to review and approval of the Zoning Officer or a delegate prior to issuance of a building permit. The noise reduction program shall include time limits for construction and all technically and economically feasible measures to ensure that construction complies with the City of Berkeley Municipal Code Section 13.40.070. The program shall include, but is not limited to the following available controls to reduce construction noise levels to as low as practical:
    - **Temporary Noise Barrier.** The applicant shall construct eight-foot high solid plywood fences along construction site boundaries adjacent to off-site noise sensitive residences or other noise-sensitive land uses (e.g., school uses) to meet applicable thresholds. These fences shall be outfitted with noise control blanket barriers where necessary to effect reductions that result in compliance with the City's quantified noise construction thresholds, as determined by the noise control plan.

- **Mufflers.** Construction equipment shall be properly maintained and all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds, as applicable, shall be in good condition and appropriate for the equipment. During construction, all equipment, fixed or mobile, shall be operated with closed engine doors and shall be equipped with properly operating and maintained mufflers, consistent with manufacturers' standards.
- **Electrical Power.** The applicant shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists. The applicant shall select hydraulically or electrically powered equipment where feasible and avoid pneumatically powered equipment where feasible.
- **Equipment Staging.** All stationary noise-generating equipment shall be located as far as possible from sensitive receivers when adjoining construction sites. Construct temporary noise barriers or partial enclosures to acoustically shield such equipment where feasible.
- **Equipment Idling.** Unnecessary idling of internal combustion engines shall be prohibited. Construction equipment that would not be used for more than five minutes should be turned off completely.
- **Construction Vehicles.** Construction-related traffic shall be routed along major roadways and away from sensitive receivers, where feasible.
- **Workers' Radios.** All noise from workers' radios shall be controlled such that radios are not audible at sensitive receivers near construction activity.
- **Smart Back-up Alarms.** Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels. Alternatively, back-up alarms shall be disabled and replaced with human spotters to ensure safety when mobile construction equipment is moving in the reverse direction.

- **Additional Noise Attenuation Techniques.** For development on the portion of the site east of Seventh Street, implement the measures set forth in the Nosie Reduction Program and either: (1) erect temporary noise control blanket barriers, where necessary, along building facades facing construction sites; (2) restrict construction to weekdays; or (3) implement other noise reductions alternatives that could feasibly reduce noise to achieve the City's quantified noise construction thresholds.

## Significance After Mitigation

Construction of an eight-foot high solid wood fence, with no vertical or horizontal gaps, as required under Mitigation Measure N-1, would provide an expected minimum noise reduction of 10 dBA as measured at the nearest receivers identified above. Industry available outdoor sound control blankets have documented sound transmission class (STC) ratings of 20 STC to 32 STC (eNoise Control 2020). Thus, the addition of noise control blankets on the fence would result in an expected minimum 15 dBA reduction as measured at the ground floor of the nearest receivers identified above. All other sound measures would provide expected additional individual noise reductions of at least 3 dBA to 6 dBA each. Thus, the expected achievable combined minimum noise reductions would be 18 dBA to 21 dBA.

Notwithstanding the above, where construction noise potentially could exceed applicable thresholds by more than 21 dBA, as in the vicinity of the project site east of Seventh Street should the applicant build out this portion between years 10 and 30, the placement of acoustic blankets on building facades where sensitive receivers reside or work should be

added to achieve additional reductions as discussed in Mitigation Measure N-1 under Additional Noise Attenuation Techniques. Implementation of noise control blankets along building façades facing construction sites would provide an expected minimum noise reduction of 20 dBA as measured inside the nearest receivers identified in the analysis above. This would provide a combined 35 dBA reduction in construction noise,[1] as modeled at the interior of the most impacted receptor location identified above, the multi-family receptor north of the project site. Therefore, construction noise would be reduced to below the City's weekday and weekend thresholds of 60 dBA and 50 dBA Leq(h) for receiving R-1A residential zone receivers and impacts would be less than significant with mitigation (First Carbon Solutions 2020).

Furthermore, with these noise reduction measures the resulting interior noise levels would be below the City's daytime maximum permissible dwelling interior noise level standard of 45 dBA, as described in section 13.40.060 of the Municipal Code.

| | |
|---|---|
| **Threshold:** | Would the proposed project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? |

**IMPACT N-2 OPERATIONAL ACTIVITIES ASSOCIATED WITH THE AMENDED DA WOULD GENERATE NOISE THAT MAY PERIODICALLY BE AUDIBLE TO NOISE-SENSITIVE RECEIVERS NEAR THE BAYER CAMPUS. NOISE SOURCES WOULD INCLUDE MOBILE SOURCES (TRAFFIC) AND STATIONARY SOURCES (STATIONARY EQUIPMENT AND PARKING ACTIVITIES). HOWEVER, OPERATIONAL NOISE WOULD NOT EXCEED AMBIENT NOISE LEVELS AT NEARBY NOISE-SENSITIVE RECEIVERS. THEREFORE, OPERATIONAL NOISE IMPACTS WOULD BE LESS THAN SIGNIFICANT.**

## Mobile Operational Source

The amended DA would affect ambient traffic noise by facilitating growth in vehicle trips. The Noise Impact Analysis evaluated the amended DA's increase of daily traffic volumes using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) and traffic data provided by Fehr & Peers (Appendix I). The amended DA modifications would result in approximately 260 average additional daily trips, 23 AM peak-hour addition trips, and 21 PM peak-hour additional trips when compared with baseline conditions (buildout under the original DA). Modeled traffic noise levels with implementation of the amended DA would not result in any perceptible increase over the conditions that would occur under the existing DA. Traffic noise modeling resulted in no increase in traffic noise levels with the additional project traffic volumes compared to Year 2032 and Year 2052 traffic volumes without the project on studied roadways (First Carbon Solutions 2020). Therefore, the amended DA would have a less than significant impact related to increases in traffic noise.

## Stationary Equipment

Development under the amended DA would introduce on-site stationary noise sources, including parking lot activities and backup generators. The amended DA would replace existing stationary sources and would not introduce new types of stationary sources analyzed under the existing 1991 DA.

[1] Interior noise reduction calculation is based on a minimum 15 dB reduction for 8-foot-high solid plywood fence with sound blankets, plus a minimum 20 dB reduction for sound control blankets on the façade of a receiving building.

As shown in Figure 2-14 in Section 2, *Project Description*, the proposed project would include the addition of one new boiler in the North Properties and two new emergency back-up generators in the South Properties along Grayson Street. The amended DA would also involve replacing the remaining generators in the central portion of the site with newer models. Currently there are six emergency generators that operate on the project site, but this equipment only operates during routine tests that occur 12 times per year (for 30 minutes at a time, though once a year the generators are run for 1 hour) and in the unlikely circumstances where Bayer loses power to its site. Existing backup generators and boilers are enclosed in on-site building structures are not audible outside the building. Proposed new and replacement generators would similarly be enclosed in existing and proposed building structures and not audible outside the building. Therefore, impacts related to stationary equipment would be less than significant.

## Parking-related Noise

Under the amended DA, new parking structures would replace most of the existing surface parking areas. The North Properties parking structure, located along Dwight Way between Seventh Street and Eighth Street, is proposed for 920 parking stalls. The South Properties parking structure, located along Grayson Street approximately 450 feet west of Seventh Street, is proposed for 830 parking stalls. The amended DA would reduce the number of parking stalls at the remaining existing surface parking lots at the intersection of Grayson Street and Seventh Street and west of Seventh Street and south of Parker Street as shown in Figure 2-12 in Section 2, *Project Description*.

As discussed in the Noise Impact Analysis, typical parking lot activities include people conversing, doors shutting, and vehicles idling, which generate noise levels ranging from approximately 60 dBA to 70 dBA $L_{max}$ at 50 feet. These activities are expected to occur sporadically throughout the day as cars arrive and leave the two proposed parking areas on the project site. Typical commercial-grade mechanical ventilation system operations generate noise levels ranging from 50 dBA to 60 dBA $L_{eq}$ at a distance of 25 feet (First Carbon Solutions 2020).

The closest noise sensitive receivers to the proposed North Properties parking structure along Dwight Way are a multi-family residential use located approximately 125 feet from the acoustic center of the parking structure and a church use located approximately 120 feet from the acoustic center of the parking structure. Assuming a minimum of one parking movement per stall per hour in the ground level of the proposed North Properties parking structure and accounting for daytime and nighttime parking events, the resulting hourly average project operational noise levels would be approximately 50 dBA $L_{eq}$ and 45 dBA $L_{eq}$ at the nearest sensitive receptor under the most conservative peak hour scenario for daytime and nighttime parking events, respectively (First Carbon Solutions 2020).

The closest noise sensitive receivers to the proposed South Properties parking structure along Grayson Street are a single-family residential use and a school use located approximately 225 feet from the acoustic center of the parking. Assuming a minimum of one parking movement per stall per hour in the ground level of the proposed South Properties parking structure, the resulting hourly average project operational noise levels would be approximately 45 dBA $L_{eq}$ at the nearest sensitive receptor (First Carbon Solutions 2020).

Overall, operational noise associated with the amended DA parking structures in the North and South Properties would not exceed the City's most restrictive residential land use nighttime exterior noise limit of 45 dBA $L_{eq}$. Therefore, impacts related to parking structure noise would be less than significant.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

| **Threshold:** | Would the proposed project expose persons to or generate excessive groundborne vibration or groundborne noise? |
|---|---|

**IMPACT N-3 CONSTRUCTION ACTIVITIES ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED AMENDED DA WOULD INTERMITTENTLY GENERATE GROUNDBORNE VIBRATION WITHIN AND ADJACENT TO THE PROJECT SITE. INSTITUTIONAL LAND USES WITH SENSITIVE DAYTIME ACTIVITIES COULD BE EXPOSED TO VIBRATION LEVELS EXCEEDING FTA GUIDELINES. HOWEVER, VIBRATION WOULD NOT EXCEED STANDARDS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

Construction activity associated with development proposed under the amended DA could intermittently generate strong vibration within and near the Bayer Campus. The demolition, excavation, site grading, building erection, and paving phases of construction could involve the use of equipment that causes vibration.

Table 4.5-6 shows estimated maximum vibration levels at noise-sensitive receivers located 25, 50, 100, and 200 feet from construction activity.

**Table 4.5-6 Vibration Levels for Construction Equipment at Noise-Sensitive Receivers**

| | Estimated VdB | | | |
|---|---|---|---|---|
| **Equipment** | **25 Feet** | **50 Feet** | **100 Feet** | **200 Feet** |
| Vibratory Roller | 94 | 85 | 76 | 58 |
| Large Bulldozer | 87 | 78 | 69 | 51 |
| Loaded Trucks | 86 | 77 | 68 | 49 |
| Small Bulldozer | 58 | 48 | 39 | 21 |

Sources: FTA 2018

As shown in Table 4.5-6, vibratory rollers could produce the strongest vibration during construction. The use of vibratory rollers during paving would generate estimated vibration levels of 94 VdB at 25 feet and 85 VdB at 50 feet. Provided that pile installation is deemed necessary for the construction of facilities, pile installation would be performed through the use of auger-drilled piles rather than through pile driving. Vibration levels from vibratory rollers, bulldozers, and loaded trucks could exceed 72 VdB at residences located within 50 feet. However, pursuant to BMC Section 13.40.070, construction activity under the proposed project would be restricted to the hours of 7:00 AM to 7:00 PM on weekdays, and from 9:00 AM to 8:00 PM on weekends and legal holidays. Adherence to these daytime and early evening hours would avoid substantial disturbance of sleep at residences.

During allowed construction hours, adjacent land uses with daytime activities that are sensitive to vibration may be exposed to vibration generated by construction and demolition activities at the Bayer Campus. These sensitive land uses include the church Dance Jam on Eighth Street, educational activities at the Ecole Bilinque de Berkeley on Grayson Avenue and residential uses on Dwight Way and Grayson Street. It is assumed that construction equipment on adjacent areas of the Bayer campus could generate vibration as close as 50

feet from these land uses. Vibratory rollers produce groundborne vibration levels ranging up to 0.101 in/sec PPV at 25 feet from the operating equipment (First Carbon Solutions 2020).

The heaviest construction equipment would potentially operate as close as 60 feet from the nearest off-site land use, the warehouse building located south of the project site across Grayson Street and 90 feet from the nearest off-site sensitive land use, multi-family located north of Dwight Way. At these distances, groundborne vibration levels would range up to 0.027 PPV at the nearest off-site commercial land use and 0.015 PPV at the nearest sensitive land use from operation of a vibratory roller that would produce the highest vibration levels. As a result, predicted vibration levels at the nearest off-site structure would not exceed the threshold of 0.3 inch per second PPV for buildings of engineered concrete and masonry (no plaster) construction and would not exceed the threshold of 0.2 inch per second PPV for non-engineered timber and masonry buildings (First Carbon Solutions 2020). Vibrational impacts would be less than significant.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

| | |
|---|---|
| **Threshold:** | Would the proposed project expose people residing or working in the project area to excessive noise levels 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? |

**IMPACT N-4 THE PROJECT SITE IS LOCATED OUTSIDE OF NOISE CONTOURS ASSOCIATED WITH AIRPORTS. THEREFORE, NEW DEVELOPMENT UNDER THE DA WOULD NOT BE EXPOSED TO EXCESSIVE NOISE LEVELS FROM AIRCRAFT OPERATIONS AND NO IMPACT WOULD OCCUR.**

The nearest airport to the Bayer Campus, Oakland International Airport, is located approximately nine miles to the south. The Bayer Campus is well outside of the noise contours associated with nearby airports. No private airstrips are located in the vicinity. Therefore, new development under buildout of the amended DA would not be exposed to adverse noise from aircraft overflights (First Carbon Solutions 2020). No impact would occur.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

## d. Cumulative Impacts

Under cumulative growth, new noise-sensitive land uses could be located in areas that exceed normally acceptable noise levels. However, as discussed in Impact N-1, new development in Berkeley would only be allowed where it can comply with the City's land use compatibility guidelines and standards, with the inclusion of noise insulation features where necessary. The use of techniques to minimize noise intrusion at all new development in the Plan Area would be expected to maintain an acceptable noise environment. Therefore, cumulative development would not have a significant impact related to exceedance of noise standards.

Cumulative development of the amended DA would generate temporary noise and vibration during construction. However, construction noise and vibration are localized and rapidly attenuate in an urban environment. It is also anticipated that construction of other projects in addition to the amended DA would not occur sufficiently close to projects within the Bayer Campus to result in a cumulative impact. In addition, applicants for new development throughout Berkeley would be required to meet the City's quantitative standards for construction noise as shown in Table 4.5-3.

As discussed above, cumulative growth in combination with implementation of the amended DA would not substantially increase daily traffic volumes on the roadway network. Traffic noise level increases due to implementation of the amended DA would result in no increase for Year 2032 and Year 2052 traffic noise levels with the additional trips attributable to the amended DA. Therefore, the amended DA would not have a considerable contribution to a significant impact related to cumulative traffic noise.

Cumulative development would also add sources of on-site operational noise at the Bayer Campus. It is expected that new development under the amended DA would involve the operation of new parking structures and emergency generators. However, like development under the 1991 DA, typical operational noise associated with cumulative development would not substantially increase ambient noise levels. Impacts associated with operational noise would not be cumulatively considerable.

*This page left intentionally blank*

# 4.6 Transportation

This section evaluates the impacts of the proposed amendment to Bayer HealthCare LLC's Development Agreement on the local transportation system and vehicle miles traveled in the region. The analysis in this section takes into account the transportation and traffic impact analysis contained in the 1991 EIR, supplemented by a project-specific analysis. The project-specific analysis is based on a transportation assessment developed by Fehr & Peers dated December 2020 in conjunction with the City of Berkeley Transportation Division; this study is included as Appendix I of this document.

## 4.6.1 Setting

The existing transportation-related context for the project is described below.

### a. Existing Street Network

The street network serving the project site is described below.

### Regional

Regional access to the project site is provided through several freeways and state highways, including Interstate 80/580 (I-80/580), Interstate 980 (I-980), Interstate 880 (I-880), State Route 24 (SR 24), and State Routes 13 (Ashby Avenue) and 123 (San Pablo Avenue).

### Major Neighborhood Streets

- **San Pablo Avenue (SR 123)** is a north-south major street approximately 0.25-mile east of the project site. It includes four to six automobile lanes with left-turn pockets at some intersections and a center median. San Pablo Avenue is maintained by the California Department of Transportation (Caltrans). The street connects the Richmond/El Cerrito area in the north to the Oakland/Emeryville area in the south. The speed limit on San Pablo Avenue is 30 miles per hour (mph). On-street parking is provided along both sides of the street.
- **Ashby Avenue (SR 13)** is an east-west major street approximately 0.6-mile south of the project site. It includes two to four lanes with left-turn pockets at some intersections. The entire span of Ashby Avenue is a designated Caltrans Scenic Route (between I-580 in Oakland and I-80 in Berkeley) and connects I-80 in the west with SR-24 in the east. The speed limit is 25 mph. On-street parking is provided at some portions of Ashby Avenue, including near the project site. However, during the peak commute hours, on-street parking prohibitions on the north side of the street in the morning and the south side in the evening provide an additional automobile lane east of San Pablo Avenue.
- **Eastshore Highway** is a north-south major street that is east and parallel to I-580/ I-80 and approximately 0.7-mile northwest of the project site. It includes two travel lanes. This roadway serves as an access road to several residential and collector streets near the project site. Direct access to Eastshore Highway can be achieved at the eastbound I-580/ I-80 off ramp. Running north out of Berkeley, Eastshore Highway meets Buchanan road which currently only allows right turns (eastbound). Eastshore Highway has one lane in each direction and a current speed limit of 25 mph. On-street parking is provided on some portions of the eastern side of Eastshore Highway.

### Streets within Project Site

The project site is a closed campus. The streets within the site are not publicly accessible or maintained by the City, with the exception of Seventh Street along the eastern boundary of the site (see Figure 4.6-3 later in this section).

- **Dwight Way** is an eastbound two-lane one-way major street at the north boundary of the project site. Dwight Way provides on-street parking on both sides of the street. The speed limit is 25 mph.
- **Cutter Way** is an east-west street within the project site that runs between fourth street and sixth street, near the Bayer entrance at Dwight Way. It includes two lanes of traffic and parking on both sides of the street. The speed limit is 25 mph.
- **Parker Street** is an east-west street with two lanes of traffic. It begins at Fourth Street and continues through the project site and east beyond San Pablo Avenue. The current speed limit is 25 mph.
- **Carleton Street** is an east-west street that runs from the railroad in the west through the project site eastward beyond San Pablo Avenue. It includes two lanes of traffic and parking on both sides of the street. The current speed limit is 25 mph.
- **Grayson Street** is an east-west street that runs along the southern edge of the project site. Grayson Street has one lane in each direction with on-street parking. The current speed limit is 25 mph.
- **Fourth Street** is a north-south street has one lane of travel in each direction and extends from Harrison Street just north of Gilman Street on the north to Dwight Way on the south. Fourth Street is a major through street west of Sixth Street and provides access to the rail station located under the University overpass. The Fourth Street Shopping District, with a heavy concentration of retail centers and restaurants, is located between the blocks of Hearst Avenue and Virginia Street. The current speed limit on 4th Street is 25 mph.
- **Seventh Street** is a north-south street that provides two travel lanes with left-turn pockets at major intersections through the center of West Berkeley. The street is adjacent to the eastern portion of the project site and includes on-street parallel parking. The collector street designation of Seventh Street is the portion of the roadway south of Dwight Way. Seventh street includes high volumes of traffic near the Ashby interchange and is used a key north/south link for southern portion of West Berkeley. The current speed limit varies between 25 mph and 35 mph.

## b. Traffic Conditions

### Analysis Methodology

This section uses the metric of vehicle miles traveled (VMT) to analyze transportation-related impacts consistent with Senate Bill 743 and the state *CEQA guidelines*. Pursuant to California Public Resources Code section 21099(b(2) and *CEQA Guidelines* §15064.3, “a project’s effect on automobile delay shall not constitute a significant environmental impact.” Because the City has updated its CEQA thresholds in accordance with these state regulations, this analysis does not make significance conclusions with respect to changes to Levels of Service (LOS).

## Vehicle Miles Traveled

"Vehicle miles traveled" refers to the amount and distance of automobile travel "attributable to a project." VMT re-routed from other origins or destinations as the result of a project would not be attributable to a project except to the extent that the re-routing results in a net increase in VMT. Daily VMT per worker is the average number of vehicle miles that a worker in a given area travels per day.

According to the California Office of Planning and Research (OPR) Technical Advisory, screening thresholds can be used to quickly identify projects that can be expected to cause a less than significant impact without conducting a detailed study (OPR 2018). The City of Berkeley guidelines include several screening criteria. The criterion applicable to the Bayer project is the "Projects in Low VMT Areas" criterion. According to the Low VMT Areas criterion, projects that are located in low-VMT areas and that have characteristics similar to other uses already located in those areas can be presumed to generate VMT at similar rates. The low-VMT areas in Berkeley are defined based on the results of the Alameda County Transportation commission (CTC) Travel Demand Model and are summarized in maps. Figure 4.6-1 shows the Low VMT Areas in Berkeley.

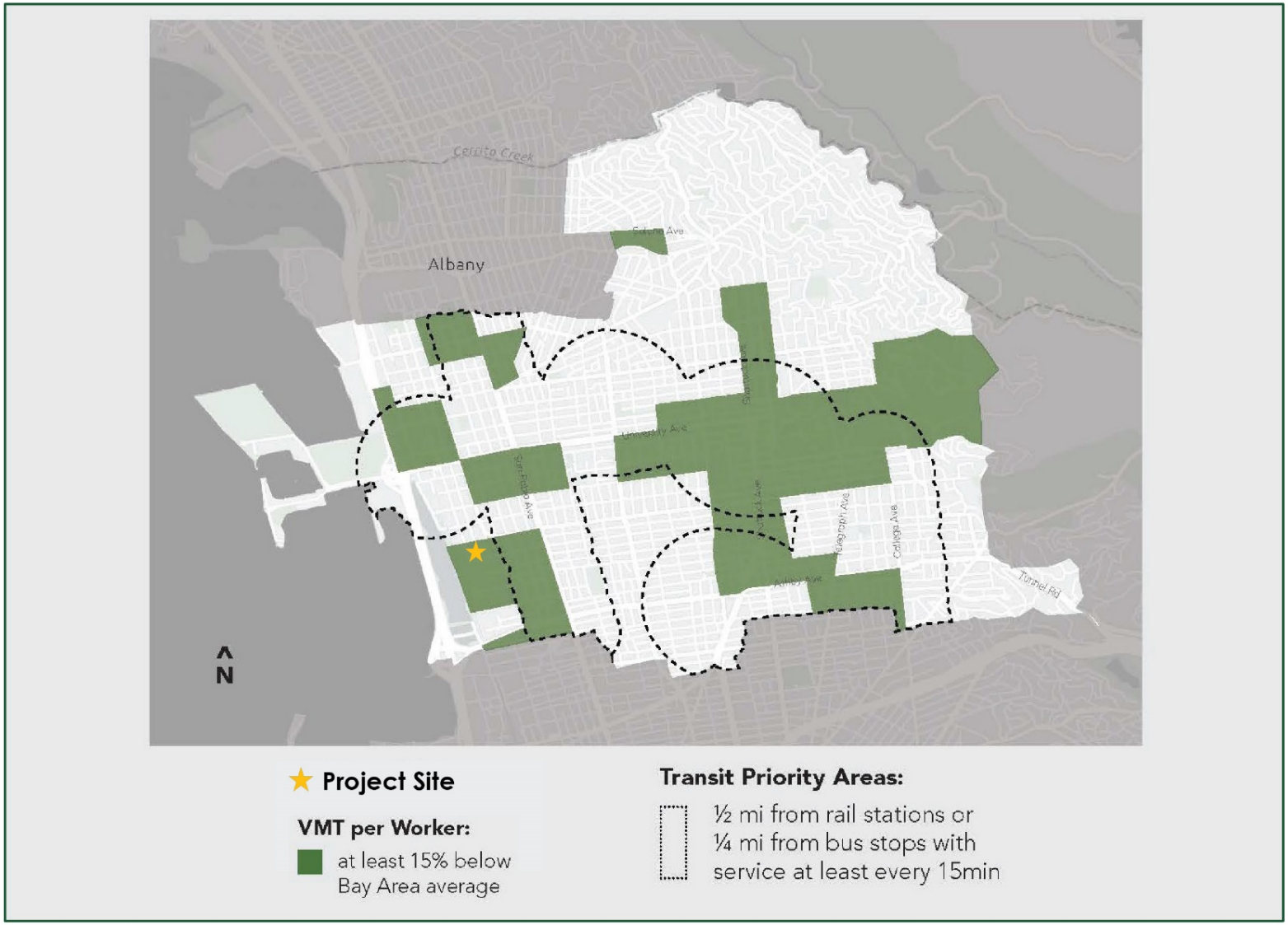
## c. Existing Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic operation of a development adds to the surrounding roadway system. In the Transportation Analysis, Fehr & Peers calculates both existing trip generation of the Bayer campus within the project site and proposed trip generation of the proposed project. Current accepted methodologies, such as the Institute of Transportation Engineers (ITE) Trip Generation methodology, are primarily based on data collected at suburban, single-use, freestanding sites. These defining characteristics limit their applicability to the proposed project, which is in a dense mixed-use setting. The land use mix, design features, and setting of the proposed would include characteristics that influence travel behavior differently from typical single-use suburban developments. Thus, traditional data and methodologies, such as ITE, would not accurately estimate the project vehicle trip generation. In response to the limitations in the ITE methodology, Fehr & Peers conducted its own analysis of existing trip generation at the project site.

As described in detail in Appendix I, in order to determine existing trip generation at the project site, Fehr & Peers studied data of daily activity at the project site gates for 2019, which was provided by Bayer. Based on the 2019 data, Fehr & Peers selected the second week of November 2019 to estimate the existing trip generation for the site because the gate activity during this week was about ten percent higher than the average throughout the year, and it is a conservative estimate of typical conditions at the site. The more detailed gate data for the selected week shows more vehicles entering and exiting the site on the midweek days (Tuesday through Thursday) than on the Monday and Friday. Thus, the gate activity data for the midweek days were averaged to estimate the daily and AM and PM peak hour automobile trips generated by the existing site. In addition, based on the data Fehr & Peers determined that the morning (AM) peak hour is from 7:30 AM to 8:30 AM and the evening (PM) peak hour is from 4:00 PM to 5:00 PM.

Table 4.6-1 provides the typical daily, AM Peak Hour, and PM Peak Hour trips generated by the project site by gate. Based on the data, the Bayer campus generates about 2,400 vehicles on a typical weekday, about 215 trips during the AM peak hour, and about 200 trips during the PM peak hour. During both AM and PM peak hours, the most active gate is the Parker gate which is used by about 40 percent of the peak hour trips.

**Figure 4.6-1 City of Berkeley Low VMT Areas for Workers**




*Source: Fehr and Peers, 2020*

**Table 4.6-1 Existing Project Site Trip Generation by Gate**

| | | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| Gate | Daily Total | In | Out | Total | In | Out | Total |
| Dwight | 852 | 40 | 11 | 51 | 4 | 41 | 45 |
| Grayson Auto | 564 | 48 | 6 | 54 | 1 | 54 | 54 |
| Grayson Truck | 105 | 2 | 2[1] | 4 | 1 | 1[1] | 2 |
| Parker Auto | 693 | 76 | 8 | 84 | 2 | 78 | 80 |
| Lot E | 200 | 20 | 2[1] | 22 | 3 | 16[1] | 19 |
| **Total** | **2,414** | **186** | **29** | **215** | **11** | **189** | **200** |

[1] Grayson Truck Out and Lot E Out are estimated since count data was not available
Source: Fehr & Peers 2020; Appendix I

Table 4.6-2 presents the daily and AM and PM peak hour trip generation rates based on the trip generation data compiled by Fehr & Peers and compares the trip generation rates for the site to the average trip generation rates published in the ITE Trip Generation Manual for uses most similar to the site, office and research and development (R&D).

**Table 4.6-2 Existing Trip Generation and ITE Trip Generation Comparison**

| Metric | Daily | AM Peak Hour | PM Peak Hour |
|---|---|---|---|
| Bayer Berkeley Gate Data[1] | 2.41 | 0.22 | 0.21 |
| ITE: Office[2] | 3.28 | 0.37 | 0.40 |
| Percent Difference with Gate Counts | 26% | 42% | 49% |
| ITE: R&D[3] | 3.12 | 0.40 | 0.36 |
| Percent Difference with Gate Counts | 27% | 48% | 47% |

[1] See Table 4.6-1 for detailed trip generation. The trip generation rate assumes that Bayer Berkeley currently has 1,000 employees
[2] ITE Trip Generation Manual, 10th Edition data for General Office Building (land use 710)
[3] ITE Trip Generation Manual, 10th Edition data for Research and Development Center (land use 760)
Source: Fehr & Peers 2020; Appendix I

The existing daily trip generation rate per employee for the project site is about 25 percent less than the average daily trip generation rate for typical office, R&D, warehouse, and production uses. This difference is likely due to several factors such as: higher number of Bayer employees using non-automobile modes to commute to and from the site than typical suburban office or R&D uses, Bayer having fewer visitors than typical suburban office or R&D uses, and/or employees making fewer automobile trips during the day such as for attending meetings or driving off-site for lunch. Since the trip generation rates based on the data collected at the project site reflect the specific characteristics of the site and it is expected that the future employees would continue to have similar trip making characteristics, these trip rates are used to estimate the future trip generation for the project.

## d. Transit Access and Circulation

Transit service providers in the project site vicinity include the National Railroad Passenger Corporation (Amtrak), a passenger railroad service that provides intercity service across the United States; Bay Area Rapid Transit (BART), which provides regional rail service; Alameda-Contra Costa Transit District (AC Transit), which provides local and Transbay bus service with connections to the Transbay Terminal in San Francisco; and the West Berkeley

Shuttle, which provides local service. Each service is described below. Figure 4.6-2 shows the existing transit services near project site.

### BART

BART provides regional rail service throughout the East Bay and across the Bay to San Francisco and the Peninsula. The Ashby BART station is located underground near the Ed Roberts Campus on Adeline Street south of Ashby Avenue, approximately 1.3 miles southeast of the project site. The station is served by the Richmond-Daly City/Millbrae and the Richmond-Warm Springs trains from 4:30 AM to 12:50 AM on weekdays and from 6:10 AM to 12:50 AM on weekends. The Ashby BART Station is served by about 16 trains per hour during the weekday peak commute periods. The Ashby station provides 541 parking spaces in two surface lots. The east lot is located east of Adeline Street with a driveway on Adeline Street and the west lot is located between Adeline Street and MLK Jr. Way with two driveways on MLK Jr. Way. The station provides 195 bicycle parking spaces.

The Ashby BART station is accessible from the project site via AC Transit Line 80 and West Berkeley Shuttle, which are described below.

### AC Transit

AC Transit is the primary bus service provider in 13 cities and adjacent unincorporated areas in Alameda and Contra Costa Counties, with Transbay service to destinations in San Francisco, San Mateo and Santa Clara Counties. The project site is served by several AC Transit bus lines along Seventh Street including Line 36 which connects the site to Downtown Berkeley, Emeryville, and West Oakland, Line 80 which connects the site to South Berkeley, Albany, El Cerrito, and the Ashby BART station, and Line Z which provides peak period Transbay service to San Francisco. The project site is also about 0.25-mile from San Pablo Avenue, which is served by frequent AC Transit service connecting to El Cerrito, Richmond, and Oakland.

### Shuttle Service

The West Berkeley Shuttle is a free shuttle funded by employers in West Berkeley and is open to the general public. The shuttle operates between the Ashby BART station and select locations in West Berkeley on weekdays from 5:30 AM to 10:00 AM and from 3:00 PM to 7:20 PM.

## e. Pedestrian Conditions

Pedestrian facilities include crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities. A continuous sidewalk network is provided in the vicinity of the project site connecting to nearby residential, commercial, and retail facilities. Crosswalks and pedestrian signals are provided at major intersections near the project site, including Fourth Street at Dwight Way, Sixth Street at Dwight Way, Seventh Street at Dwight Way, Seventh Street at Parker Street, Seventh Street at Carleton Street, and Seventh Street at Grayson Street.

**Figure 4.6-2 Transit Facilities Map**


*Imagery provided by Microsoft Bing and its licensors © 2020.*

## f. Bicycle Conditions

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

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

Although no bicycle-designated facilities are present adjacent to the project site, the site is within a couple of blocks of several bicycle facilities, including the following:

- Class 2 bicycle lanes along Ninth Street, between Bancroft Way in the south and Delaware Street in the north
- Class 3 bicycle routes along Channing Way
- Class 3 bicycle routes along Ninth street and Heinz Avenue south of Bancroft Way

Figure 4.6-3 shows the existing bicycle facilities near project site.

**Figure 4.6-3 Bicycle Facilities Map**


*Imagery provided by Microsoft Bing and its licensors © 2020.*

Fig 4.6-3 Bicycle Facilities Map

## 4.6.2 Regulatory Setting

### a. State

### State Senate Bill 375

Senate Bill (SB) 375, signed in August 2008, directs each of the state's 18 major Metropolitan Planning Organizations to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, the California Air Resources Board (CARB) adopted final regional targets for reducing greenhouse gas (GHG) emissions from 2005 levels by 2020 and 2035.

The intent of SB 375 is to use the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) to integrate regional land use, regional housing need allocations (RHNA), environmental, and transportation planning to ensure efficient regional planning in the future that leads to reduced greenhouse gas emissions from land and transportation uses. As a result of SB 375, preparation of local RHNA Plans are required to be coordinated and consistent with the RTP/SCS for the length of the housing element cycle. Local governments play a large role in helping to develop the transportation and land use scenarios used in the SCS development process.

### State Senate Bill 743

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

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

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

### California Building Code

California provides minimum standards for building design through the California Building Code (CBC), which is located in Part 2 of Title 24 of the California Code of Regulations. The CBC is based on the 1997 Uniform Building Code with modifications specific for California conditions. The CBC provides fire and emergency equipment access standards for public roadways, which include specific width, grading, design and other specifications for roads which provide access for fire apparatus. Street modifications in the City of Berkeley are subject to these and other modified State standards. The City of Berkeley adopted the 2019 edition of the CBC in 2019.

## b. Regional

### Alameda County Transportation Commission

The Alameda County Transportation Commission (Alameda CTC) coordinates transportation planning efforts throughout Alameda County and programs federal, state, regional, and local funding for project planning and implementation. Through its Congestion Management Program (CMP), Alameda CTC oversees and monitors the operations and performance of roadways in the CMP network, which consist of freeways and major arterials that provide connectivity in the County. The Land Use Analysis Program of the CMP requires local jurisdictions to evaluate the potential impacts of proposed land use changes (e.g.., General Plan amendments, and developments estimated to generate 100 or more net new PM peak hour automobile trips) on the CMP network.

## c. Local

### City of Berkeley General Plan

The Transportation Element of the Berkeley General Plan (2001) contains the following policies and actions relevant to the proposed project:

> **Policy T-2: Public Transportation Improvements.** Encourage regional and local efforts to maintain and enhance public transportation services and seek additional regional funding for public and alternative transportation improvements.
>
> **Policy T-4: Transit First Policy.** Give priority to alternative transportation and transit over single-occupant vehicles on Transit Routes identified on the Transit Network map.
>
> **Policy T-10: Trip Reduction.** To reduce automobile traffic and congestion and increase transit use and alternative modes in Berkeley, support, and when appropriate require, programs to encourage Berkeley citizens and commuters to reduce automobile trips, such as:
>
> 1. Participation in a citywide Eco-Pass Program (also see Transportation Policy T-3)
> 2. Participation in the Commuter Check Program
> 3. Carpooling and provision of carpool parking and other necessary facilities
> 4. Telecommuting programs
> 5. "Free bicycle" programs and electric bicycle programs
> 6. "Car-sharing" programs
> 7. Use of pedal-cab, bicycle delivery services, and other delivery services

8. Programs to encourage neighborhood-level initiatives to reduce traffic by encouraging residents to combine trips, carpool, telecommute, reduce the number of cars owned, shop locally, and use alternative modes
9. Programs to reward Berkeley citizens and neighborhoods that can document reduced car use
10. Limitations on the supply of long-term commuter parking and elimination of subsidies for commuter parking
11. No-fare shopper shuttles connecting all shopping districts throughout the city

**Policy T-12: Education and Enforcement.** Support, and when possible require, education and enforcement programs to encourage carpooling and alternatives to single-occupant automobile use, reduce speeding, and increase pedestrian, bicyclist, and automobile safety.

**Policy T-14: Private Employers.** Encourage private employers to reduce the demand for automobile travel through transportation demand management programs that include elements such as:

1. Trip reduction incentives such as Commuter Check and Eco-Pass.
2. Flexible work hours and telecommuting to reduce peak-hour commute congestion.
3. Carpool and vanpool incentives to reduce single-occupancy vehicle use.
4. Provision of mass transit pass/credit instead of free employee parking (parking "cash-out" programs).
5. Providing bicycle facilities.
6. Market pricing mechanisms for employee parking to reduce automotive use and discourage all-day parking.
7. Local hiring policies.
8. Numerical goals for trip reduction

**Policy T-15: Local Hiring.** Establish Berkeley residency as a preference for hiring, and encourage other public employers, institutions, and private employers to hire locally. (Also see Economic Development and Employment Policy ED-1.)

**Policy T-16: Access by Proximity.** Improve access by increasing proximity of residents to services, goods, and employment centers. (Also see Land Use Policies LU-13 and LU-23, Housing Policy H-16, and Environmental Management Policy EM-41 Action B.)

**Action A**. Locate essential commercial and other services in transit-oriented locations to reduce the need for cars and enable people living near transit and services to reduce auto trips.

**Action B**. Encourage higher density housing and commercial infill development that is consistent with General Plan and zoning standards in areas adjacent to existing public transportation services.

**Action D**. Encourage siting of child-care facilities and other services in large residential or commercial facilities to reduce traffic impacts associated with child-care drop-off and pick-up.

**Action E**. In locations served by transit, consider reduction or elimination of parking requirements for residential development.

**Policy T-18: Level of Service.** When considering transportation impacts under the California Environmental Quality Act, the City shall consider how a plan or project affects all modes of transportation, including transit riders, bicyclists, pedestrians, and motorists, to determine the transportation impacts of a plan or project. Significant beneficial pedestrian, bicycle, or transit impacts, or significant beneficial impacts on air quality, noise, visual quality, or safety in residential areas, may offset or mitigate a significant adverse impact on vehicle Level of Service (LOS) to a level of insignificance. The number of transit riders, pedestrians, and bicyclists potentially affected will be considered when evaluating a degradation of LOS for motorists.

**Policy T-19: Air Quality Impacts.** Continue to encourage innovative technologies and programs such as clean-fuel, electric, and low-emission cars that reduce the air quality impacts of the automobile. (Also see Environmental Management Policies EM-18 through EM-22.)

**Action A**. Establish bicycle and low-emission vehicle preferred parking areas.

**Action B**. Install electric vehicle charging stations in all City-owned parking facilities downtown and at major parking facilities and employment centers.

**Policy T-24: Ashby Avenue.** Take actions necessary to reduce congestion, improve pedestrian and bicycle crossings, and improve the quality of life for residents on Ashby Avenue.

**Policy T-33: Disabled Parking and Passenger Zones.** Ensure adequate disabled parking and passenger drop-off zones.

**Action A**. Require access to adequate disabled parking and passenger drop-off zones in all new commercial and residential developments.

**Policy T-39: High-Tech Parking.** To make the most efficient use of available land, encourage consideration of high-tech computerized parking (e.g., lifts and or "robotics") when replacing existing public parking or when providing off-street parking for multi-family residential projects.

**Policy T-40: Parking Impacts.** When considering parking impacts under the California Environmental Quality Act for residential projects with more than two units located in the Avenue Commercial, Downtown, or High Density Residential land use classifications, any significant parking impacts identified that result from the project should be mitigated by improving alternatives to automobile travel and thereby reducing the need for parking. Examples include improvements to public transportation, pedestrian access, car sharing programs, and bicycle facility improvements. Parking impacts for these projects should not be mitigated through the provision of additional parking on the site. The City finds that:

1. Parking supply and demand may easily be adjusted by changing local pricing policies and by changing how the supply is managed.
2. As the parking supply increases or parking costs decrease, automobile use becomes a more attractive transportation alternative and demand for parking increases. As parking supply decreases and its price increases, demand decreases.
3. Increasing the parking supply increases automobile use, which causes a measurably negative impact on the environment

**Policy T-41: Structured Parking.** Encourage consolidation of surface parking lots into structured parking facilities and redevelopment of surface lots with residential or commercial development where allowed by zoning.

**Action C.** Provide parking and recharging facilities for alternative vehicles such as bicycles and electric and low-emission vehicles.

**Action D.** Whenever feasible, orient automobile access to parking lots and garages away from designated bicycle ways and boulevards and avoid blank walls along pedestrian ways.

**Policy T-43: Bicycle Network.** Develop a safe, convenient, and continuous network of bikeways that serves the needs of all types of bicyclists, and provide bicycle-parking facilities to promote cycling.

**Action A.** Expand the supply of highly secure bicycle parking near transit hubs and commercial areas.

**Action B.** Encourage business owners to provide bicycle parking, showers, and lockers for employees and bicycle parking for customers.

**Policy T-49: Disabled Access.** Improve pedestrian access for the entire disabled community.

**Action B.** Use regulation and incentives to require or encourage accessibility upgrades for private businesses.

**Action C.** Encourage businesses to exceed the minimum standards set by the ADA "readily achievable barrier removal" requirement.

**Policy T-50: Sidewalks.** Maintain and improve sidewalks in residential and commercial pedestrian areas throughout Berkeley and in the vicinity of public transportation facilities so that they are safe, accessible, clean, attractive, and appropriately lighted.

**Policy T-51: Pedestrian Priority.** When addressing competing demands for sidewalk space, the needs of the pedestrian shall be the highest priority.

## City of Berkeley West Berkeley Plan

The Transportation Chapter of the West Berkeley Plan (1993) contains the following goals and policies relevant to the proposed project:

**Policy 1.1.** Seek trip reduction. Reduction of single occupant automobile trips--through a variety of education and regulatory efforts including implementation of a City of Berkeley Trip Reduction Ordinance, cooperation with the Air Quality Management District's transportation control measures, conditions on development and other mechanisms

**Policy 1.2.** Monitor and regulate (in the policy framework established by the West Berkeley Plan) the amount and location of added development, intensified land use, and added parking in West Berkeley so that development in West Berkeley does not exceed transportation system capacity.

**Policy 1.6**. Through the Transportation Management Association, individual companies, and other appropriate mechanisms, improve shuttle service from West Berkeley to BART stations and to Downtown Berkeley.

**Policy 1.7.** Find ways to make information about transit, carpooling, and other alternatives to driving more easily available to West Berkeley workers and residents.

**Goal 2.** Minimize traffic at West Berkeley intersections to the extent consistent with other plan goals and city policies.

**Policy 6.3.** Require appropriate levels of bicycle parking in new developments.

## City of Berkeley VMT Regulations

*CEQA Guidelines* §15064.3(b) indicates that land use projects would have a significant impact if the project resulted in vehicle miles traveled (VMT) exceeding an applicable threshold of significance. In June 2020, the City of Berkeley adopted the following thresholds of significance for VMT analysis according to the guidance from OPR:

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

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

- Projects within Transit Priority Areas
- Low-income housing projects
- Small Projects: Projects defined as generating 836 daily VMT or less
- Locally Serving Public Facility: Projects that generally encompass government, civic, cultural, health, and infrastructure uses which contribute to and support community needs and mostly generate trips within the local area
- Projects in Low VMT Areas: Projects that are located in low-VMT areas and that have characteristics similar to other uses already located in those areas can be presumed to generate VMT at similar rates. The low-VMT areas in Berkeley are defined based on the results of the Alameda CTC model (see Figure 4.6-1) and include the following:
    - Residential projects will be screened out if located in an area that has household VMT per capita that is 15 percent lower than the baseline regional average.
    - Office and industrial projects will be screened out if located in an area that has homework VMT per worker that is 15 percent lower than the baseline regional average.

## City of Berkeley Complete Street Policy

The Berkeley City Council adopted a Complete Streets Policy (Resolution 65,978-N.S.) in December 2012, to guide future street design and repair activities. "Complete Streets" describes a comprehensive, integrated transportation network with infrastructure and design that allows safe and convenient travel along and across streets for all users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods,

users and operators of public transportation, emergency vehicles, seniors, children, youth, and families.

## City of Berkeley Bicycle Plan

The City of Berkeley Bicycle Plan, approved by Berkeley City Council in May 2017, contains the following policies and actions relevant to the proposed project:

**Policy PL-1.** Integrate bicycle network and facility needs into all City planning documents and capital improvement projects

***Actions***

- Follow a multi-disciplinary project scoping process that incorporates the needs of all modes and stakeholders, both internal and external; the design process should include the City divisions, departments, and staff responsible for emergency response, parking, law enforcement, maintenance, and other affected areas.
- Ensure that all traffic impact studies, analyses of proposed street changes, and development projects address impacts on bicycling and bicycling facilities. Specifically, the following should be considered:
  - Consistency with General Plan, Area Plan, and Bicycle Plan policies and recommendations;
  - Impact on the existing bikeway network;
  - Degree to which bicycle travel patterns are altered or restricted by the projects; and
  - Safety of future bicycle operations (based on project conformity to Bicycle Plan design guidelines and City, State, and Federal design standards).

**Policy PL-2.** When considering transportation impacts under the California Environmental Quality Act, the City shall consider how a plan or project affects bicyclists per Berkeley General Plan Policy T-18.

***Actions***

- Integrate Vehicle Miles Traveled transportation impact analysis thresholds as a State-mandated alternative to Level of Service. Work with the Alameda County Transportation Commission and the Metropolitan Transportation Commission to ensure conformity with County and Regional travel models.
- Establish new City traffic analysis standards that consider all modes of transportation, including pedestrians, bicycles, and transit in addition to automobiles, consistent with a comprehensive, integrated transportation network for all users as described in the City of Berkeley Complete Streets Policy. Utilize Level of Traffic Stress to quantify bicycle transportation in this network-based Complete Streets Policy context.

## City of Berkeley Pedestrian Plan

The City of Berkeley Pedestrian Master Plan, adopted in June 2010, reiterates and emphasizes the General Plan policies and actions pertaining to pedestrians. Policies relevant to the proposed project include General Plan Policies T-12 (Education and Enforcement), T-49 (Disabled Access), T-50 (Sidewalks), and T-51 (Pedestrian Priority), which are listed above.

## 4.6.3 Impact Analysis

### a. Significance Criteria and Methodology

Consistent with the *CEQA Guidelines*, impacts related to transportation and circulation would be considered potentially significant if implementation of the project would:

1. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
2. Conflict or be inconsistent with *CEQA Guidelines* section 15064.3, subdivision (b);
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment); or
4. Result in inadequate emergency access.

As described in Section 2, *Project Description*, the CEQA baseline for analysis under Thresholds 1, 3, and 4 is buildout under the existing (1992) DA on the North Properties (1,346,000 square feet of development) and existing development on the South Properties (520,000 square feet of development). The total square footage analyzed in the baseline scenario is therefore 1,866,000 square feet across the project site. However, because the 1991 EIR does not provide an analysis of VMT under the existing DA, the VMT analysis (Threshold 2) uses existing conditions as a baseline, instead of buildout under existing entitlements, the baseline used in other portions of this SEIR

As described in Section 4.6.2, *Regulatory Setting,* to implement SB 743, the *CEQA Guidelines* have been updated to change the criteria for determining what constitutes a significant traffic-related environmental impact to rely upon quantification of vehicle miles traveled (VMT) instead of LOS. As of July 1, 2020, the VMT-based approach in Section 15064.3 of the *CEQA Guidelines* applies statewide for the purpose of assessing traffic-related impacts under CEQA. As a result, this analysis uses the metric of VMT to determine the project's traffic-related impact. Section 15064.3(b)(1) of the *CEQA Guidelines* states that land use "projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact." According to OPR's Technical Advisory on Evaluating Transportation Impacts, published by the Governor's Office of Planning and Research in December 2018, a 15 percent reduction in VMT per capita from existing development is "generally achievable" and supportive of State goals to reduce greenhouse gas emissions (OPR 2018). However, State guidance allows localities to set their own VMT standards based on substantial supporting evidence.

OPR recommends evaluating VMT impacts using an efficiency-based version of the metric, such as VMT per resident for residential developments or VMT per worker for office or other employment-based developments. Consistent with OPR's guidelines, the City of Berkeley uses the metric of home-work VMT per worker for evaluating the impacts of employment-based uses, such as the Bayer Berkeley site. The home-work VMT per worker measures all of the commute trips between homes and workplaces and divides that total distance by the number of workers at the site.

Based on the City of Berkeley's guidelines, the following significance threshold is applicable to the project:

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

## b. Prior Environmental Analysis

Chapter 5E (Transportation) of the 1991 EIR analyzed the existing DA's impacts on traffic, pedestrian conditions, and parking availability. The EIR does not address the issue areas of consistency with *CEQA Guidelines* §15064.3, subdivision (b) or the adequacy of emergency access. Further, the project would involve demolition of existing buildings and construction and operation of new buildings that were not analyzed in the 1991 EIR and could therefore result in new impacts related to transportation. Therefore, all the CEQA checklist items listed above under Significance Criteria are addressed in this analysis.

## c. Project Impacts and Mitigation

| | |
|---|---|
| **Threshold 1:** | Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? |

**Impact T-1 THE PROPOSED AMENDED DA WOULD NOT CONFLICT WITH APPLICABLE POLICIES ADDRESSING TRANSIT, BICYCLE, AND PEDESTRIAN FACILITIES. MITIGATION WOULD REQUIRE CONTINUED IMPLEMENTATION OF BAYER'S TDM PROGRAM, WHICH WOULD ENSURE THAT THE PROJECT WOULD NOT CONFLICT WITH POLICIES ADDRESSING ROADWAY FACILITIES. IMPACTS RELATED TO TRANSIT, BICYCLE AND PEDESTRIAN FACILITIES WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

### Transit Facilities

As described in the transportation assessment (Fehr & Peers 2020; Appendix I), the proposed project would be consistent with the City's General Plan and West Berkeley Plan goals and policies, which generally promote non-automobile trips over automobile trips. The project site is in an area served by several transit facilities. It is served by several AC Transit bus lines, including Line 36, which connects the site to Downtown Berkeley, Emeryville, and West Oakland; Line 80, which connects the site to South Berkeley (including the Ashby BART Station), Albany, and El Cerrito; Line Z, which provides peak period Transbay service to San Francisco; and Line 72, which connects the site to El Cerrito, Richmond, and Oakland. As described in Section 2, *Project Description,* the proposed project would involve amendments to the existing DA, which would allow demolition of some existing buildings, expansion of other existing facilities, and construction of new buildings. While buildout under the amended DA would result in a rearranged project site compared to existing conditions, proposed changes would not involve removal or relocation of existing bus stops. Existing transit facilities would remain the same as under existing entitlements, including the bus stops located within the project site, along Seventh Street. Therefore, the project would not interfere with these existing bus routes and would not remove or relocate existing bus stops.

Under the existing entitlement, Bayer is required to implement a Transportation Demand Management (TDM) Program to reduce single-occupant automobile trips generated by the project site. As part of the TDM Program, Bayer is required to continue to provide funding for the West Berkeley Shuttle, which provides free shuttle service between the project site and the Ashby BART station. Without continued implementation of the TDM Program, operation under the amended DA may conflict with General Plan and West Berkeley Plan policies that encourage vehicle trip reduction and increased transit use, including General Plan Policies T-7 and T-10 and West Berkeley Plan Policy 1.7, and General Plan Policy T-2, which calls for local efforts to maintain and enhance public transportation services. Therefore, this impact is potentially significant, and Mitigation Measure T-1 is required to

ensure continued implementation of the TDM Program and set forth provisions to include in the program.

## Roadway Facilities

Operation under the amended DA project would involve continuation of existing on-site services, such as a cafeteria and fitness facilities, which discourage midday automobile trips by Bayer employees. Moreover, the project would add employee amenities within the project site, including fields, sports courts, pedestrian and bicycle trails, outdoor eating areas, and landscaping, which would further discourage vehicle trips. As described in Section 2, *Project Description*, at least six acres open space would be developed within the site by Year 10 of the amended DA. These measures would reduce impacts to roadway facilities, including the amount of vehicle traffic generated by buildout under the amended DA.

As noted above, under the existing DA, Bayer is currently required to implement the existing TDM Program, including funding for the West Berkeley Shuttle, which encourages Bayer employees to use travel modes other than driving alone to commute to and from the project site. Current use of West Berkeley Shuttle reduces the number of single-occupancy vehicles traveling into and out of the project site and within the surrounding area. Without continued implementation of the TDM Program and provisions to include the TDM Program provisions to meet employee demand, operation under the amended DA may conflict with goals and policies in the Transportation Element of the West Berkeley Plan, including Policy 1.1, which encourages reduction of single-occupant automobile trips, and Goal 4, which discourages the provision of free parking that would incentivize people to drive more than they would otherwise. Therefore, this impact is potentially significant, and mitigation is required.

## Bicycle Facilities

The proposed project would be consistent with the City's 2017 Bicycle Plan and other applicable policies related to bicycle facilities. Consistent with General Plan Policy T-43, the project would continue to provide long-term and short-term bicycle parking to accommodate the bicycle parking demand generated by Bayer employees. As described in Section 2, *Project Description*, the proposed project would comply with the City's current provisions for bicycle parking of 1 space per 2,000 square feet of gross floor area for new floor area construction and expansions irrespective of use type. In addition, although the Bicycle Plan does not identify future bicycle facilities adjacent to the project site, the project does not include modifications to the streets serving the project site that would preclude the installation of future bicycle facilities on these streets, and would include bicycle trails within the project's borders. At project site frontages, trails and street sidewalks would link to existing public right-of-way facilities, including sidewalks and public open space. Finally, the site is within walking and biking distance of existing bicycle paths, including along Ninth Street and Channing Way. Therefore, as described in Appendix I, the project would not conflict with City policies, plans, or ordinances addressing bicycle facilities. Impacts would be less than significant.

## Pedestrian Facilities

As described in the Setting Section above, a continuous sidewalk network is provided in the vicinity of the project site connecting to nearby residential, commercial, and retail facilities. Crosswalks and pedestrian signals are provided at major intersections near the project site. The proposed project would not significantly impact or change the design of existing

pedestrian system within and around the project site. In addition, new development under the amended DA would be reviewed by the Department of Public Works to ensure that changes to the public right-of-way, such as new curbs, driveways, and sidewalks, would be consistent with policies and regulations related to pedestrian facilities, including the policies in the Berkeley Pedestrian Plan. Therefore, the project would not conflict with a program, plan, ordinance, or policy addressing pedestrian facilities. Impacts would be less than significant.

## Mitigation Measures

The following mitigation measure is required to ensure less than significant impacts related to roadway facilities. The measure has been adapted from mitigation required in the 1991 EIR to address impacts from the proposed project and to reflect current regulations related to TDM.

*T-1 Transportation Demand Management Program (Updated 1991 EIR MM)*

The project applicant shall continue to implement and update the Transportation Demand Management (TDM) Program to reduce single-occupant automobile trips generated by the project site. The TDM Program shall be reviewed and approved by the City of Berkeley prior to issuance of building permits for development allowed under the amended DA. In addition, the TDM Program shall be updated by Bayer and approved by the City every five years, or at intervals required by the City, to ensure that services are consistent with best practices to reduce the use of single-occupant automobile trips to and from the project site.

The TDM Program shall include, but not be limited to, the following information and measures:

- Continued funding and implementation of the West Berkeley Shuttle with service as needed to meet demand.
- Other TDM measures intended to reduce single-occupant automobile trips, including but not limited to on-site bicycle parking requirements, car share and bike share memberships for Bayer employees, and parking pricing. Additional measures consistent with the City's TDM policies may be required by the City.

## Significance After Mitigation

With implementation of Mitigation Measure T-1, the project would be consistent with the General Plan and West Berkeley Plan, which encourage vehicle trip reduction and increased transit use. This impact would be less than significant with mitigation incorporated.

**Threshold 2:** Would the project conflict or be inconsistent with *CEQA Guidelines* section 15064.3, subdivision (b)?

**Impact T-2 VEHICLE MILES TRAVELED (VMT) ATTRIBUTABLE TO THE PROPOSED AMENDED DA WOULD NOT EXCEED THE CITY'S SIGNIFICANCE THRESHOLDS. THEREFORE, THE IMPACT RELATED TO VMT WOULD BE LESS THAN SIGNIFICANT.**

As described in the Setting section above, because the project site is in a Low VMT Area, the proposed project meets the City of Berkeley VMT screening criteria and would therefore result in a less than significant impact related to VMT. However, as described in the Transportation Analysis, the Low VMT Area screening criterion is typically used for small

development projects. Considering that the proposed project is relatively large, the Transportation Analysis provides a more detailed VMT analysis for the project using the Alameda CTC Travel Demand Model as a very conservative measure (Fehr & Peers 2021; Appendix I).

Table 4.6-3 provides home-work VMT estimates for the proposed project under 2020 and 2040 conditions. The Transportation Analysis uses the CTC Model, which provides VMT estimates for 2020 through 2040. Since the model is based on the Metropolitan Transportation Commission (MTC) Plan Bay Area 2040, a long-range plan that provides analysis of changes in the Bay area through 2040, it does not provide an estimate for the DA horizon year (2052). The table also compares the home-work VMT per worker for the project with the regionwide average and 15 percent below the regionwide average, which is the threshold used to determine the significance of the VMT impact.

**Table 4.6-3 Project and Region VMT**

| Geographic Area | Home-Work VMT per Worker (2020) | Home-Work VMT per Worker (2040) |
|---|---|---|
| Proposed Project | 11.5 | 11.6 |
| Bay Area Region Average | 18.1 | 18.2 |
| Bay Area Region Average minus 15% (i.e., threshold of significance) | 15.4 | 15.5 |
| Threshold exceeded? | No | No |

Notes: Based on results of the Alameda CTC Countywide Travel Demand Model for the nine-county Bay Area Region
Source: Fehr & Peers 2020; Appendix I

As shown in Table 4.6-3 above, under 2020 conditions the home-work VMT per worker for the project would be 11.5, which is less than the threshold of significance, 15.4. Under 2040 conditions, the home-work VMT per worker for the project is estimated to be 11.6, which is less than the threshold of significance, 15.5, or 24 percent below the regionwide threshold. Since the home-work VMT per worker for the project in 2040 would be more than 15 percent below the regionwide average, the project impact on VMT is less-than-significant, and no mitigation is required. Since the CTC Model has not been updated beyond 2040 projections, it is not possible to calculate VMT for the project's horizon year (2052). However, the VMT analysis accounted for full buildout under the amended DA (buildout at Year 30). Moreover, since the project's VMT in 2020 and 2040 are similar (a difference of 0.1 VMT), it can be assumed that the project's VMT in 2052 would be similar to 2040 VMT, which is substantially less than the 15.5 VMT threshold of significance. Therefore, impacts through the project's horizon year (2052) would remain less than significant.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

| | |
|---|---|
| **Threshold 3:** | Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)? |

**Impact T-3 THE PROPOSED AMENDED DA WOULD NOT INTRODUCE DESIGN FEATURES OR INCOMPATIBLE USES THAT COULD INCREASE TRAFFIC HAZARDS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

## Operation

The proposed project would amend the existing DA for the Bayer campus, including a conceptual development plan to rearrange the campus layout and minor modifications to the public right-of-way. Such modifications would include new driveways and enhancements to pedestrian facilities. As described in Section 2, *Project Description*, the existing driveway on Dwight Way opposite Sixth Street would be closed and a new driveway on Seventh Street opposite Pardee Street would be constructed. As described in the Transportation Analysis, the design and control for this driveway would be finalized as part of the access and circulation modifications in the southeast portion of the project site. The individual components within the project site, such as buildings, parking facilities, and internal streets, also have not undergone design-level planning. The final design for project components within the project site or modifications within the public right-of-way would be reviewed by the City, including the Building and Safety Division, Public Works Department, Fire Department, and the City's Traffic Engineer. This review would ensure that the project meets required standards for access and circulation, such as emergency access requirements, including those in the California Building Code and California Fire Code, and adequate sight distance at new driveways between vehicles entering and exiting the driveways and pedestrians on the adjacent sidewalk as well as vehicles on the adjacent street.

In addition, while buildout under the proposed DA would involve rearranged uses throughout the project site, the types of activities allowed under the amended DA would be similar to the activities allowed under the existing DA, including administrative, manufacturing, parking, and research uses. Therefore, as described in the Transportation Analysis, the project would generate similar types of vehicle and equipment trips as under the existing DA, including mostly passenger vehicle trips, with some pedestrian, bike, transit, and heavy truck trips, all of which would be compatible with existing uses at the site and the surrounding areas. Under the amended DA, the 12 existing loading docks and facilities within the project site would continue to be utilized for deliveries and material transport. No new loading areas would be needed to accommodate operations under the amended DA. In addition, all new buildings within the site would be equipped to accept trucks delivering raw materials to the site and hauling waste. Therefore, the project would not introduce incompatible uses, including vehicles or equipment, to the site or the surrounding area. Impacts would be less than significant.

## Construction

Construction activities under the amended DA would require the use of off-road construction equipment and on-road vehicles associated with worker, vendor, and hauling trips. These equipment and vehicles would be typical of other construction projects throughout the City of Berkeley. In addition, prior to approval of building permits for the proposed project, the Public Works Department would review the proposed construction activities and scheduling to ensure potential traffic hazards would be avoided. If deemed necessary, the Public Works Department would require that Bayer prepare a Transportation Construction Plan (TCP),

which would describe proposed alterations, closures, or blockages to sidewalks, pedestrian paths or vehicle travel lanes (including bicycle lanes), storage of building materials, dumpsters, debris within the public right-of-way, provision of exclusive contractor parking on-street, and any significant truck activity. The TCP would be reviewed and approved by the City's traffic engineer before construction activities are allowed to begin. Given these requirements, construction activities would not introduce traffic hazards. Impacts would be less than significant.

### Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

**Threshold 4:** Would the project result in inadequate emergency access?

**Impact T-4 THE PROPOSED AMENDED DA WOULD NOT RESULT IN INADEQUATE EMERGENCY ACCESS TO THE PROJECT SITE AND WOULD NOT SUBSTANTIALLY AFFECT RESPONSE TIMES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

The adequacy of emergency access depends on site access to properties and the response times of emergency vehicles. The proposed project would be required to comply with all building, fire, and safety codes and specific development plans would be subject to review and approval by the City's Public Works Department, Building and Safety Department, and Fire Department. Required review by these departments would ensure the circulation system within and around the project site would provide adequate emergency access. With regard to response times, traffic congestion has the potential to impede the movement of emergency vehicles. However, as discussed in Impact T-1, the project would not result in a significant increase in single-occupancy vehicles in the surrounding area.

In addition, as described in Section 2, *Project Description*, Bayer would continue to operate its own emergency vehicle and equipment to respond to most emergency needs within the project site. Bayer's emergency response team would continue to be supplemented by outside emergency response personnel, including the City of Berkeley's Fire Department, when necessary. However, the project would not involve major modifications to the roadway network outside the project site that would affect emergency vehicle access. In addition, all streets near the project site provide adequate space for other vehicles to pull over and allow emergency vehicles to pass without blocking the streets (Appendix I). Impacts would be less than significant.

### Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

## d. Cumulative Impacts

As discussed in Impact T-2, the proposed project would have a less than significant impact related to VMT. Based on technical guidance from the Governor's Office of Planning and Research, if a project has a less than significant impact on VMT using an efficiency-based threshold (e.g., VMT per worker), this implies that the project would not contribute to a cumulative VMT impact. Therefore, the project would not have a considerable contribution to a cumulative VMT impact.

*This page intentionally left blank.*

# 4.7 Tribal Cultural Resources

This section evaluates the impacts of the proposed amendment to Bayer HealthCare LLC's Development Agreement (DA) on tribal cultural resources. The analysis is based on Assembly Bill 52 consultation conducted by the City of Berkeley and consulting Tribes.

## 4.7.1 Regulatory Setting

This regulatory framework section identifies the federal, state, and local laws, statutes, guidelines, and regulations that govern the identification and treatment of tribal cultural resources as well as the analysis of potential impacts to tribal cultural resources. The lead agency must consider the provisions and requirements of this regulatory framework when rendering decisions on projects that have the potential to affect tribal cultural resources.

### a. State

### Assembly Bill 52

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expands CEQA by defining a new resource category: Tribal Cultural Resources (TCR). AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment" (PRC §21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC §21084.3).

PRC §21074(a)(1)(A) and (B) defines TCRs as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and requires that they meet either of the following criteria:

1) Listed or eligible for listing in the CRHR, or in a local register of historical resources, as defined in PRC §5020.1(k).
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC §5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

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

### b. Local

### City of Berkeley General Plan (2001)

The Urban Design and Preservation Element of the City's General Plan, approved in 2001, contains the following goals and policies related to cultural resources and relevant to the current project:

**Policy UD-1 Techniques.** Use a wide variety of regulatory, incentive, and outreach techniques to suitably protect Berkeley's existing built environment and cultural heritage.

**Policy UD-2 Regulation of Significant Properties.** Increase the extent of regulatory protection that applies to structures, sites, and areas that are historically or culturally significant.

**Policy UD-12 Range of Incentives.** Seek to maintain and substantially expand the range and scale of incentives that the City and/or other entities make available in Berkeley for the preservation of historic and cultural resources.

**Policy UD-20 Alterations.** Alterations to a worthwhile building should be compatible with the buildings original architectural character.

**Policy UD-21 Directing Development.** Use City incentives and zoning provisions to direct new development toward locations where significant historic structures or structures contributing to the character of an area will not need to be removed.

**Policy UD-36 Information on Heritage.** Promote, and encourage others to promote, understanding of Berkeley's built and cultural heritage, the benefits of conserving it, and how to sensitively do that.

## 4.7.2 Tribal Cultural Setting

### a. Ethnographic Context

The project Area of Potential Effect (APE) lies within an area traditionally occupied by the Ohlone (or Costanoan) people. Ohlone territory extends from the point where the San Joaquin and Sacramento rivers issue into the San Francisco Bay to Point Sur with the inland boundary constituted by the interior Coast Ranges (Kroeber 1925:462). The Ohlone language belongs to the Penutian family with several distinct dialects throughout the region (Kroeber 1925: 462).

The pre-contact Ohlone were semi-sedentary with a settlement system characterized by base camps of tule reed houses and seasonal specialized camps (Skowronek 1998). Villages were divided into small polities, each governed by a chief responsible for settling disputes, acting as a war leader (general) during times of conflict, and supervising economic and ceremonial activities (Kroeber 1925; Skowronek 1998,). Social organization appeared flexible to ethnographers and social hierarchy was not apparent to mission priests (Skowronek 1998).

Ohlone subsistence was based on hunting, gathering, and fishing (Kroeber 1925: 467, Skowronek 1998). Mussels were a particularly important food resource (Kroeber 1925: 467). Sea mammals were also important; sea lions and seals were hunted, and beached whales were exploited (Kroeber 1925: 467). As throughout California, the acorn was an important staple, prepared by leaching acorn meal in openwork baskets and in holes dug into the sand (Kroeber 1925: 467). The Ohlone practiced controlled burning to facilitate plant growth (Kroeber 1925: 467, Skowronek 1998).

Seven Franciscan missions were built in Ohlone territory in the late 1700s, and all members of the Ohlone group were eventually brought into the mission system (Kroeber 1925: 462, Skowronek 1998). After the establishment of the missions, Ohlone population dwindled from roughly 10,000 people in 1770 to 1,300 in 1814 (Skowronek 1998). In 1973, the population of people of Ohlone descent was estimated at fewer than 300. The descendants of the

Ohlone united in 1971 and have since arranged political and cultural organizations to revitalize aspects of their culture.

## b. Cultural Resources Records Search

In October 2020, staff at Northwest Information Center (NWIC) at Sonoma State University completed a search of the California Historical Resources Information System (CHRIS). The purpose of the records search was to identify all previously recorded cultural resources, as well as previously conducted cultural resources studies within the project site and a 0.25-mile radius. The records search included a review of the National Register of Historic Places (NRHP), the California Register of Historical Places (CRHR), the California Built Environment Resources Directory and the Archaeological Determinations of Eligibility list.

As described in the Cultural Resources Technical Report (Appendix D), the records search identified twelve previously recorded cultural resources within a 0.25-mile radius of the project site, one of which is located within the project site (P-01-011561). P-01-011561 is comprised of three historic-period buildings that have been evaluated and recommended ineligible for the CRHR by Arrigoni in 2014. Of the recorded resources in the records search radius, one is a prehistoric archaeological resource containing habitation debris and is located less than 150 feet from the project site's northern boundary. The Sacred Lands File (SLF) search conducted by the NAHC was returned with positive results. The NAHC cc'ed the Amah Mutsun Tribal Band of Mission San Juan Bautista on the results response who recommended cultural sensitivity training for all crews involved in ground disturbance, as well as archaeological and Native American monitoring. Although the project site has experienced extensive urban development, the results of the records search and Native American outreach indicate that the area is archaeologically sensitive and buried archaeological resources may exist on the project site.

## c. Assembly Bill 52 Consultation

The City of Berkeley prepared and mailed AB 52 notification letters on December 22, 2020 to tribes listed by the Native American Heritage Commission. Under AB 52, tribes have 30 days to request consultation from receipt of the notification letters.

On December 23, 2020, the Northern Valley Yokuts Tribe/Nototomne Cultural Preservation requested consultation and formally requested that the City allow Northern Valley Yokuts Tribe/Nototomne Cultural Preservation tribal representatives to observe and participate in cultural resource surveys, including initial pedestrian surveys for the project. On February 2, 2021, City staff met with Bayer representatives and representatives from the Tribe during a site visit of the Bayer Campus. Tribal representatives indicated their strong preference to preserve tribal cultural resources in place and avoid them whenever possible. The Tribe stated that it is their policy that tribal monitors must be present for all ground disturbing activities. The Tribe requested that subsurface testing and data recovery must not occur without first consulting with and receiving written consent from Northern Valley Yokuts Tribe/Nototomne Cultural Preservation and that there should be training of construction crews to identify cultural resources. At the request of the Tribe, mitigation measures for worker training and monitoring have been required (mitigation measures TCR-1 and TCR-2). Further, mitigation related to avoidance, subsurface testing, and data recovery (CR-5 through CR-8) are included in Section 4.2, *Cultural Resources.*

On March 17, 2021, the Confederated Villages of Lisjan responded to request consultation under AB 52. This request was submitted after the closure of the 30-day consultation window; however, the City of Berkeley opted to move forward with consultation. The City of

Berkeley met with the Confederated Villages of Lisjan on April 23, April 30, and May 7, 2021, to discuss the project and proposed mitigation measures. The Confederated Villages of Lisjan requested revisions to mitigation measures CR-5 to further specify when Extended Phase I testing would be required, revisions to CR-6 to include additional detail on how and when cultural resources would be avoided, and the addition of mitigation measure TCR-3 to include the requirement of a Tribal Cultural Resource Open Space Easement. Avoidance is the preferred mitigation measure of Confederated Villages of Lisjan for an identified resource of Native American origin.

The City of Berkeley sent emails to the Confederate Villages of Lisjan and the North Valley Yokuts Tribe/Nototomne Cultural Preservation on May 19, 2021 to conclude AB 52 consultation.

Correspondence related to AB 52 is included in Appendix J.

## 4.7.1 Impact Analysis

### a. Methodology and Significance Thresholds

Consistent with the *CEQA Guidelines*, impacts related to Tribal Cultural Resources would be considered potentially significant if implementation of the project would:

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 Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

### b. Prior Environmental Analysis

The 1991 EIR does not address the issue area of tribal cultural resources. Therefore, all of the CEQA checklist items listed above under Significance Criteria are addressed in this analysis.

## c. Project Impacts and Mitigation Measures

**Threshold 1:** Would the project 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 Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

**IMPACT TCR-1 DEVELOPMENT UNDER THE PROPOSED AMENDED DA COULD ADVERSELY IMPACT TRIBAL CULTURAL RESOURCES. HOWEVER, IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.**

Based on the results of AB 52 consultation, there are no known tribal cultural resources located within the project site. However, the project site is considered highly sensitive for archaeological resources that may later be recommended as a tribal cultural resource by tribal organizations. Therefore, impacts related to tribal cultural resources are potentially significant, and mitigation is required.

### Mitigation Measures

The following new mitigation measures are required. These measures were not included in the 1991 EIR, which did not include mitigation for tribal cultural resources impacts.

*TCR-1 Worker's Environmental Awareness Program*

Prior to ground disturbing activities, the project applicant will retain a locally affiliated tribal member who represents a tribal organization that was contacted as part of Assembly Bill 52 outreach to conduct a Worker's Environmental Awareness Program (WEAP) training. The WEAP training shall be provided to all construction personnel (in conjunction with the cultural resources WEAP) prior to the commencement of ground-disturbing activities. The WEAP training shall include a description of the types of materials that may constitute Tribal Cultural Resources, the reasons for their traditional cultural significance and importance to tribal members, the stop work authority of the Native American monitor, and the proper protocol for the respectful treatment of the resource in the event of an unanticipated discovery. Attendance at the WEAP training shall be documented with a sign-in sheet for submittal to the City for verification of adherence to this measure. This WEAP training may be presented in tandem with the training required under CR-9.

### *TCR-2 Native American Monitoring*

If recommended by the Desktop Analysis, Phase I, Extended Phase I (XPI), Phase II, or Phase III studies required under Mitigation Measures CR-1 through CR-8, the project applicant shall retain a qualified local Native American monitor to observe all ground disturbance, including archaeological excavation, associated with development facilitated by the project. Native American monitoring shall be provided by a locally affiliated tribal member. Monitors will have the authority to halt and redirect work if tribal cultural resources are identified during monitoring. If tribal cultural resources are encountered during ground-disturbing activities, work within 60 feet must halt and the find must be evaluated. Native American monitoring may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of ground disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Following the completion of monitoring, a report documenting the monitoring effort shall be prepared and submitted to the City of Berkeley and the Northwest Information Center.

### *TCR-3 Cultural Resources Open Space Easement*

The project applicant will set aside an area that could be used as a Tribal Cultural Resources Open Space Easement in the event that tribal cultural resources are encountered during construction activities and are unable to be avoided. The purpose of the Cultural Resources Open Space Easement will be to provide an onsite location for reinterment of sensitive Native American cultural resources and/or human remains, as well as other associated funerary objects. If said remains are encountered, a Cultural Resource Open Space Easement will be developed and granted by the project applicant in consultation with the identified Most Likely Descendant(s), and other affiliated tribes identified by the NAHC as applicable. Should an easement be necessary, the following actions would be prohibited on the land subject to said easement, except as required for the reburial of sensitive cultural resources: grading; excavation; placement of soil, sand, rock, gravel or other material; clearing of vegetation with machinery; construction; erection or placement of a building or structure; vehicular activities; trash dumping; installation of wet or dry infrastructure, such as irrigation systems; or for a purpose other than as open space for tribal use only.

Exceptions include the following:

- Placement and reburial of sensitive Native American cultural resources or human remains.
- Access shall be provided for identified Most Likely Descendant(s), and other affiliated tribes identified by the NAHC in perpetuity.
- Selective clearing of vegetation by hand if required by fire authorities for the purpose of reducing an identified fire hazard or the removal of vegetation using chemicals for vector control purposes where required by the Department of Environmental Health.
- The installation of a bench, marker, or other amenity if desired by the consulting Tribe(s).

## Significance After Mitigation

Implementation of Mitigation Measures TCR-1, TCR-2, and TCR-3 would reduce impacts related to tribal cultural resources, as actions would be taken to identify, avoid, and retain identified tribal cultural resources. Impacts would be less than significant with mitigation.

## d. Cumulative Impacts

Cumulative development in the Berkeley would disturb areas that may contain tribal cultural resources. While there is the potential for significant cumulative impacts to historic, cultural, tribal cultural resources in the City, it is anticipated that potential impacts associated with individual development projects would be addressed on a case-by-case basis and would be subject to City policies and local and state regulations regarding the protection of such resources. With compliance with existing policies, regulations and the City's standard conditions of approval, future development in the City and region would be required to avoid or mitigate the loss of these resources. With mitigation, significant cumulative impacts would not occur. The proposed project's impacts can be reduced to below a level of significance with implementation of the Mitigation Measure described above. Therefore, the project would not result in a cumulatively considerable impact related to cultural resources.

*This page left intentionally blank*

# 4.8 Utilities and Service Systems

This section describes potential impacts from adoption of the proposed amended DA on utilities and service systems, including infrastructure related to water supply, wastewater, solid waste, and energy. Assessment of impacts is based partially on pertinent analysis provided in the 1991 EIR, which evaluated impacts of buildout under the existing DA, and additional impacts that could occur as a result of buildout under the amended DA.

## 4.8.1 Setting

### a. Water Supply

#### Water Service

Water supply to the Bayer Campus is provided by the East Bay Municipal Utility District (EBMUD). Approximately 90 percent of the water used by EBMUD comes from the Mokelumne River watershed, and EBMUD transports it through pipe aqueducts to temporary storage reservoirs in the East Bay hills. EBMUD has water rights that allow for delivery of up to a maximum of 325 million gallons per day (mgd) from this source, subject to the availability of runoff and to the senior water rights of other users, downstream fishery flow requirements, and other Mokelumne River water uses. EBMUD is obligated to meet multiple operating objectives, including providing municipal water supply benefits, stream flow regulation, fishery/public trust interests, flood control, temperature management and obligations to downstream diverters. Among these factors, EBMUD's Mokelumne River flow commitments are generally tied to the variability in the Mokelumne River watershed rainfall and runoff patterns which govern the release requirements for the year (EBMUD 2015).

#### Demand Management and Water Conservation

Northern California's water resources, including EBMUD's supplies, have been stressed by periodic drought cycles. Historical multi-year droughts have significantly diminished the supplies of water available to EBMUD's customers. During the early stages of a drought and throughout a drought period, EBMUD imposes drought management programs to reduce customer demands, thereby saving water for the following year in case drought conditions continue. EBMUD has established a goal of reducing water use by 20 percent from baseline levels by 2020 district-wide. Executive Order B-37-16, Making Water Conservation a California Way of Life, requires continued conservation beyond 2020.

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

## Water Distribution

EBMUD operates and maintains all treatment, storage, pumping, and distribution facilities within its service area and is responsible for all facilities up to the location of the water meter (EBMUD 2015). In West Berkeley, EBMUD's water distribution system provides potable water but is not presently equipped to distribute non-potable water. The pipeline system includes pipes of varying sizes, ranging from six to 16 inches in diameter. The majority of those pipes are eight inches in diameter, and to a lesser extent, 10 and 12 inches in diameter.

## Water Supply Regulatory Setting

### *State*

Drinking water quality is regulated by the California Department of Public Health (CDPH), the State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Board (RWQCB), San Francisco Bay Region (Region 2). The California Code of Regulations, Title 22 (State Drinking Water Standards) is the primary body of State legislation providing water system standards, including standards for water supply, storage capacity, and water quality. Other considerations include the Porter-Cologne Water Quality Control Act, the Safe Drinking Water Act, and the SWRCB Non-degradation Policy.

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

Assembly Bill 1881, the Model Water Efficient Landscape Ordinance (WELO), required cities and counties to either adopt the WELO or a local ordinance that is at least as effective in conserving water as the WELO by January 31, 2010. The City of Berkeley requires all new and renovated irrigated landscape of over 2,500 square feet area to comply with the WELO. The WELO reinforces landscape irrigation and water conservation best practices currently required by EBMUD's Section 31 Regulations.

The Governor's Executive Order B-29-15, issued on April 1, 2015, required the State to revise the Model WELO to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, graywater usage, on-site stormwater capture, and by limiting the portion of landscapes that can be covered in turf California Department of Water Resources 2015).

### *Regional and Local*

EBMUD is the regional public water agency serving the project site and regulates water efficiency for water service customers. All applicants/proponents for new and expanded water services from EBMUD are required to comply with specifications in the Water Efficiency Requirements checklist provided in the agency's Section 31 Regulations, which describe water efficiency requirements (EBMUD 2015). In order to meet WELO requirements, all landscaping meeting the 2,500-square-foot threshold must comply with the

EBMUD's Section 31 Water Service Regulations for Outdoor Water Use. EBMUD will not furnish water service for new or expanded service unless all the applicable water-efficiency measures described in the Water Service Regulations are installed (at the project proponent's expense).

In response to Governor's Executive Order B-29-15 EBMUD implemented mandatory water restrictions on all customers within its service area, with the goal of reducing water demand by 20 percent from 2015 baseline conditions by 2020. Restrictions include prohibition of excessive use of water and a monetary penalty for single-family residences that used more than 80 units (59,840 gallons) of water per billing period.

#### BERKELEY GENERAL PLAN

The Environmental Management Element of the City's General Plan contains the following policies and actions related to water supply (City of Berkeley 2001):

> **Policy EM-26 Water Conservation**. Ensure that neighborhoods are well served by commercial districts and community services and facilities, such as parks, schools, child-care facilities, and religious institutions.
>
> > **Action A.** Encourage drought-tolerant landscaping and low-flow irrigation systems.
> >
> > **Action B.** Consider participation in the East Bay Municipal Utility District's East Bay-shore Recycled Water Project to make recycled water available for irrigation and other non-potable uses.

### b. Wastewater

EBMUD operates the large diameter interceptor sewer and provides municipal wastewater treatment for Berkeley. Sanitary sewage from the project site flows through Berkeley's sewer system to EBMUD's wastewater interceptors, which then directly flows to the agency's Main Wastewater Treatment Plant (MWWTP) in Oakland. Berkeley's network of pipes begin with building connections at the upper laterals (which are privately-owned and maintained) and continue to the lower laterals and the sewer mains (which are City-owned and maintained). The City has approximately 456 miles of sanitary sewer mains, with an estimated over 31,000 lateral connections. The sewer mains vary from 1 to 100 years old and vary in size from 6 to 48 inches in diameter. A 2012 assessment of the City's sanitary sewer system found that sewer lines in the area surrounding the project site, including lines along San Pablo Avenue, Dwight Way, and Seventh Street have sufficient capacity to accommodate wet-weather flow (Berkeley 2012).

The City's sewer system conveys wastewater to EBMUD's interceptor lines which flow to the MWWTP. The MWWTP has a primary treatment capacity of 320 mgd and a secondary treatment capacity of 168 mgd. Storage basins provide plant capacity for a short-term hydraulic peak of 415 mgd. The average annual daily flow into the MWWTP is approximately 60 mgd, representing 36 percent of the plant's secondary treatment capacity. Treated effluent is disinfected, dechlorinated, and discharged through a deepwater outfall one mile off the East Bay shoreline into San Francisco Bay (EBMUD 2015).

In compliance with the July 28, 2014 Consent Decree, the City has implemented a long-term mandated Sanitary Sewer Capital Improvement Program to eliminate Sanitary Sewer Overflows and reduce storm water infiltration and inflow into the sanitary sewer system. Under this program, the City is repairing, replacing, and upgrading its portion of the sanitary sewer system, ultimately to aid EBMUD in eliminating discharges from their Wet Weather Facilities (storage, conveyance, and treatment facilities for the excess wastewater flows that

enter the sewer collection system during wet weather in order to prevent the release of untreated wastewater to San Francisco Bay) by the end of 2035.

## Project Site

As part of its discharge protocol under the existing DA, Bayer maintains two waste treatment tanks in building B66. Discharge from the tanks flows through Bayer's laterals to the City's sewer system, and finally to EBMUD's interceptor. Within the site, sewer laterals generally follow service corridors along Parker, Carleton, and Fourth Street. The diameter of sewer pipes vary; they typically are built to 8 inches, but some older lines are 2 to 4 inches. Mains at the periphery of the site are 8 to 10 inches, though the sewer main at the railroad tracks is 18 inches. These sewer laterals generally drain by gravity toward the west where the wastewater enters the EBMUD 66-inch interceptor sewer line adjacent to the East Shore Freeway. The interceptor line ultimately leads to the EBMUD sewage treatment plant in Oakland.

Wastes generated by existing facilities within the project site include common wastes for nonresidential uses from sinks and toilets, and other industrial wastes associated with laboratory and research uses, including dilute solutions, and chemicals with expired shelf lives. Dilute solutions of water-soluble liquid wastes may go to the sanitary sewer to the extent they are not classified as hazardous waste, as regulated by the applicable City Municipal Code requirements and EBMUD's discharge permit(s). Bayer currently has a permit to discharge industrial wastewaters with EBMUD and must comply with all permit conditions and City Municipal Code requirements, including conditions that apply to laboratory wastes. Liquid and solid chemical and medical wastes, including all biohazardous materials used for research and production, are shipped off-site for treatment and/or disposal (see Section 4.4, *Hazards and Hazardous Materials*, for analysis related to hazardous materials).

## Wastewater Regulatory Setting

### *State*

The “Statewide General Waste Discharge Requirements for Sanitary Sewer Systems” adopted by the SWRCB in 2006, requires that every public agency in California with more than one mile of sanitary sewers prepare a Sewer System Management Plan (SSMP) that defines the management, operation and maintenance practices needed to prevent and mitigate the impact of sanitary sewer overflows (SSOs). The City of Berkeley prepared an SSMP in 2009 and updated the document in 2019.

Standards for wastewater treatment plant effluent are established using state and federal water quality regulations. After treatment, wastewater effluent is either disposed of or reused as recycled water. The RWQCBs set the specific requirements for community and individual wastewater treatment and disposal and reuse facilities through the issuance of Waste Discharge Requirements (WDR), required for wastewater treatment facilities under the California Water Code Section 13260.

Salt concentrations (such as chloride, nitrogen, sodium, etc.) in wastewater effluent are regulated based on the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin, which also considers surface water quality (discussed in Appendix A). The RWQCB develops waste discharge requirements based on the Basin Plan, designed to protect beneficial uses of the State waters. The RWQCB Basin Plan contains an anti-degradation policy so that existing quality shall be maintained. In addition, as described in the Basin

Plan, California Department of Toxic Substances Control (DTSC) issues permits for hazardous waste. The State Water Board, Regional Water Boards, the California Integrated Waste Management Board (CIWMB), and DTSC have entered into a Memorandum of Understanding to coordinate their respective roles in the concurrent regulation of these discharges.

*Regional and Local*

The SSMP presents the City's approach to ensuring that its sanitary sewer system has adequate hydraulic capacity through a System Evaluation and Capacity Assurance Plan (SECAP). The City administers several programs and has established various standards to implement the SSMP and support efficient operation of the sewer system.

The City amended its Private Sewer Lateral (PSL) Ordinance (BMC Chapter 17.24), effective November 3, 2014, to comply with requirements mandated by the U.S. Environmental Protection Agency (EPA) and State and Regional Water Boards. The updated Ordinance provides more stringent regulations for the inspection, testing, repair, replacement, and ongoing maintenance of private sewer laterals that connect to sewer mains. This ordinance applies when a property is sold or transferred to a different owner, buildings are constructed or remodeled in excess of $60,000, when the City finds that the PSL may be a public nuisance, or when a property has more than 1,000 feet of laterals. Property owners are required to eliminate wet-weather infiltration and inflow to private sewer laterals.

### BERKELEY GENERAL PLAN

The Environmental Management Element of the City's General Plan contains the following policies and actions related to wastewater (City of Berkeley 2001):

**Policy EM-24 Sewers and Storm Sewers**. Protect and improve water quality by improving the citywide sewer system.

**Action A.** Adequately fund sewer system improvements necessary to maintain water quality in natural areas and reduce public health hazards.

**Action B.** Identify and eliminate illegal roof-leader and other illegal connections to the sewer system.

**Action C.** Establish a program for the identification and remediation of faulty laterals on private property. Consider requiring inspection and repair as a condition of property transfer.

**Action D.** Identify alternative funding sources for essential infrastructure improvements such as grants, public-private partnerships, and special benefit districts.

**Action E.** Ensure that new development pays its fair share of improvements to the storm sewerage system necessary to accommodate increased flows from the development.

**Action F.** Coordinate storm sewer improvements with creek restoration projects.

## c. Solid Waste

The City of Berkeley is one of the few cities in Northern California to operate its own dual stream recycling and green/food waste collection system as well as material recovery/drop-off and buyback facilities. The City provides curbside recycling and refuse collection services to the project site. Solid waste and recyclable materials collected by the City and its contracted companies are transported from the Berkeley Transfer Station, located at 1201 Second Street, for sorting or disposal. The Berkeley Transfer Station currently has a permitted capacity of 174,720 tons per year (Apa 2018). One permitted landfill in Alameda County has the capacity to accommodate solid waste generated in Berkeley: the Altamont Landfill, which is located near the Altamont Pass, northeast of the City of Livermore. As shown in Table 4.8-1, the remaining capacity for solid waste at this landfill is approximately 65.4 million cubic yards. The City of Berkeley has achieved a solid waste diversion rate of 68 percent of its total annual solid waste from landfills through recycling and/or composting efforts (City of Berkeley 2020a). The City's diversion rate is the rate at which total solid waste is diverted away from landfills over time.

**Table 4.8-1 Landfill Capacity Serving City of Berkeley**

| | Maximum Permitted Throughput per Day | | Maximum Permitted Capacity | | Remaining Capacity | |
|---|---|---|---|---|---|---|
| Site | CY[1] | Tons | CY | Tons | CY | Tons |
| Altamont Landfill Resource Recovery Facility (estimated closure date December 1, 2070)[2] | 13,938 | 11,150 | 124,400,000 | 99,520,000 | 65,400,000 | 52,320,000 |

[1] The California Department of Resources Recycling and Recovery (CalRecycle) identifies Maximum Permitted Throughput only in Tons/Day, while Maximum Permitted Capacity and Remaining Capacity are only provided in Cubic Yards; therefore, standard conversion factors provided by the EPA (EPA 2016) are used to provide all figures in both Tons and Cubic Yards. EPA identifies a standard conversion factor for Municipal Solid Waste (MSW) compacted to "Landfill Density" of 1,700 pounds per cubic yard, equating to approximately 0.8 ton per cubic yard of compacted MSW. Source: U.S. EPA 2016.

Sources: CalRecycle, Solid Waste Information System (SWIS), 2021

## Solid Waste Regulatory Setting

### *Federal*

At the federal level, the USEPA is the principal regulatory agency for hazardous solid waste. The Occupational Safety and Health Administration (OSHA) regulates the use of hazardous materials, including hazardous building materials, insofar as these affect worker safety through a delegated state program. Furthermore, at the federal level, the Department of Transportation (DOT) regulates transportation of hazardous materials.

#### RESOURCE CONSERVATION AND RECOVERY ACT OF 1974

The Resource Conservation and Recovery Act (RCRA) was enacted in 1974 to provide a general framework for the national hazardous waste management system, including the determination of whether hazardous wastes are being generated, techniques for tracking wastes to eventual disposal, and the design and permitting of hazardous waste management facilities.

#### THE HAZARDOUS AND SOLID WASTE AMENDMENTS

The Hazardous and Solid Waste Amendments were enacted in 1984 to better address hazardous waste; this amendment began the process of eliminating land disposal as the principal hazardous waste disposal method.

#### CENTERS FOR DISEASE CONTROL AND NATIONAL INSTITUTE OF HEALTH

The Centers for Disease Control (CDC) and National Institute of Health (NIH) are federal agencies that partner to publish biosafety guidelines for protecting workers and preventing exposures in biological laboratories across the United States. They issue federal guidelines addressing biological safety, including protocols for hazardous waste storage and disposal. Compliance with these laws is required in any research receiving federal funding. These guidelines govern containment and handling in microbiological and biomedical research laboratories. In 2019, the NIH issued updated Guidelines for Research involving Recombinant or Synthetic Nucleic Acid Molecules, which classifies biohazardous agents into four safety levels, depending on the risk group of agents used, and the safety protocol required for use of each type of material.

### *State*

#### STATE REGULATIONS FOR HAZARDOUS WASTE

At the state level, agencies such as California Occupational Safety and Health Administration (CalOSHA), the Office of Emergency Services (OES), and the Department of Health Services (DHS) have rules governing the use and disposal of hazardous materials that parallel federal regulations and are sometimes more stringent. DTSC is the primary state agency governing the storage, transportation, and disposal of hazardous wastes. DTSC is authorized by the USEPA to enforce and implement federal hazardous materials laws and regulations. DTSC has oversight of Annual Work Plan sites (commonly known as State Superfund sites), which are sites designated as having the greatest potential to affect human health and the environment.

The California Department of Public Health (CDPH, formerly California Department of Health Services) regulates the generation, handling, storage, treatment, and disposal of medical waste in accordance with the California Medical Waste Management Act (California Health and Safety Code, Sections 117600–118360). This law requires medical waste generators to register with the CDPH's Medical Waste Management Program, and submit a medical waste management plan to the local enforcement agency.

The primary California State laws for hazardous waste are the California Hazardous Waste Control Law, which is the state equivalent of Resource Conservation and Recovery Act, and the Carpenter-Presley-Tanner Hazardous Substance Account Act, which is the state equivalent of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as the Superfund Law). State hazardous materials and waste laws are in the California Code of Regulations, Titles 22 and 26. The state regulation concerning the use and disposal of hazardous materials in the workplace is included in Title 8 of the California Code of Regulations.

### CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT

In 1989, the California State Legislature enacted Assembly Bill (AB) 939, known as the Integrated Waste Management Act. The Act required all cities and counties in California to develop Source Reduction and Recycling Elements that would enable them to divert 50 percent of total annual solid waste from landfills by the year 2000.

The Legislature later passed Senate Bill (SB) 1016, which amended AB 939 so that the 50 percent diversion requirement is calculated based on a per capita disposal rate that is determined by a jurisdiction's population. Jurisdictions in compliance with the diversion requirement are reviewed by the State every four years, while those not in compliance face review every two years.

In 2011, the Legislature passed AB 341, which sets a target of diverting 75 percent of the total annual waste produced statewide from landfills by 2020 (CalRecycle 2018).

### MANDATORY COMMERCIAL ORGANICS RECYCLING

In 2014, AB 1826 required businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across California implement an organic waste recycling program to divert organic waste generated by business, including multi-family residential dwellings that consist of five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

### GLOBAL WARMING SOLUTIONS ACT OF 2006

In 2006, the Global Warming Solutions Act or AB 32, adopted by the Air Resources Board, included a Mandatory Commercial Recycling Measure. The Mandatory Commercial Recycling Measure focuses on diverting commercial waste as a means to reduce greenhouse gas (GHG) emissions, with a goal of reducing GHG emissions by five metric tons of carbon dioxide equivalents (MT of CO2e), consistent with the 2020 targets set by AB 32. CalRecycle adopted this Measure on January 17, 2012.

In 2012, SB 1018 required both businesses that generate 4 cubic yards or more of commercial solid waste per week and multi-family residences with five or more units to arrange for recycling services.

### CALGREEN BUILDING CODE

In 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24, known as "CALGreen") was adopted as part of the California Building Standards Code. Section 4.408, Construction Waste Reduction Disposal and Recycling, mandates that in the absence of a more stringent local ordinance, a minimum of 50 percent of non-hazardous construction and demolition debris must be recycled or salvaged. The Code requires the applicant to have a construction and waste demolition and diversion plan, for on-site sorting or construction debris, which is submitted to the City of Berkeley for approval.

*Regional and Local*

#### COUNTYWIDE INTEGRATED WASTE MANAGEMENT PLAN

In compliance with AB 939, the Alameda County Waste Management Authority adopted the Countywide Integrated Waste Management Plan (CoIWMP) in 1997. The CoIWMP provides a plan for reaching the State-mandated goal of 50 percent waste diversion and the county-mandated goal of 75 percent annual waste diversion. It also mandates that reduction and disposal facilities in Alameda County that require Solid Waste Facility Permits must conform with the CoIWMP's policies and siting criteria (Stop Waste 2018).

#### ALAMEDA COUNTY WASTE MANAGEMENT AUTHORITY

The Alameda County Waste Management Authority (ACWMA) Mandatory Recycling Ordinance requires businesses, institutions and multi-family properties with five or more units to sort their recyclables from their trash. Multi-family property owners as well as businesses and institutions that generate food waste must also sort compostable materials from their trash.

#### BERKELEY GENERAL PLAN

The Environmental Management Element of the City's General Plan contains the following policies and actions related to solid waste (City of Berkeley 2001c):

**Policy EM-7 Reduced Wastes**. Continue to reduce solid and hazardous wastes.

**Action A.** Achieve a 64% diversion of waste from landfills.

**Action B.** Manage wastes locally to the greatest extent feasible to minimize the export of wastes and pollution to other communities.

**Action E.** Encourage reuse, recycling, and composting.

**Action F.** Facilitate battery and used oil recycling.

**Action G.** Support programs and incentives to reduce the manufacture and use of materials which are non-recyclable or hazardous to people and the environment.

**Action H.** Develop education and promotion programs to increase recycling by occupants of multi-family buildings.

**Action I.** Through legislation and other means, reduce the use of plastic by eliminating multiple layers in packaging and encourage reusable shipping containers such as collapsible pallets and refillable bottles for bulk liquids.

**Action J.** Encourage reusable bags and packaging such as reusable bottles, whether glass or plastic.

**Action K.** Link collection of plastic to mandated recycled content in plastic packaging.

**Action L.** Advocate at the state level for higher disposal fees for products that are designed for single use and for products that do not incorporate any post-consumer recycled content.

**Policy EM-8 Building Reuse and Construction Waste**. Encourage rehabilitation and reuse of buildings whenever appropriate and feasible in order to reduce waste, conserve resources and energy, and reduce construction costs.

**Action A.** Encourage the reuse of demolition materials and recycling of construction scraps.

**Action B.** Expand the existing yard-waste recycling program to include restaurant and institutional food waste.

**Policy EM-9 Recycling and Waste Transfer Stations**. Ensure convenient access for Berkeley citizens to transfer stations, recycling, composting, and collection of household hazardous waste products.

**Action A.** Seek to identify a site for and develop a Berkeley hazardous waste drop-off facility, or develop a citywide pickup program.

### CITY OF BERKELEY GREEN BUILDING CHECKLIST

A Green Building Checklist to ensure compliance with the 2019 California Green Building Standard Code, also known as CALGreen, is listed on the City's website for both residential and commercial projects. As of January 1, 2014, new construction, additions, and alterations are subject to CALGreen requirements. The checklist must be submitted with and incorporated into building permit plan sets, and any items that are marked on the checklists must then be referenced and detailed in the plans.

CALGreen includes several requirements related to solid waste. The City of Berkeley has adopted amendments to 2019 CALGreen in BMC Chapter 19.37, which require more stringent sustainability features. Project applicants are required to submit a completed City of Berkeley Construction Waste Management Plan to the City, which documents plans to recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste and 100 percent of excavated soil, land-clearing debris, concrete and asphalt. In addition, where five or more multifamily dwelling units are constructed on a building site, applicants are required to provide readily accessible areas for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals. Consistent with Alameda County requirements, Berkeley also provides pick-up service for three streams: landfill, recyclables, and compostable materials.

### CITY OF BERKELEY TOXICS MANAGEMENT DIVISION

The City of Berkeley Toxics Management Division (TMD) is the Certified Unified Program Agency (CUPA) for the City of Berkeley. It is responsible for regulating the storage, use, treatment, and disposal of hazardous materials and wastes in Berkeley.

The TMD manages a map of areas in Berkeley known or suspected to have contamination issues, known as Environmental Management Areas (EMA), to advise permit applicants of potential health and environmental concerns that may be encountered during construction involving excavation or dewatering. The TMD reviews proposed development projects in an EMA to determine if special requirements should apply to reduce exposure to contaminants (City of Berkeley 2010).

## 4.8.2 Impact Analysis

### a. Methodology and Significance Thresholds

Assessment of impacts is based on review of site information and conditions, pertinent analysis provided in the 1991 EIR, analysis provided in EBMUD's current UWMP, and City information regarding utility-related issues, including water supply and facilities, wastewater facilities, and solid waste. According to Appendix G of the *CEQA Guidelines*, a significant impact would occur if implementation of the proposed project would:

1. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
2. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;
3. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
4. 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; or
5. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Impacts regarding stormwater drainage facilities (Significance Threshold 1) are discussed in the Initial Study, which is provided as Appendix A of this EIR. As described therein, the development under the amended DA would not violate water quality standards or waste discharge requirements, would not significantly contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, and would not substantially degrade water quality. Impacts would be less than significant.

As described in Section 2, *Project Description*, the CEQA baseline for the utilities and service systems analysis is buildout under the existing (1992) DA on the North Properties (1,346,000 square feet of development) and existing development on the South Properties (520,000 square feet of development). The total square footage analyzed in the baseline scenario is therefore 1,866,000 square feet across the project site.

### b. Prior Environmental Analysis

Chapter 5K (Public Services and Facilities) of the 1991 EIR analyzes the existing DA's impacts related to water supplies and water pipeline capacity for fire flow, which are discussed under Item 15, Public Services. Chapter 5L (Hydrology and Drainage, Wastewater and Groundwater) of the 1991 EIR analyzes the DA's impacts related to wastewater.

The EIR does not address the issues of construction or relocation of electric power, natural gas, or telecommunications facilities, or of solid waste generation. Further the project would involve demolition of existing buildings and construction and operation of new buildings that were not analyzed in the 1991 EIR and could therefore result in new impacts related to

utilities and service systems. Therefore, all the CEQA checklist items listed above under the *Methodology and Significance Thresholds* section are addressed in this analysis.

## c. Project Impacts and Mitigation Measures

| | |
|---|---|
| **Threshold 1:** | Would the project require or result in the relocation or construction of new or expanded wastewater treatment facilities, the construction of which or relocation of which could cause significant environmental effects? |
| **Threshold 3:** | Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? |

**Impact UTL-1 BUILDOUT UNDER THE PROPOSED AMENDED DA WOULD RESULT IN A NET REDUCTION OF WASTEWATER GENERATION COMPARED TO BASELINE CONDITIONS (BUILDOUT UNDER THE EXISTING DA). EBMUD'S WASTEWATER TREATMENT PLANT HAS ADEQUATE CAPACITY TO SERVE THE PROPOSED PROJECT. IMPACTS RELATED TO WASTEWATER FACILITIES AND WASTEWATER INFRASTRUCTURE WOULD BE LESS THAN SIGNIFICANT.**

### Wastewater Treatment

Wastewater generated by buildout under the proposed amended DA would be conveyed to EBMUD's Main Wastewater Treatment Plant (MWWTP). The City of Berkeley owns and operates its existing sewer collection system, including the laterals in the vicinity of the project site. EBMUD's MWWTP provides wastewater treatment for the City of Berkeley, including the project site, currently treating an average daily flow of approximately 54 mgd. With a secondary treatment capacity of 168 mgd, the MWWTP has a remaining capacity of 114 mgd beyond existing inflow. Table 4.8-2 below compares the wastewater generated under baseline conditions (buildout under existing entitlements) and under proposed conditions (buildout under the amended DA in 2052). Operation of the Bayer campus under baseline conditions would generate approximately 217,114 gallons of wastewater per day, or 0.22 mgd, and operation under buildout of the proposed DA Amendment at year 30 would generate approximately 187,520 gallons of wastewater per day, or 0.19 mgd. Therefore, buildout under the proposed DA Amendment would generate a net reduction of 29,594 gallons of wastewater per day (0.03 mgd) within the project site compared to baseline levels.

**Table 4.8-2 Estimated Wastewater Generation**

| Use | Square Feet | Average Wastewater Demand[1] | Expected Wastewater Generation (gallons/day) |
|---|---|---|---|
| **Buildout under existing entitlements** | | | |
| Production | 793,598 | 80/1,000 gsf | 63,488 |
| Laboratories | 415,832 | 250/1,000 gsf | 103,958 |
| Warehouse | 295,659 | 20/1,000 gsf | 5,914 |
| Administration | 244,225 | 150/1,000 gsf | 36,634 |
| Utilities | 79,743 | 80/1,000 gsf | 6,380 |
| Maintenance | 36,955 | 20/1,000 gsf | 740 |
| **Total** | **~ 1,866,000** | **N/A** | **217,114** |
| **Buildout under proposed DA Amendment at Year 30** | | | |
| Production | 978,000 | 80/1,000 gsf | 78,240 |
| Laboratories | 230,000 | 250/1,000 gsf | 57,500 |
| Warehouse | 157,000 | 20/1,000 gsf | 3,140 |
| Administration | 284,000 | 150/1,000 gsf | 42,600 |
| Utilities | 71,000 | 80/1,000 gsf | 5,680 |
| Maintenance | 18,000 | 20/1,000 gsf | 360 |
| **Total** | **1,738,000** | **N/A** | **187,520** |
| **Net Difference** | | | |
| **Total Change in wastewater generation (proposed minus existing):** | | | **-29,594 gpd** |

Source: City of Los Angeles CEQA Thresholds Guidelines (2006)
Note: numbers may not add up due to rounding.
gpd = gallons per day
gsf = gross square feet

The 1991 EIR concluded that EBMUD has adequate capacity to accommodate increased wastewater generated by the current DA. Since the project would result in a net reduction of wastewater generated compared to buildout under the current DA, impacts related to wastewater capacity would not be more severe than those analyzed in the 1991 EIR. In addition, the 0.19 mgd of wastewater generated under buildout of the amended DA would account for 0.17 percent of the MWWTP's current remaining secondary capacity. The plant's existing wastewater treatment capacity would be sufficient to accommodate the anticipated development under the proposed DA Amendment. Therefore, the project would not result in the need to expand the capacity of the MWWTP or exceed the wastewater treatment requirements of the San Francisco RWQCB. Impacts related to wastewater treatment capacity would be less than significant.

## Wastewater Conveyance

New development under the amended DA would generate wastewater that would be conveyed by privately owned upper laterals, City-owned lower laterals and sewer mains, and EBMUD's interceptor lines. As shown in Table 4.8-2, it is estimated that the buildout under the amended DA would generate 0.19 mgd of flow in this wastewater conveyance system, which would represent a net reduction of 0.03 mgd of flow compared to buildout under the current entitlement. Given this reduction, the proposed project's impacts on the

existing wastewater conveyance system in the area would be similar to and slightly less than impacts under baseline conditions (buildout under existing entitlement).

While it is not anticipated that significant changes to the existing wastewater infrastructure would be needed within the project site, prior to approval of building permits, if the Public Works Department determines it is necessary, the applicant would be required to provide a sewer capacity analysis to show that the project's sewer demand would not exceed the capacity of the City's sewer mains. This is a standard requirement for new proposed projects that are anticipated to impact existing sewer infrastructure capacity. If the demand would exceed capacity, the applicant would be required to upgrade existing capacity of sewer mains in the street. In addition, the project would also be required to comply with the City of Berkeley's current Private Sewer Lateral (PSL) Ordinance (BMC Chapter 17.24). The PSL Ordinance is consistent with the requirements of EBMUD's Regional Private Sewer Lateral Ordinance and includes regulations for the inspection, testing, repair, replacement, and ongoing maintenance of private sewer laterals. Under the PSL Ordinance, the project applicant would be required to upgrade or verify the condition of private sewer laterals within the project site before approval of project building permits. The Ordinance would also require that the project eliminate wet-weather infiltration and inflow to avoid impacts related to significant increases in wastewater flow during storms.

As described in Section 4.4, *Hazards and Hazardous Materials*, hazardous material disposal under the amended DA would follow a similar protocol as under existing entitlements. Under the existing DA, Bayer has a permit to discharge industrial wastewaters with EBMUD and complies with all permit conditions, including conditions that apply to laboratory wastes. Bayer would continue to be required to comply with the permit conditions under the amended DA, and all liquid and solid chemical and medical wastes would continue to be shipped offsite for treatment and disposal.

Given required compliance with existing regulations, including BMC Chapter 17.24, the project would result in less than significant impacts related to wastewater conveyance systems. Therefore, impacts would be less than significant.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

| | |
|---|---|
| **Threshold 1:** | Would the project require or result in the relocation or construction of new or expanded water treatment facilities, the construction of which or relocation of which could cause significant environmental effects? |
| **Threshold 2:** | Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? |

**Impact UTL-2 BUILDOUT UNDER THE PROPOSED AMENDED DA WOULD DEMAND ROUGHLY THE SAME AMOUNT OF WATER AS THE EXISTING USES WITHIN THE PROJECT SITE. EXISTING AND PROJECTED WATER SUPPLY WOULD BE ADEQUATE TO SERVE THE PROPOSED PROJECT, WITH IMPLEMENTATION OF DEMAND MANAGEMENT MEASURES REQUIRED BY EBMUD. IMPACTS RELATED TO WATER SUPPLY AND WATER INFRASTRUCTURE WOULD BE LESS THAN SIGNIFICANT.**

## Water Conveyance

Table 4.8-3 below shows expected water demand within the project site under the proposed DA Amendment. Operation of the existing uses within the project site currently demands 63 million gallons of water per year, or 172,602 gallons per day. According to the Greenhouse Gas Emissions Technical Report prepared for the project, water demand under buildout of the proposed DA is expected to be roughly the same as existing demand within the project site (Ramboll 2021, Appendix E).

**Table 4.8-3 Existing and Proposed Water Demand**

| Land Use | Indoor Water Use (million gallons/year) | Outdoor Water Use (million gallons/year) | Total (million gallons/year) |
|---|---|---|---|
| Manufacturing Labs | 0.1 | 1.4 | 1.5 |
| Production (B60) | 24 | 2.7 | 26.7 |
| Production (B66) | 2.2 | 0.88 | 3.08 |
| Production (B81) | 7.0 | 1.2 | 8.2 |
| Rest of Facility | 4.7 | 19 | 23.7 |
| **Total** | **38** | **25** | **63** |

Source: Ramboll 2021 (Appendix E)

As described in Section 2, *Project Description*, buildout under the amended DA would result in a net reduction of building floor area compared to allowed buildout under the existing entitlement (baseline conditions), including a net reduction in allowed laboratory, warehouse, utility, and maintenance space. Therefore, water demand under the amended DA is expected to also be less than water demand under baseline conditions. Given that water demand would not increase under the amended DA, the existing water conveyance system that serves the City of Berkeley, including the project site, would adequately serve the site through the project's horizon year (2052). As with any new construction, local conveyance infrastructure would be upgraded as necessary during implementation of the amended DA to serve new and expanded buildings. The precise sizing of new water pipes would be determined at the time of installation and would be subject to the approval of the City to ensure that the system would be adequate. Construction of pipes would occur within developed areas, such as street corridors, that already contain underground infrastructure for utilities and would be subject to review by the City's Public Works department. Impacts related to these changes would be less than significant due to the already developed nature

of existing water conveyance corridors and because the buildout under the proposed amended DA would not increase water demand.

## Water Supply

EBMUD's 2015 UWMP provides a more current estimate of current and projected water usage and supply than the analysis in the 1991 EIR. Therefore, the UWMP can be used to evaluate water supply impacts of the proposed project based on current conditions. Table 4.8-4 provides information from the 2015 UWMP, including a summary of EBMUD's overall water demand and supply projections, in five-year increments, for a 25-year planning horizon with consideration to varying climatic (drought) scenarios. As shown in Table 4.8-4, EBMUD anticipates having an adequate water supply to meet demand in its service area, except during the third year of a multi-year drought starting around 2025 or later. During multi-year drought, EBMUD may require substantial reductions in water use by customers and, as discussed below, may also need to acquire supplemental supplies to meet demand (EBMUD 2015).

EBMUD's system storage generally allows EBMUD to continue serving its customers during dry-year events. EBMUD typically imposes water use restrictions based on the projected storage available at the end of September and, based on recent changes to its Demand Management Plan (DMP) Guidelines, may also implement water restrictions in response to a State of California mandate. By imposing water restrictions in the first dry year of potential drought periods, EBMUD attempts to minimize water use restrictions in subsequent years if a drought persists. Throughout dry periods, EBMUD must continue to meet its current and subsequent-year fishery flow release requirements and obligations to downstream agencies.

The UMWP 2015 includes DMP Guidelines that establish the level of water use restrictions EBMUD may implement under varying conditions. Under DMP Guidelines, water use restrictions may be determined based upon either projected end-of-September Total System Storage (TSS) or water use restriction mandates from the SWRCB. When State-mandated water use restrictions exceed the reductions that would otherwise be called for based upon end-of-September TSS, EBMUD's water use reduction requirements may be guided by the applicable State mandates. Under either scenario, while EBMUD strives to keep water use reductions at or below 15 percent, if the drought is severe, mandatory water use reductions could exceed 15 percent. Buildout under the amended DA would be subject to the same drought restrictions that apply to all EBMUD customers.

EBMUD is also developing the Bayside Groundwater Project to provide a source of supplemental supply in dry years. Other potential supplemental water projects include northern California water transfers and the expansion of Contra Costa Water District's Los Vaqueros Reservoir to meet the projected long-term water supplemental need during multi-year drought periods. The Los Vaqueros Reservoir, located in Contra Costa County to the northwest of Altamont Pass, is surrounded by natural open space in the Los Vaqueros watershed (Contra Costa Water District 2018). Currently, the U.S. Bureau of Reclamation and the Contra Costa Water District are studying the feasibility of expanding the reservoir's storage capacity from 160,000 acre-feet to 275,000 acre-feet (U.S. Bureau of Reclamation et. al 2017). Future reservoir expansion to increase water supply reliability for providers in the San Francisco Bay Area, including the project site, would not result in additional environmental impacts than analyzed in this EIS/EIR.

**Table 4.8-4 Preliminary EBMUD Baseline Supply and Demand Analysis**

| | 2015 | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|---|
| **Normal Year** | | | | | | |
| Mokelumne System | >190 | >217 | >218 | >222 | >229 | >230 |
| **Demand Totals** | **190** | **217** | **218** | **222** | **229** | **230** |
| Difference | 0 | 0 | 0 | 0 | 0 | 0 |
| **Single Dry Year or First Year of Multi-Year Drought** | | | | | | |
| Mokelumne System | 145 | 169 | 170 | 173 | 179 | 179 |
| CVP Supplies[2] | 36 | 35 | 35 | 35 | 35 | 35 |
| Bayside[3] | 0 | 0 | 0 | 0 | 0 | 0 |
| **Supply Totals** | **181** | **204** | **205** | **209** | **214** | **215** |
| Planning Level Demand[1] | 190 | 217 | 218 | 222 | 229 | 230 |
| Rationing[4] | 5% | 6% | 6% | 6% | 7% | 7% |
| **Demand Totals** | **180** | **203** | **204** | **208** | **213** | **214** |
| Need for Water (TAF) [5] | 0 | 0 | 0 | 0 | 0 | 0 |
| **Second Year of Multi-Year Drought** | | | | | | |
| Mokelumne System | 81 | 103 | 103 | 107 | 112 | 113 |
| CVP Supplies[2] | 71 | 71 | 71 | 71 | 71 | 71 |
| Bayside[3] | 0 | 0 | 0 | 0 | 0 | 0 |
| **Supply Totals** | **152** | **174** | **174** | **178** | **183** | **184** |
| Planning Level Demand[1] | 190 | 217 | 218 | 222 | 229 | 230 |
| Rationing[4] | 20% | 20% | 20% | 20% | 20% | 20% |
| **Demand Totals** | **152** | **174** | **175** | **178** | **184** | **185** |
| Need for Water (TAF) [5] | 0 | 0 | 0 | 0 | 0 | 0 |
| **Third Year of Multi-Year Drought** | | | | | | |
| Mokelumne System | 111 | 132 | 132 | 125 | 120 | 104 |
| CVP Supplies[2] | 40 | 40 | 40 | 40 | 40 | 40 |
| Bayside[3] | 1 | 1 | 1 | 1 | 1 | 1 |
| **Supply Totals** | **152** | **174** | **173** | **166** | **162** | **145** |
| Planning Level Demand[1] | 190 | 217 | 218 | 222 | 229 | 230 |
| Rationing[4] | 20% | 20% | 20% | 20% | 20% | 20% |
| **Demand Totals** | **152** | **174** | **174** | **178** | **183** | **184** |
| Need for Water (TAF) [5] | 0 | 0 | 2 | 13 | 24 | 48 |

[1] Planning Level Demand accounts for projected savings from water recycling and conservation programs as discussed in the 2015 UWMP, Chapters 6 and 7, respectively. Customer demand values are based on the Mid Cycle Demand Assessment, October 2014.

[2] Projected available CVP supplies are taken according to the Drought Management Program Guidelines discussed in Chapter 3.

[3] For the purposes of this modeling effort, it is assumed that the Bayside Groundwater Project would be brought online in the third year of a drought.

[4] Rationing reduction goals are determined according to projected system storage levels in the Drought Management Program Guidelines discussed in the 2015 UWMP, Chapter 3.

[5] Need for Water includes unmet customer demand as well as shortages on the Lower Mokelumne River.

Source: EBMUD 2015

Despite the UWMP's findings that deficits are projected for multi-year droughts, compliance with the water conservation regulations and policies would help to maintain sufficient supplies in Berkeley, including the project site.

The UWMP shows that there is sufficient water supply to serve its overall service area demand, with demand management during multi-year drought conditions. In that event, people in Berkeley and other EBMUD customers would be subject to a Demand Management Plan and other water conservation requirements that will address shortages in supply. Based on the substantial evidence discussed above, there are sufficient water supplies available to serve the development facilitated by the proposed DA Amendment. Given anticipated water demand generated by the project and compliance with existing regulations, including water restriction measures implemented by EBMUD when needed, the project would result in less than significant impacts related to systems.

Overall, the proposed amended DA would not require the construction of new or expanded water treatment facilities and sufficient water supplies would be available to serve the project. Impacts would be less than significant.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

| | |
|---|---|
| **Threshold 4:** | Would development facilitated by the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? |
| **Threshold 5:** | Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? |

**Impact UTL-3 BUILDOUT UNDER THE PROPOSED AMENDED DA WOULD GENERATE A NET INCREASE OF APPROXIMATELY 198 TONS OF SOLID WASTE PER YEAR COMPARED TO BASELINE CONDITIONS. THE PROJECT WOULD BE SUBJECT TO FEDERAL, STATE, AND LOCAL REGULATIONS AND POLICIES RELATED TO REDUCTION OF SOLID WASTE. IMPACTS RELATED TO SOLID WASTE WOULD BE LESS THAN SIGNIFICANT.**

Buildout under the proposed DA amendment would result in additional employees within the project site compared to buildout under current entitlements, which would increase the amount of solid waste generated within the project site. As shown in Table 4.8-5, prior to implementation of recycling programs or State-mandated diversion requirements, buildout under the proposed DA Amendment at year 30 would generate an estimated 1,740 tons of solid waste per year, a net increase of approximately 94 tons per year compared to buildout under the current entitlement.

**Table 4.8-5 Estimated Solid Waste Generation**

| Land Use | Number of Employees | Solid Waste Generation Rate (ton/employee/year) | Total (tons/year) |
|---|---|---|---|
| Buildout under existing entitlements | 1,892 | 0.87 | 1,646 |
| Buildout under proposed DA Amendment at Year 30 | 2,000 | 0.87 | 1,740 |
| **Net Difference** | **108** | **N/A** | **94** |

Source: Ramboll 2021 (Appendix E)

As discussed in the Solid Waste Setting, the Altamont Landfill is an active landfill that accommodates current solid waste generated in Berkeley. This landfill has a remaining capacity of approximately 65.4 million cubic yards. As shown in Table 4.8-5, with complete buildout under the DA Amendment, it is estimated that the project would generate an additional 94 tons per year, or approximately 68 cubic yards per year of solid waste for disposal at landfills. This amount would equate to 2,015 cubic yards over the 30-year implementation period of the DA Amendment. The total need for waste disposal would represent approximately 0.003 percent of the current total remaining landfill capacity for the Altamont Landfill.

Moreover, continued compliance with applicable regulations listed in the Solid Waste Regulatory Setting would ensure that the development within the site complies with federal, state, and local statutes and regulations related to solid waste and would lead to increased recycling and waste diversion. For instance, the applicant would be required to prepare a Construction Demolition Recycling Plan prior to issuance of a demolition permit. The purpose of the Construction Demolition Recycling Plan is to divert as much debris as possible from the waste stream. In addition, in accordance with California's Integrated Waste Management Act of 1989, cities and counties are required to divert 50 percent of all solid wastes from landfills annually. The City of Berkeley has achieved a solid waste diversion rate of 68 percent, which substantially exceeds this State requirement. Assuming that this diversion rate continues to apply to new development within the project site, development facilitated by the project would generate an additional 30 tons per year of solid waste for disposal at landfills.

As described in Section 4.4, *Hazards and Hazardous Materials*, hazardous material disposal under the amended DA would follow a similar protocol as under existing entitlements. As under existing conditions, no treatment or disposal of hazardous waste would occur within the project site. Liquid and solid chemical and medical wastes, including all waste associated with medical laboratories and research, would continue to be shipped offsite for treatment and disposal. Shipment protocol and containment would be consistent with applicable DTSC regulations. No treatment or disposal of hazardous waste would occur within the project site. Under existing entitlements, the small amounts of radioactive wastes generated onsite are deposited in steel drums and, after the radioactivity of each drum is recorded, each drum is transported for burial at a radioactive waste disposal site outside of California. This protocol would continue under the amended DA, and operations within the site are not expected to generate a substantial increase of radioactive waste. In addition, as described in Section 4.4, disposal of hazardous waste would be subject to several state and local regulations, including requirements and inspections by DTSC and Berkeley TDM, and DOT requirements, which stipulate the types of containers, labeling, and other restrictions to be used in the movement of such material on interstate highways. Given compliance with existing regulations, anticipated rates of solid waste disposal from development facilitated

by the DA Amendment would result in less than significant impacts related to solid waste disposal facilities.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

| | |
|---|---|
| **Threshold 1:** | Would the project require or result in the relocation or construction of new or expanded electricity, natural gas, or telecommunications facilities, the construction of which or relocation of which could cause significant environmental effects? |

**Impact UTL-4 BUILDOUT UNDER THE PROPOSED AMENDED DA WOULD NOT RESULT IN THE RELOCATION OR CONSTRUCTION OF ELECTRICITY, NATURAL GAS, OR TELECOMMUNICATIONS FACILITIES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

## Telecommunication Facilities

Telecommunication services are already provided throughout the project site under the existing DA. Under the amended DA, such services would be provided by AT&T, SBC Telecom, or other providers, at the discretion of Bayer. Telecommunications are generally available within and near the project site, and facility upgrades would not likely be necessary. Impacts would be less than significant.

## Electricity and Natural Gas

Construction activities operation under the amended DA would require long-term consumption of energy in the form of electricity, natural gas, gasoline, and diesel fuel. Electricity would be used as the primary power source for the proposed buildings, including to operate the heating, ventilation, and air conditioning (HVAC) equipment. The project would also be subject to the adopted amendments to the 2019 California Energy Code in BMC Chapter 19.36, which extend solar PV requirements to nonresidential buildings. In addition, water use for buildings would require the consumption of electricity to supply and distribute potable water to the buildings and to treat wastewater generated at the buildings. Natural gas use for the buildings would primarily be associated with space and water heating. Moreover, consistent with current operations under the existing DA, the manufacturing buildings would require steam from natural gas-fired boilers at the site. Under the amended DA, there would be no changes to the site's electric or gas infrastructure, with the exception that electrical transmission feeder lines might be necessary to install on the South Properties in order to ensure the site has adequate electrical capacity.

As described in Section 6, *Energy,* of the Initial Study (Appendix A to this EIR), Year 10 project operation would require approximately 73 gigawatt hours (GWh) of electricity and Year 30 operation project operation would require approximately 106 GWh of electricity. Compared to the CEQA baseline, the proposed project would result in reduced electricity use for year 10 operation and increased electricity use for Year 30 operation. The net decrease in electricity consumption for the Year 10 Project is mainly the result of decreased square footage for the manufacturing labs, production, and utility spaces as compared to the existing DA. The net increase in electricity consumption for the Year 30 Project as compared to the existing DA is largely due to the conversion of existing administration, production, maintenance, and warehouse buildings to all-electric buildings as required under

BMC Chapter 12.80, which would involve replacement of appliances and other infrastructure currently powered by natural gas with alternatives powered by electricity.

Under full buildout of the proposed DA in Year 30, the project would result in a net increase of 3 GWh of electricity compared to baseline conditions. This increase represents approximately 0.001% of the total 2019 state-wide electricity usage and 0.03% of Alameda County electricity usage. Given this small increase in energy consumption within the site, the Energy Technical Report prepared for the project concludes that the project would not require additional generation capacity beyond the state-wide planned increase to accommodate projected energy demand growth (Ramboll 2021; Appendix A-3 to the initial Study, which is included as Appendix A of this EIR). In addition, the project would incorporate several sustainability principles that would reduce electricity consumption, including installation of energy star appliances in new buildings and installation of solar panels on rooftops. Therefore, the project would not result in the relocation or construction of new or expanded electricity facilities, which could cause significant environmental effects.

In addition, as described in Section 6, *Energy*, of the Initial Study, Year 10 project operation would require approximately 379,217 million metric British thermal units (MMBtu) of natural gas and Year 30 project operation would require approximately 382,164 MMBtu of natural gas. Compared to the CEQA, the proposed project would result increased natural gas use for both Year 10 and Year 30 operation. The net increase in natural gas usage is primarily due to the conservative assumption that an additional natural gas boiler will be installed during the Year 10 Project, which will allow for the expected increase in production capacity and research intensity of the proposed amended DA. Despite the increase in natural gas consumption from boilers, the proposed amended DA would be compliant with the City of Berkeley's natural gas prohibition for all buildings that do not receive an infeasibility exception from the City. Furthermore, natural gas usage may decrease from what is estimated in both the Year 10 Project and Year 30 Project due to future revisions to Title 24 energy standards and installation of even more energy efficient equipment (Appendix A).

Under full buildout of the proposed DA in Year 30, the project would result in a net increase of approximately 113,301 MMBtu per year. The increase in natural gas usage for Year 30 operations is approximately 0.0086% of the total 2019 state-wide natural gas consumption and 0.29% of Alameda County natural gas consumption. The estimated natural gas consumption rate under buildout of the amended DA is not substantial compared to the 2019 countywide consumption and would not cause adverse effects on local and regional energy supplies or require additional transmission capacity beyond the state-wide planned increase in consumption. In addition, as described in the Initial Study, new construction (administration, maintenance, and warehouse buildings) would comply with the Berkeley's natural gas ban (BMC Chapter 12.80) where feasible, which would result in the net decrease in building natural gas usage (non-boiler) for Year 10 Project and Year 30. Therefore, the project would not result in the relocation or construction of new or expanded natural gas facilities, which could cause significant environmental effects. Impacts would be less than significant.

## Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures from the 1991 EIR are not required.

## d. Cumulative Impacts

### Wastewater

Cumulative development in Berkeley will continue to increase demands on the existing wastewater treatment and conveyance facilities. The MWWTP's current capacity is sufficient to serve increased flow anticipated from the project. New wastewater conveyance infrastructure may be necessary to serve cumulative development, including within the project site. However, individual improvements to the sewer system would occur in existing utility corridors in already developed areas. Therefore, the cumulative impact related to wastewater infrastructure would be less than significant, and the development facilitated by the proposed DA Amendment would not considerably contribute to a significant cumulative impact.

### Water

The analysis provided under Impact UTL-2 is cumulative in nature and considers water demand associated with the proposed project, as well as water demands associated with other developments (existing and projected) within EBMUD's service area. EBMUD would provide adequate water to supply the project site through 2052, when the amended DA would expire. The 2015 UMWP also includes DMP Guidelines that establish the level of water use restrictions EBMUD may implement under varying conditions. The proposed project would be subject to the same drought restrictions that apply to all EBMUD customers. In addition, the project and other development in Berkeley would be subject to EBMUD's regulations aimed at encouraging efficient water use, such as Sections 29 and 31 of EBMUD's Regulations Governing Water Service. Section 29, "Prohibiting Wasteful Use of Water," promotes efficient water use by EBMUD customers and includes additional restrictions on wasteful uses of potable water. Section 31, "Water Efficiency Requirements," identifies the types of water efficiency requirements (e.g., maximum flow rates for flow control devices) for water service. Therefore, the cumulative impact related to water supply would be less than significant, and the buildout under the DA Amendment would not considerably contribute to a significant cumulative impact.

### Solid Waste

Cumulative development in Alameda County will continue to increase solid waste generation for disposal at landfills that serve the County. State-mandated solid waste diversion rates (for recycling) would continue to minimize the quantity of waste directed to area landfills, and compliance with applicable regulations and with General Plan goals, policies, and actions would maintain or improve upon existing solid waste diversion rates. It is assumed the City of Berkeley will continue to divert at least 68 percent of annual solid waste from landfills due to its recycling and green waste programs. The active landfill that can accommodate solid waste from Berkeley is expected to close by 2070 and would therefore serve the project site through 2052, when the amended DA would expire. Therefore, cumulative development would not result in the need for construction of additional landfill capacity, resulting in a significant cumulative impact related to solid waste infrastructure. Moreover, as discussed in Impact UTL-3, development facilitated by the DA Amendment would generate a limited amount of solid waste, representing approximately 0.003 percent of the remaining capacity of existing landfills serving Alameda County. This incremental increase in solid waste would not considerably contribute to a significant impact related to solid waste disposal.

## Telecommunication, Electricity, and Natural Gas

Cumulative development in Berkeley will continue to increase demands on the existing telecommunication, electricity, and natural gas facilities. As described under Impact UTL-4 above, existing telecommunication facilities are readily available throughout Berkeley, including near the project site. Under cumulative conditions, facility upgrades would not likely be necessary. In addition, as described in the Initial Study (Appendix A to this EIR), future development would be subject to BMC Chapter 12.80, which prohibits the use of natural gas infrastructure in all new construction (unless the applicant can establish that it is not physically feasible to construct the building without natural gas infrastructure or that its use serves the public interest), and various state and local requirements related to energy use, including CalGreen and BMC Chapter 19.37, which require implementation of green design features such as energy-efficient light fixtures and building materials and electric vehicle (EV) charging stations. Given continued compliance with existing regulations, the cumulative impact related to energy would be less than significant, and the buildout under the DA Amendment would not considerably contribute to a significant cumulative impact.

*This page intentionally left blank.*

# 5 Other CEQA Considerations

This section discusses other issues for which CEQA requires analysis in addition to the specific issue areas discussed in Section 4, *Environmental Impact Analysis*. These additional issues include the proposed project's potential to induce growth and create significant and irreversible impacts on the environment.

## 5.1 Growth Inducement

*CEQA Guidelines* §15126(d) requires a discussion of a proposed project's potential to induce growth, whether by fostering economic or population growth, or by removing an obstacle to growth. Growth does not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant adverse environmental effects. The proposed project's growth-inducing potential would therefore be considered significant if project-induced growth could result in significant physical effects in one or more environmental issue areas.

### 5.1.1 Population Growth and Economic Growth

As discussed in Section 14, *Population and Housing*, of the Initial Study (Appendix A to this Subsequent EIR), buildout under the amended DA would result in a net increase of 108 employees beyond baseline conditions (entitled buildout under the existing DA), or 5.7 percent more employees on the Bayer Campus. Because many of these jobs would be specialized, requiring technical or management expertise, new employees could move to Berkeley, resulting in population growth in the city. Assuming an estimated 21 percent of new employees would seek housing in Berkeley (the rate used in the 1991 EIR, based on an estimate by the City's Office of Economic Development), the projected net increase of 108 employees would result in an increase of 23 households in Berkeley. Based on the current average household size of 2.26 in Berkeley, it is estimated that additional employees and their households would increase the citywide population by approximately 52 people. This population increase would be incremental over the 30-year period of the amended DA through the year 2052. Table 5-1 shows the project's expected contribution to population growth by the year 2040, the latest year for which regional agencies have forecasted populations in Bay Area jurisdictions. This analysis makes the conservative assumption that full buildout of the project and resulting population growth could occur by 2040.

**Table 5-1 Project's Contribution to Projected Population Growth through 2040**

| | Population |
|---|---|
| Net Potential Growth Under Project Relative to Baseline Conditions | 52 |
| Projected Citywide Growth in Berkeley[1] | 18,355 |
| City of Berkeley Total Projected[1] | 140,935 |
| Net Potential Growth Under Project Relative to Total City Population | 0.04% |

[1] Projected citywide growth is derived by subtracting the existing population of 122,580 from the projected population of 140,935 in the year 2040.

Sources: ABAG and MTC 2017; California Department of Finance 2020

As shown in Table 5-1, the estimated population increase of 52 people would not exceed the projected increase of 18,355 in citywide population by the year 2040. In addition, it would represent less than 0.1 percent of total citywide population in 2040. Therefore, the project would not result in an exceedance of projected population growth in Berkeley. Furthermore, the population increase would be added incrementally over the 30-year period of estimated buildout.

This analysis of population growth is conservative because it assumes that full buildout and resulting population growth could occur by 2040, 12 years sooner than the expiration of the amended DA. The project's actual contribution to population growth may be less than estimated in Table 5-1. In addition, the project would not involve the extension of roads or other infrastructure that could indirectly lead to population growth.

### 5.1.2 Removal of Obstacles to Growth

The Bayer Campus is located in a fully urbanized part of Berkeley that is served by existing infrastructure. As discussed in Section 4.8, *Utilities and Service Systems*, existing utility infrastructure in Berkeley would be adequate to serve development under the proposed amendments, with the exception of upgrading local water and wastewater conveyance pipes as necessary in already developed utility corridors. No additional utility infrastructure or facilities beyond those necessary to accommodate new and renovated facilities within the project site would be required. Furthermore, the proposed project would not require construction of new roads. Because the proposed project would facilitate redevelopment within an urbanized area and would not require the extension of new infrastructure through undeveloped areas, it would not remove an obstacle to growth.

## 5.2 Irreversible Environmental Effects

The *CEQA Guidelines* require that EIRs contain a discussion of significant irreversible environmental changes. This section addresses non-renewable resources, the commitment of future generations to the proposed uses, and irreversible impacts associated with the proposed project.

Growth facilitated by the proposed project would require a long-term, irreversible commitment of law enforcement, fire protection, water supply, and wastewater treatment. As discussed in Section 15, *Public Services and Recreation*, of the Initial Study (Appendix A to this Subsequent EIR) and 4.8, *Utilities and Service Systems*, impacts to public services and utilities would be less than significant level given compliance with existing laws and regulations.

The DA amendment would allow for the rearranging of the project site layout through phased demolition of nine existing buildings and construction of new buildings for production, laboratory, and administrative uses. Construction activities under the amended DA would involve the use of non-renewable building materials and energy sources (e.g., fossil fuels). As discussed in Section 6, *Energy*, of the Initial Study (Appendix A to this Subsequent EIR), construction would consume energy resources primarily in the form of fuel to operate heavy equipment, light-duty vehicles, machinery, and generators. Temporary power may also be provided for construction trailers and electric construction equipment. On-site construction would irreversibly increase local demand for non-renewable energy resources such as petroleum and natural gas. In addition to on-site energy use during construction, the off-site production of building materials also may consume non-renewable

energy sources. For instance, the manufacture of steel, cement, glass, and bricks relies on kiln processes that are fossil-fuel intensive (UNCHS 1993).

As discussed in the Initial Study, the operation of the Bayer Campus under the amended DA would also involve the use of non-renewable energy: transportation fuels for vehicle trips by future employees, electricity and natural gas usage for exterior and interior lighting, laboratory equipment and processes, and space and water heating. Operation under maximum buildout of the amended DA would require approximately 489,003 gallons of gasoline and 179,580 gallons of diesel fuel for transportation fuels, 106 gigawatt hours (GWh) of electricity, and 382,164 million British thermal unit (MMBtu) of natural gas. Compared to baseline conditions (buildout under the existing DA), the proposed project would result in reduced transportation fuel use, increased electricity use, and increased natural gas use (Appendix A).

The consumption of non-renewable building materials and energy sources during construction and operation would occur with any development in the region and is not unique to Berkeley or the project site. Moreover, state and federal regulations would offset the increase in demand for non-renewable materials to some degree. As discussed in the Initial Study, construction equipment would be subject to the U.S. EPA Construction Equipment Fuel Efficiency Standard, and vendor and haul trucks would be subject to the CARB Advanced Clean Trucks regulation, both of which would also minimize inefficient, wasteful, or unnecessary fuel consumption. New buildings allowed under the amended DA would also comply with all standards set in the latest iteration of Title 24 of the California Building Code, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources by the built environment during operation**.** California's CALGreen standards (California Code of Regulations, Title 24, Part 11) require implementation of energy-efficient light fixtures and building materials into the design of new construction projects. Furthermore, the 2019 Building Energy Efficiency Standards (California Code of Regulations, Title 24, Part 6) require newly-constructed buildings to meet energy performance standards set by the CEC. These standards are specifically crafted for new buildings to result in energy efficient performance so that the buildings do not result in wasteful, inefficient, or unnecessary consumption of energy. In addition, it is anticipated that State and federal fuel economy standards would progressively require more efficient combustion engines, reducing fuel use by vehicle trips.

In addition, the project's location and design features would reduce energy consumption. For example, under the existing DA, 17 electric vehicle (EV) charging stations are provided for employees, and operation under the amended DA would involve provision of five additional charging stations. Moreover, as described in Section 4.6, *Transportation*, Mitigation Measure T-1 would require Bayer to continue to operate the West Berkeley Shuttle under the amended DA. The shuttle runs from Ashby BART Station to the project site and is currently used by approximately 120 people daily. These features would incentivize the use of public transit, active transportation, and fuel-efficient vehicles for accessing the project site. Therefore, project operation would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy.

As a result of compliance with local, State, and federal regulation, and ready access to transit and fuel-efficient vehicle infrastructure, growth allowed by the proposed project would not significantly affect local or regional energy supplies.

The additional vehicle trips associated with growth through 2040 would incrementally increase local traffic, noise levels, and regional air pollutant emissions. However, as

discussed in Section 4.1, *Air Quality*, the proposed project would be consistent with BAAQMD's 2017 Clean Air Plan and would be subject to Mitigation Measures AQ-1 and AQ-2, which require implementation of construction Best Management Practices and additional measures to reduce emissions. Given compliance with these mitigation measures, impacts related to air quality would be less than significant. As discussed in Section 4.5, *Noise*, the increase in traffic noise from additional vehicle trips would have a less than significant impact on sensitive receptors. As discussed in Section 4.6, *Transportation*, additional vehicle trips under the amended DA would result in a less than significant impact related to VMT. In addition, the project would be subject to Mitigation Measure T-1, which requires continued implementation of a Transportation Demand Management (TDM) Program to reduce single-occupant automobile trips generated by the project site, and would reduce impacts to roadway facilities to a less than significant level. Therefore, the proposed DA amendment would not have significant irreversible environmental effects with mitigation incorporated.

# 6 Alternatives

The *CEQA Guidelines* require that the lead agency identify and evaluate a reasonable range of alternatives intended to reduce the significant environmental impacts of a proposed project while still satisfying most of the basic project objectives. The *CEQA Guidelines* also set forth the intent and extent of alternatives analysis to be provided in an EIR. The *CEQA Guidelines* also require that EIRs evaluate a "no project" alternative" to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project" (*CEQA Guidelines* §15126.6(e)).

The following discussion evaluates alternatives to the proposed amended DA and examines the potential environmental impacts associated with each alternative. Through comparison of these alternatives to the proposed project, the relative environmental advantages and disadvantages of each are weighed and analyzed. The *CEQA Guidelines* require the range of alternatives addressed in an EIR to be governed by a rule of reason. Not every conceivable alternative must be addressed, nor do infeasible alternatives need to be considered (*CEQA Guidelines* §15126.6[a]).

Section 15126.6 of the *CEQA Guidelines* states that the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency or other plans or regulatory limitations, and jurisdictional boundaries.

Section 15126.6(b) of the *CEQA Guidelines* states that the discussion of alternatives must focus on alternatives capable of either avoiding or substantially lessening any significant environmental effects of the project, even if the alternative would impede, to some degree, the attainment of the project objectives or would be more costly.

The alternatives discussion should not consider alternatives whose implementation is remote or speculative, and the analysis of alternatives need not be presented in the same level of detail as the assessment of the proposed project.

Based on the *CEQA Guidelines*, several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include: (1) the nature of the significant impacts of the proposed project, (2) the ability of alternatives to avoid or lessen the significant impacts associated with the proposed project, (3) the ability of the alternatives to meet the objectives of the proposed project, and (4) the feasibility of the alternatives.

With respect to the "no project" alternative, the *CEQA Guidelines* specify that this alternative should discuss what would be reasonably expected to occur in the foreseeable future if the project were not approved. The *Guidelines* also state that when the project is the revision of an existing land use plan, such as the proposed amended DA, the "no project" alternative should normally be the continuation of the existing plan into the future. Thus, the projected impacts of the proposed new plan would be compared to the impacts that would occur under the existing plan. In this case, the existing DA will expire, so the "no project" condition would be a reversion to the underlying zoning district and its various development standards, land use allowances, and permitting requirements.

The following alternatives are evaluated in this SEIR:

- Alternative 1: No Project / No Construction Alternative
- Alternative 2: No Project / Zoning Conformance Alternative
- Alternative 3: Reduced Parking Alternative

As demonstrated in Chapter 4, *Environmental Impacts*, of this SEIR, the proposed amended DA would not result in significant and unavoidable adverse environmental impacts. All of the proposed project's impacts can either be mitigated to a less-than-significant level or would be less than significant. Therefore, other alternatives are not necessary to reduce or avoid significant impacts.

As indicated above, project alternatives other than the "no project" alternative should feasibly be able to attain "most of the basic objectives of the project" (*CEQA Guidelines* §15126.6[a]), even though implementation of the project alternatives might, to some degree, impede the attainment of those objectives or be more costly (*CEQA Guidelines* §15126.6[b]). The following are the project objectives as described in Section 2, *Project Description*.

- Maximize Bayer's ability to attract and retain top talent and partners by ensuring that the Berkeley campus facilities are at the forefront of scientific innovation, and that the campus' physical configuration and design support this goal and facilitate and enhance the site's existing and future ability to support the biotech development and manufacture of medicines that improve patient outcomes.
- Promote health of employees through wellness features, such as open green space, pedestrian and bicycle circulation, and other amenities, and create a unified campus with consistent design principles that creates a sense of place within the campus and that integrates with the surrounding community.
- Maximize the productive utilization of the land areas and current buildings to take new treatments through biotech development and manufacturing, with a priority on commercializing new therapies using new and innovative technologies, and ensure that (1) there is sufficient biotech development space to develop advanced therapies that are tailored to individual patients, with development proceeding at a rate that maximizes the ability to deliver successful therapies to patients in a timely manner; (2) there is sufficient biological research and manufacturing capacity to support the production of sufficient quantities of medicine through the numerous phases of clinical trials that are required to prove safety, purity, and efficacy for human use; (3) there is sufficient space to scale up proven medicines for commercial lunch in quantities sufficient to meet worldwide demand; (4) the development plan retains flexibility to take advantage of unforeseen opportunities and challenges; and (5) there is an efficient site configuration that maximizes open space needs and other amenities benefiting employees and the community.

## 6.1 Alternatives Considered but Rejected

Two other options for alternatives were proposed during development of the project and the SEIR scoping period. These additional options and why they were considered but rejected are described in more detail below.

- **Reduced Manufacturing or Production Alternative.** An alternative that was considered involved reducing the proposed amount of manufacturing or production on the Bayer Campus. However, this alternative was rejected as infeasible as it would not be consistent with the project objectives to provide manufacturing capacity to support

the production of sufficient quantities of medicine that are required to prove safety, purity, and efficacy for human use.

- **Reduced Visual Impacts Alternative.** The 1991 EIR included an alternative to reduce visual impacts and maintain view corridors by reducing building heights, increasing space between buildings, and reducing the number of buildings to be constructed. As discussed in the Initial Study, Appendix A of this SEIR, scenic vistas from gateways, key streets, scenic corridors, and scenic routes would not be substantially obstructed or degraded as a result of the implementation of the project compared to baseline (potential buildout under the existing DA) conditions. Therefore, because no significant aesthetic impacts were identified, such an alternative was considered but rejected.

## 6.2 Alternative 1: No Project/No Construction

### 6.2.1 Description

The No Project/No Construction Alternative assumes that upon the existing DA's expiration in February 2022 the proposed amended DA would not be adopted and there would be no change to the existing configuration of the Bayer Campus. The total floor area of existing buildings is approximately 1,087,000 square feet, including 567,000 square feet on the North Properties and 520,000 square feet on the South Properties. Existing development on the project site accommodates six land uses: production, laboratories, warehouses, administration, utilities, and maintenance. Eight surface parking lots with a total of approximately 1,082 spaces are dispersed around the project site.

### 6.2.2 Impact Analysis

This No Project Alternative would involve no extension or modification to the terms of the existing DA and would involve no construction. In addition, the regulatory framework and vision set forth in the amended DA would not be implemented. Because this alternative would not involve construction, overall impacts with respect to air quality, cultural resources, GHG emissions, energy, hazards and hazardous materials, noise, transportation, or utilities and service systems may be reduced under this alternative and new mitigation measures specified in this SEIR would not be required. However, this alternative would maintain existing buildings and mechanical equipment on the Bayer Campus that are less energy-efficient than planned facilities under the proposed project; new development would be required to comply with current State and local regulations for energy efficiency and reduced GHG emissions, such as green building practices in CALGreen, and electric vehicle charging infrastructure. In addition, because no unavoidably significant impacts were identified in this SEIR, this alternative would not avoid a potentially significant impact.

This alternative would not meet any of the three project objectives: 1) to enhance the campus configuration to support the biotech development and manufacture of medicines that improve patient outcomes; 2) to promote the health of employees through improvements to open space, pedestrian and bicycle configuration, and other amenities; and, 3) to maximize the productive utilization of the land areas and current buildings to take new treatments through biotech development and manufacturing.

# 6.3 Alternative 2: No Project/Zoning Conformance

## 6.3.1 Description

The No Project/Zoning Conformance Alternative assumes that the proposed amended DA is not approved, in which case the existing DA would expire in February 2022 while the Use Permit for the South Properties would remain in effect. Upon expiration of the DA, future development on the Bayer Campus would be required to conform to applicable standards in the Berkeley Municipal Code for underlying zoning on the project site. The main body of the project site to the west of Seventh Street would be subject to Mixed Manufacturing (MM) zoning standards, while the remainder of the site to the east of Seventh Street would be subject to Mixed Use-Light Industrial (MU-LI) zoning standards. Table 6-1 summarizes the differences in buildout characteristics between the proposed project and the No Project/Zoning Conformance Alternative, with respect to permitted uses, site layout, building height limits, buildout projections, demolition and construction of buildings, parking standards, open space, mechanical equipment, and sustainability features.

**Table 6-1 Comparison of Proposed Project to No Project/Zoning Conformance Alternative**

| Feature | Proposed Project | Alternative 2: No Project/Zoning Conformance |
|---|---|---|
| Permitted Uses | Production, laboratories, warehouse, administration, utilities, maintenance, parking | MM zone: pharmaceuticals; light manufacturing; primary production manufacturing; warehouses; laboratories, testing, and commercial biological research; research and development; parking lots<br>MU-LI zone: pharmaceuticals; light manufacturing; warehouses; laboratories, commercial, physical, or biological; research and development; parking lots |
| Site Layout | Reorganized as shown in Figure 2-9 in Section 2, *Project Description* | Maintained as shown in Figure 2-8 in Section 2, *Project Description* |
| Development standards | Revised as shown in Figure 2-7 in Section 2, *Project Description* | Consistent with City Zoning Ordinance in the MM zone for the North Properties; same as under current Use Permit and MM zone for the South Properties; consistent with MU-LI zone for the parking lot at Dwight Way and Seventh Street |
| Building Height Limits | Up to 80 feet | 45 feet[1] |
| Buildout | 1,738,000 sf over 30 years | Existing development (1,087,000 sf) plus future intermittent development consistent with zoning standards |
| Demolition | 9 buildings | Intermittent as needed with use permits |
| New Construction | 16 new buildings, 2 new parking structures | Intermittent as needed with use permits |
| Parking Standards | Production: 1 space per 1,000 sf<br>Laboratories: 1 space per 1,000 sf<br>Warehouse: 1 space per 5,000 sf<br>Administration: 2 spaces per 1,000 sf<br>Utilities: 1 space per 5,000 sf<br>Maintenance: 1 space per 5,000 sf | MM zone:<br>▪ Manufacturing uses, storage, warehousing: 1 space per 1,000 sf for spaces of less than 10,000 sf; 1 space per 1,500 sf for spaces of 10,000 sf or more<br>▪ Other non-residential uses: 2 spaces per 1,000 sf |

| Feature | Proposed Project | Alternative 2: No Project/Zoning Conformance |
|---|---|---|
| | | MU-LI zone:<br>▪ Laboratories: 1 space per 650 sf<br>▪ Manufacturing, storage, warehousing uses: 1 space per 1,000 sf of floor area for spaces of less than 10,000 sf; 1 space per 1,500 sf for spaces of 10,000 sf or more<br>▪ Other non-residential uses: 2 spaces per 1,000 sf |
| Sustainability Features | As shown in Table 2-6 in Section 2, *Project Description* (trip reduction program, 100 percent purchase of electricity from renewable sources by 2030, install solar panels on parking areas or rooftops, Energy Star appliances, etc.) | No new sustainability features would necessarily be included, but Bayer's 2030 Sustainability Targets would continue to guide future development and development would be required to comply with existing City and state sustainability requirements |

[1]. Some existing buildings on the Bayer Campus would not conform to the local height limit of 45 feet but would be grandfathered in.

sf = square feet; MM = Mixed Manufacturing zone; MU-LI = Mixed Use-Light Industrial zone

As shown in the table above, compliance of future development with the height limit of 45 feet in the MM and MU-LI zoning districts would reduce potential buildout at the Bayer Campus. Buildout under the No Project/Zoning Conformance Alternative is not specifically analyzed here but would depend on the size of individual projects on the Bayer Campus that conform to zoning standards and are approved by the City. This alternative does not specify an exact amount of buildout that could occur because it would depend on the number and size of individual projects that are proposed and approved. However, it is likely that, because development would occur intermittently as reviewed and approved by the City, buildout would be reduced compared to what is analyzed in the SEIR for the proposed amended DA. This analysis assumes that buildout would be further reduced under this alternative and that future discretionary projects on the Bayer Campus would be required to undergo CEQA analysis on a project-by project or Master Use Permit basis when proposed.

By reducing overall buildout, maintaining the existing layout of the Bayer Campus, and not adding open space, the No Project/Zoning Conformance Alternative would not fully achieve project objectives to configure and design facilities to attract talent and partners; to promote employee wellness through open green space and pedestrian and bicycle circulation; and to maximize the productive utilization of the site. Further, the lower height limit and discretionary review process could also interfere with achieving the business goals of speedy deployment and flexible development.

## 6.3.2 Impact Analysis

### a. Air Quality

The No Project/Zoning Conformance Alternative would not include additional proposed sustainability features which would reduce air pollutant emissions as described in Section 2, *Project Description*. However, the lower height limits under this alternative would substantially reduce overall buildout of the Bayer Campus, resulting in fewer vehicle trips and mobile emissions than would the proposed project. This would be consistent with a key goal in the Bay Area Air Quality Management District's (BAAQMD) 2017 Clean Air Plan to reduce greenhouse gas (GHG) emissions. Buildout under this alternative also would not preclude planned transit or bike pathways and would not otherwise disrupt regional planning

efforts to reduce vehicle miles traveled (VMT) and meet air quality standards. Therefore, this alternative would have a less than significant impact related to consistency with air quality plans, the same as under the proposed project.

Because of reduced buildout, this alternative could involve less construction activity on the Bayer Campus and less overall emissions of criteria air pollutants during construction. Future discretionary projects on the Bayer Campus, when proposed, would be required to undergo CEQA analysis, including an analysis of air quality impacts. Similar to the proposed project, mitigation may be required to ensure compliance with the BAAQMD's current recommended basic control measures and the use of Tier 4 Final engines in construction equipment. The impact from construction emissions would remain less than significant with mitigation incorporated.

The No Project/Zoning Conformance Alternative would not necessarily include the proposed sustainability feature of installing infrastructure to electrify landscaping equipment. As a result, operation of this alternative could generate higher area-source emissions from the continued use of gas-powered landscaping equipment. As noted above, this alternative also would not include the proposed trip reduction program, or encouragement of telecommuting and alternative work schedules, features which would reduce mobile operational emissions. However, the assumed reduction in buildout under this alternative would result in fewer vehicle trips and associated mobile emissions relative to the proposed project. Therefore, similar to the proposed project, operational emissions would not exceed the BAAQMD's significance thresholds. This impact would remain less than significant.

Due to the reduction in construction emissions, this alternative also would result in lower overall emissions of toxic air contaminants (TACs) during construction. In addition, while the proposed project would add three proposed emergency generators to the Bayer Campus, this alternative would not necessarily involve the addition of emergency generators. The reduction in emergency generators and trip generation would result in lower TAC emissions during operation. Similar to the proposed project, this alternative would not include uses that generate substantial odorous emissions. Therefore, the impacts related to health risks and odors would remain less than significant.

## b. Cultural Resources

Whereas the proposed project would involve renovation of building B83, a historical resource under CEQA, the No Project/Zoning Conformance Alternative would not directly involve modification of any historical resources. In the future, this alternative would allow for the intermittent demolition or renovation of historical resources, subject to City approval of permits. This analysis assumes that, similar to the proposed project, renovation of building B83 would still be required to meet Bayer's needs. A future discretionary project on the Bayer Campus that involves renovation of building B83 would be required to undergo CEQA analysis, including an analysis of impacts on historical resources. At that time, similar to the proposed project, mitigation measures may be required to identify, avoid, retain, or treat historical resources in accordance with pertinent laws and regulations, including the *Secretary of the Interior's Standards*, would also apply to this alternative. The impact on historical resources would remain less than significant with mitigation incorporated.

As discussed in Section 4.2, *Cultural Resources*, the project site and its vicinity are archaeologically sensitive and buried archaeological resources may exist on-site. Similar to the proposed project, future construction under this alternative could disturb buried resources. During CEQA analysis of future discretionary projects involving ground disturbance on the Bayer Campus, mitigation measures may be required to identify and

protect archaeological resources prior to and during construction, and development would be subject to the City's standard conditions of approval related to archaeological resources. Therefore, the impact on archaeological resources would remain less than significant with mitigation incorporated. Similar to the proposed project, ground disturbance could also disturb human burials, but compliance with existing regulations would ensure the protection of human remains. This impact would remain less than significant.

### c. Greenhouse Gas Emissions

As discussed in Section 4.3, *Greenhouse Gas Emissions*, construction-related and operational GHG emissions from buildout of the proposed project would not exceed the locally applicable, project-specific *de minimis* threshold or stationary threshold in comparison with baseline emissions. The proposed project would include a suite of sustainability features that reduce GHG emissions as described in Section 2, *Project Description,* and required through mitigation measures include in this SEIR. By contrast, the No Project/Zoning Conformance Alternative would not necessarily include these sustainability features. However, it is assumed that Bayer would still commit to purchasing 100 percent of electricity from renewable sources by 2030, pursuant to the company's internal 2030 Sustainability Targets. Reduced buildout under this alternative also would result in lower construction-related and operational GHG emissions in comparison to the proposed project. Therefore, similar to the proposed project, GHG emissions generated by this alternative would not exceed applicable thresholds. Future development on the Bayer Campus that conforms to local zoning also would be required to attain the latest iteration of green building practices in CALGreen and the California Energy Code and Reach Code. Therefore, impacts related to GHG emissions would remain less than significant.

### d. Hazards and Hazardous Materials

Similar to the proposed project, this alternative would allow for future construction (consistent with local zoning) that could result in disturbance of unanticipated hazardous materials and wastes during demolition and grading activity. Construction workers on the project site could be exposed to hazardous materials. Future discretionary projects on the Bayer Campus would be required to undergo CEQA analysis, including an analysis of impacts related to hazards and hazardous materials. At that time, similar to the proposed project, mitigation measures may be required to identify potential hazards in soil and groundwater, assess the potential for contaminants, remediate contaminants, and identify and manage potential safety issues during construction. Therefore, this impact would remain less than significant with mitigation incorporated.

Due to the potential reduced buildout under this alternative, operation of the Bayer Campus could involve the use, storage, disposal, and transportation of smaller quantities of hazardous materials relative to the proposed project. However, existing use of biohazards and chemical hazards for pharmaceutical research and production would continue on the project site. Similar to the proposed project, the use of biohazards would continue to adhere to the latest biosafety guidelines adopted by the NIH and the Centers for Disease Control and Prevention (CDC), such as standards for Biosafety in Microbiological and Biomedical Laboratories. In addition, Bayer would still be required to prepare and implement an Illness Prevention Program to provide a safe and healthful workplace under Title 8 of the California Code of Regulations, and to prepare and implement a Business Plan related to hazardous materials and emergency response under the Business Plan Act. Nonetheless, the DA's specialized protocols for the use and storage of hazardous materials would expire. Therefore, as part of CEQA analysis of future discretionary projects involving the use and

storage of hazardous materials on the Bayer Campus, additional mitigation may be required to continue applying these protocols to operations on the Bayer Campus. Similar to the proposed project, mitigation also would apply to ensure that Bayer and the City of Berkeley would be prepared in the event of an accidental release of hazardous chemical materials during project operation. This impact would remain less than significant with mitigation incorporated.

Under the No Project/Zoning Conformance Alternative, the Bayer Campus would still be served by adjacent, designated evacuation routes on Sixth Street and Dwight Way. New construction that conforms to local zoning standards also would be required to comply with all building, fire, and safety codes. Similar to the proposed project, mitigation would apply during CEQA analysis of future discretionary projects, requiring Bayer to coordinate with the City for emergency preparedness. Therefore, the impact related to an adopted emergency response plan or evacuation plan would remain less than significant with mitigation incorporated.

### e. Noise

Although this alternative could involve reduced buildout in comparison to the proposed project, it would still allow for future construction activity on the project site that conforms to local zoning standards. Similar to the proposed project, it is expected that the future demolition of existing buildings and construction of new buildings would require the use of heavy construction equipment, such as scrapers, bulldozers, water trucks, haul trucks, and pickup trucks. As discussed in Section 4.5, *Noise*, construction equipment could generate temporary noise levels exceeding the City's thresholds at sensitive receptors near the Bayer Campus. In fact, because this alternative would not include the proposed prohibition on the use of pile drivers (which generate the highest noise levels during construction) that is proposed as part of the amended DA, it could result in higher noise levels than would the proposed project. During CEQA analysis of future discretionary projects on the Bayer Campus, additional mitigation may be required to avoid the use pile drivers. Similar to the proposed project, mitigation also would apply to this alternative to reduce noise from typical construction equipment. Therefore, the impact from construction noise would remain less than significant with mitigation incorporated.

If buildout is reduced, the No Project/Zoning Conformance Alternative would generate fewer vehicle trips than would the proposed project, resulting in a smaller effect on traffic noise. Similar to the proposed project, no perceptible increase in traffic noise would occur. This alternative also could reduce on-site operational noise. Whereas the proposed project includes three new emergency generators and one new boiler, this alternative would not necessarily include the installation of new mechanical equipment. Bayer could still add such equipment in the future in conformance with local zoning, but it may not be needed due to potentially reduced buildout. The noise impact from stationary equipment would be reduced but would remain less than significant. New parking structures, if permitted under local zoning, also would generate noise. However, as discussed in Section 4.5, *Noise*, parking lot noise would not exceed the City's most restrictive exterior noise limit at residential land uses. Therefore, the impact from parking lot noise would remain less than significant.

In general, reduced buildout under this alternative could result in less use of vibration-generating construction equipment on the project site. Nevertheless, the proposed prohibition on the use of pile drivers that is part of the amended DA would not apply to this alternative. If pile drivers are used in individual construction projects that conform to local zoning standards, they would generate stronger vibration levels than anticipated. As discussed in Section 4.5, *Noise*, the heaviest construction equipment could operate as close

as 60 feet from the nearest offsite land use. At this distance, an impact pile driver would generate vibration levels estimated at 0.248 PPV (Caltrans 2013). This would exceed the threshold of 0.2 inch per second PPV for potential damage. Therefore, during CEQA analysis of future discretionary projects on the Bayer Campus, additional mitigation may be required to prohibit or restrict the use of pile drivers. This impact would be greater than for the proposed project before mitigation, but would remain less than significant with mitigation incorporated.

### f. Transportation and Traffic

By potentially reducing buildout of the Bayer Campus, this alternative could result in fewer vehicle trips than would the proposed project. However, similar to the proposed project, this alternative could still conflict with General Plan and West Berkeley Plan policies that encourage vehicle trip reduction and increased transit use, unless Bayer continues to implement its Transportation Demand Management (TDM) Program. Similar to the proposed project, during CEQA analysis of future discretionary projects on the Bayer Campus, mitigation may be required for Bayer to continue to implement and update the TDM Program. The impact related to conflicts with policies addressing roadway facilities would remain less than significant with mitigation incorporated.

Similar to the proposed project, new development on the project site under the No Project/Zoning Conformance Alternative would be located in a Low VMT Area and would be similar to existing uses on the Bayer Campus. Projects that are located in a Low VMT Area and that have characteristics similar to other uses already located in those areas can be presumed to generate VMT at similar rates. Therefore, the impact related to VMT would remain less than significant. This alternative also would not introduce design features or incompatible uses that could increase traffic hazards. Similar to the proposed project, future roadway modifications would be limited to new driveways and enhancements to pedestrian facilities. The impact related to traffic hazards would remain less than significant.

Under both the proposed project and this alternative, Bayer would continue to operate its own emergency vehicles and equipment to respond to most emergency needs within the project site. Bayer's emergency response team would continue to be supplemented by outside emergency response personnel, including the City of Berkeley's Fire Department, when necessary. No major modifications to the roadway network outside the project site that would affect emergency vehicle access would occur. Therefore, the impact on emergency access would remain less than significant.

### g. Tribal Cultural Resources

Similar to the proposed project, it is possible that ground disturbance under this alternative would encounter tribal cultural resources that may later be recommended as tribal cultural resources by tribal organizations. During CEQA analysis of future discretionary projects involving ground disturbance on the Bayer Campus, mitigation may still be required to identify, avoid, and retain potential tribal cultural resources. Impacts related to tribal cultural resources would remain less than significant with mitigation incorporated.

### h. Utilities and Service Systems

By potentially reducing buildout relative to the proposed project, this alternative would result in less water use, wastewater generation, and solid waste. Therefore, the impacts related to water supplies, wastewater facilities, and solid waste would be reduced but would remain less than significant. Similar to the proposed project, buildout of this alternative would not

result in the relocation or construction of electricity, natural gas, or telecommunication facilities. Therefore, the impact related to relocating or constructing such facilities would remain less than significant.

# 6.4 Alternative 3: Reduced Parking

## 6.4.1 Description

The Reduced Parking Alternative assumes that the parking structure planned on the property between Dwight Way, Seventh Street, Parker Street, and Eighth Street would not be constructed. This alternative was analyzed in response to public input that the SEIR should analyze a scenario of providing less parking on the Bayer Campus. As shown in Figure 2-14 in Section 2, *Project Description*, the planned parking structure east of Seventh Street is expected to accommodate 925 of the 1,825 parking spaces contemplated in the proposed project for the whole Bayer Campus. Under this alternative, the property east of Seventh Street would remain a surface parking lot with 250 parking spaces. This alternative would not add more parking spaces than proposed on the rest of the Bayer Campus. As a result, the Bayer Campus would have 675 fewer parking spaces. Except for the proposed parking garage east of Seventh Street, this alternative would allow for the same buildout of program space as compared to the proposed project.

The Reduced Parking Alternative would generally meet all three project objectives, by allowing upgrades to existing facilities, creating a unified campus, and maximizing productive utilization of land. However, by providing fewer parking spaces than planned, this alternative could conflict with the project objective to maximize Bayer's ability to attract and retain top talent and partners.

## 6.4.2 Impact Analysis

### a. Air Quality

The Reduced Parking Alternative would provide 675 fewer parking spaces than would the proposed project, which would lead to fewer new vehicle trips compared to the proposed project. Although some motor vehicle users might find parking in the surrounding neighborhood, others would be encouraged to switch to alternative modes of transportation, such as transit and bicycling. The reduction in vehicle trips would result in lower mobile emissions during operation of the alternative. This would be consistent with a key goal in the BAAQMD's 2017 Clean Air Plan to reduce GHG emissions. Buildout under this alternative also would not preclude planned transit or bike pathways and would not otherwise disrupt regional planning efforts to reduce VMT and meet air quality standards. Therefore, this alternative would have a less than significant impact related to consistency with air quality plans, the same as under the proposed project.

The alternative would not alter the planned buildout of the Bayer Campus, so new construction would result in a similar scale of construction-related emissions. Mitigation measures AQ-1 and AQ-2 would still be required to ensure compliance with the BAAQMD's current recommended basic control measures and the use of Tier 4 Final engines in construction equipment. The impact from construction emissions would remain less than significant with mitigation incorporated.

As discussed above, the Reduced Parking Alternative would not alter the planned buildout of the Bayer Campus, so it would result in a similar level of operational emissions compared

to the proposed project. By providing fewer parking spaces, this alternative would result in fewer vehicle trips and lower mobile emissions because some drivers would be encouraged to switch to other modes of transportation. In addition, similar to the proposed project, Mitigation Measure T-1 would apply to continue implementing and updating the Transportation Demand Management (TDM) Program to reduce single-occupant automobile trips. Operational emissions would not exceed the BAAQMD's significance thresholds. Therefore, this impact would be reduced compared to the proposed project but would remain less than significant.

Relative to the proposed project, the Reduced Parking Alternative would generate a similar amount of TACs during construction. Because this alternative would include the planned emergency generators, it would generate a similar amount of TACs from on-site operational equipment. Lower trip generation would reduce operational TAC emissions from diesel vehicles. Similar to the proposed project, this alternative would not include uses that generate substantial odorous emissions. Therefore, the impacts related to health risks and odors would remain less than significant.

### b. Cultural Resources

Similar to the proposed project, this alternative would involve renovation of building B83, a historical resource under CEQA. Mitigation Measure CR-1 would still be required to evaluate and document the historic significance of structures older than 40 years prior to demolition or alteration. In addition, Mitigation Measure CR-2 would be required so that renovation of historically significant buildings complies with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. The impact on historical resources would remain less than significant with mitigation incorporated.

By retaining the surface parking lot to the east of Seventh Street, this alternative would involve less ground disturbance than proposed. However, as discussed in Section 4.2, *Cultural Resources*, the project site and its vicinity are archaeologically sensitive and buried archaeological resources may exist on-site. Similar to the proposed project, construction under this alternative could disturb buried resources and could disturb them to a greater extent than under the proposed amended DA if additional underground parking is needed to serve employees. Nonetheless, mitigation measures CR-3 through CR-11 would still be required to study, test, avoid, evaluate, recover, and monitor archaeological resources. Therefore, the impact on archaeological resources would remain less than significant with mitigation incorporated. Similar to the proposed project, ground disturbance could disturb human burials, but compliance with existing regulations would ensure the protection of human remains. This impact would remain less than significant.

### c. Greenhouse Gas Emissions

The Reduced Parking Alternative would not alter the planned buildout of the Bayer Campus, so emissions from construction of new facilities would remain similar. As discussed in Section 4.3, *Greenhouse Gas Emissions*, the proposed project would result in a net decrease in GHG emissions compared to baseline conditions. This alternative would further reduce mobile emissions by providing 675 fewer parking spaces, resulting in fewer vehicle trips and more multi-modal trips. Therefore, the alternative would result in a greater net decrease in emissions from the Bayer Campus. Similar to the proposed project, GHG emissions from buildout of the Bayer Campus would not exceed the locally applicable, project-specific *de minimis* threshold or stationary threshold in comparison with baseline emissions. Impacts related to GHG emissions would be reduced but would remain less than significant.

## d. Hazards and Hazardous Materials

Similar to the proposed project, this alternative would allow for construction that could result in disturbance of unanticipated hazardous materials and wastes during demolition and grading activity. Construction workers on the project site could be exposed to hazardous materials. Mitigation measures HAZ-1 through HAZ-4 would still be required to identify potential hazards associated with demolition, grading, and construction; assess the presence of contaminants; involve regulatory agencies as necessary; and identity and manage potential safety issues during construction. Therefore, this impact would remain less than significant with mitigation incorporated.

Because this alternative would not alter the planned buildout of the Bayer Campus, it would involve the use, storage, disposal, and transportation of similar quantities of hazardous materials relative to the proposed project. Similar to the proposed project, the use of biohazards would continue to adhere to the latest biosafety guidelines adopted by the NIH and the CDC. In addition, Bayer would still be required to prepare and implement an Illness Prevention Program to provide a safe and healthful workplace under Title 8 of the California Code of Regulations, and to prepare and implement a Business Plan related to hazardous materials and emergency response under the Business Plan Act. The DA's specialized protocols for the use and storage of hazardous materials also would continue to apply. Mitigation Measure HAZ-5 would still be required to prepare a Hazardous Materials Safety Plan to address potential issues that may be encountered during project operation involving the use, storage, transport, and disposal of biohazardous and chemical materials. This impact would remain less than significant with mitigation incorporated.

Under this alternative, the Bayer Campus would still be served by adjacent, designated evacuation routes on Sixth Street and Dwight Way. New construction that conforms to local zoning standards also would be required to comply with all building, fire, and safety codes. Similar to the proposed project, implementation of Mitigation Measure HAZ-5 would be required so that the project applicant coordinates with the City for emergency preparedness. Therefore, the impact related to an adopted emergency response plan or evacuation plan would remain less than significant with mitigation incorporated.

## e. Noise

Because this alternative would not alter the planned buildout of the Bayer Campus, it would allow for a similar scale of construction activity relative to the proposed project. It is expected that the demolition of existing buildings and construction of new buildings would require the use of heavy construction equipment, such as scrapers, bulldozers, water trucks, haul trucks, and pickup trucks. Similar to the proposed project, this alternative would prohibit the use of pile drivers, which would eliminate the loudest potential noise source during construction. Therefore, overall construction noise would be similar to the proposed project.

Localized noise impacts may be reduced depending on the siting of development. Because this alternative would not include the planned parking structure east of Seventh Street, noise-sensitive residences along Dwight Way would be exposed to less construction noise. However, as discussed in Section 4.5, *Noise*, construction on the Bayer Campus could generate temporary noise levels exceeding the City's thresholds at sensitive receptors near the Bayer Campus. Mitigation Measure N-1 would still be required to minimize construction noise from typical construction equipment to the extent feasible. Therefore, the impact from construction noise would remain less than significant with mitigation incorporated.

By providing 675 fewer parking spaces, this alternative would reduce the number of vehicle trips associated with operation of the Bayer Campus, which would result in a smaller effect

on traffic noise relative to the proposed project. Similar to the proposed project, no perceptible increase in traffic noise would occur. On-site operational noise from emergency generators, boilers, and other sources would remain similar to the proposed project. Therefore, the noise impact from stationary equipment would remain less than significant. This alternative would generate a similar degree of parking lot noise compared to the proposed project. Although it would not include the planned parking structure east of Seventh Street, this site would remain in use as a surface parking lot. As discussed in Section 4.5, *Noise*, parking lot noise would not exceed the City's most restrictive exterior noise limit at residential land uses. Therefore, the impact from parking lot noise would remain less than significant.

The Reduced Parking Alternative would result in similar use of vibration-generating construction equipment relative to the proposed project. The planned prohibition on the use of pile drivers would also apply to this alternative. As discussed in Section 4.5, *Noise*, construction activities associated with implementation of the proposed amended DA would intermittently generate groundborne vibration within and adjacent to the project site. Institutional land uses with sensitive daytime activities could be exposed to vibration levels exceeding FTA guidelines. However, vibration would not exceed standards. Therefore, this impact would remain less than significant.

### f. Transportation and Traffic

By providing 675 fewer parking spaces than planned on the project site, this alternative would result in fewer vehicle trips and greater transit use than would the proposed project. The relative reduction in parking spaces would be consistent with General Plan and West Berkeley Plan policies that encourage vehicle trip reduction and increased transit use. However, similar to the proposed project, Mitigation Measure T-1 would still be required so that the project applicant continues to implement and update the TDM Program. The TDM Program would be even more necessary to accommodate employee travel with fewer parking spaces. The impact related to conflicts with policies addressing roadway facilities would remain less than significant with mitigation incorporated.

Similar to the proposed project, new development on the project site under the Reduced Parking Alternative would be located in a Low VMT Area and would be similar to existing uses on the Bayer Campus. Projects that are located in a Low VMT Area and that have characteristics similar to other uses already located in those areas can be presumed to generate VMT at similar rates. By limiting the on-site supply of parking, this alternative would further reduce vehicle travel. Therefore, the impact related to VMT would be reduced but would remain less than significant. This alternative also would not introduce design features or incompatible uses that could increase traffic hazards. Similar to the proposed project, future roadway modifications would be limited to new driveways and enhancements to pedestrian facilities. The impact related to traffic hazards would remain less than significant.

Under both the proposed project and this alternative, Bayer would continue to operate its own emergency vehicles and equipment to respond to most emergency needs within the project site. Bayer's emergency response team would continue to be supplemented by outside emergency response personnel, including the City of Berkeley's Fire Department, when necessary. No major modifications to the roadway network outside the project site that would affect emergency vehicle access would occur. Therefore, the impact on emergency access would remain less than significant.

### g. Tribal Cultural Resources

By retaining the surface parking lot to the east of Seventh Street instead of converting it to a parking structure, this alternative would involve less ground disturbance than proposed. However, similar to the proposed project, it is possible that ground disturbance under this alternative would encounter tribal cultural resources that may later be recommended as tribal cultural resources by tribal organizations. Mitigation measures TCR-1, TCR-2, and TCR-3 would still apply to identify, avoid, and retain potential tribal cultural resources. Impacts related to tribal cultural resources would remain less than significant with mitigation incorporated.

### h. Utilities and Service Systems

This alternative would not alter the planned buildout of the Bayer Campus, so it would result in similar levels of water use, wastewater generation, and solid waste generation relative to the proposed project. Therefore, the impacts related to water supplies, wastewater facilities, and solid waste would remain less than significant. Similar to the proposed project, buildout of this alternative would not result in the relocation or construction of electricity, natural gas, or telecommunication facilities. Therefore, the impact related to relocating or constructing such facilities would remain less than significant.

## 6.5 Environmentally Superior Alternative

CEQA requires the identification of the environmentally superior alternative among the options studied. When the “No Project” alternative is determined to be environmentally superior, CEQA also requires identification of the environmentally superior alternative among the development options.

Table 6-2 indicates whether each alternative’s environmental impacts are greater, lesser, or similar to those of the proposed project.

The No Project/No Construction Alternative would be environmentally superior because it would involve no new construction on the Bayer Campus. However, because the proposed project would not have significant and unavoidable impacts, this alternative would not avoid any such impacts. Furthermore, it would not fulfill the project objectives to: 1) enhance the campus configuration to support the biotech development and manufacture of medicines that improve patient outcomes; 2) promote the health of employees through improvements to open space, pedestrian and bicycle configuration, and other amenities; and, 3) maximize the productive utilization of the land areas and current buildings to take new treatments through biotech development and manufacturing.

The No Project/Zoning Conformance Alternative would reduce buildout relative to the proposed project, resulting in lower water use, wastewater generation, solid waste generation, and GHG emissions. This would reduce impacts that are already less than significant. However, since the existing DA will expire in 2022, the alternative would not include elements of the DA that were designed to reduce environmental impacts. The DA’s specialized protocols for the use and storage of hazardous materials would expire, but new facilities would still be designed to comply updated regulations and industry standards, including standards set forth by the NIH and the CDC. The planned prohibition on the use of pile drivers in construction also would not be included. Therefore, this alternative would require additional mitigation to avoid new impacts from hazardous materials and noise. The alternative also would not include the planned expansion of on-site open space from three to nine or more acres, so it could increase demand for offsite parkland. On the whole, the

alternative would not be environmentally superior to the proposed project. It would also not fully achieve the project objectives due to reduced buildout.

The Reduced Parking Alternative would result in fewer vehicle trips, which would reduce the proposed project's impacts related to air quality, GHG emissions, noise, and transportation. These impacts would remain less than significant with mitigation incorporated. This alternative would be environmentally superior to the proposed project. Nonetheless, because the proposed project would not have any significant and unavoidable impacts, the alternative would not avoid such impacts. While the alternative would largely meet the project objectives, the limited parking supply despite maintaining planned buildout could conflict with the objective to maximize Bayer's ability to attract and retain top talent and partners.

**Table 6-2 Comparison of Alternatives**

| Issue | Proposed Project Impact Classification* | Alternative 1: No Project/No Construction | Alternative 2: No Project/Zoning Conformance | Alternative 3: Reduced Parking |
|---|---|---|---|---|
| Air Quality | Less than Significant with Mitigation Incorporated | + (Less than Significant) | = (Less than Significant with Mitigation Incorporated) | +/= (Less than Significant with Mitigation Incorporated) |
| Cultural Resources | Less than Significant with Mitigation Incorporated | + (Less than Significant) | = (Less than Significant with Mitigation Incorporated) | = (Less than Significant with Mitigation Incorporated) |
| Greenhouse Gas Emissions | Less than Significant | + (Less than Significant) | = (Less than Significant) | +/= (Less than Significant) |
| Hazards and Hazardous Materials | Less than Significant with Mitigation Incorporated | + (Less than Significant) | -/= (Less than Significant with Mitigation Incorporated) | = (Less than Significant with Mitigation Incorporated) |
| Noise | Less than Significant with Mitigation Incorporated | + (Less than Significant) | -/= (Less than Significant with Mitigation Incorporated) | +/= (Less than Significant with Mitigation Incorporated) |
| Transportation and Traffic | Less than Significant with Mitigation Incorporated | + (Less than Significant) | = (Less than Significant with Mitigation Incorporated) | +/= (Less than Significant with Mitigation Incorporated) |
| Tribal Cultural Resources | Less than Significant | + (Less than Significant) | = (Less than Significant) | = (Less than Significant) |
| Utilities and Service Systems | Less than Significant | + (Less than Significant) | +/= (Less than Significant) | = (Less than Significant) |

* Impact classifications are shown for the greatest impact in the issue area (i.e., if both less than significant impacts and significant and unavoidable impacts were identified in the issue area, the table indicates the overall impact in that issue area as significant and unavoidable)

- Impact would be worse compared to the proposed project

+ Impact would be improved compared to the proposed project

= Impact would be the same as the proposed project

*This page intentionally left blank.*

# 7 References

## 7.1 Bibliography

### Executive Summary

No references in this section.

### Section 1, Introduction

No references in this section.

### Section 2, Project Description

Berkeley, City of. 1993. The West Berkeley Plan. https://www.cityofberkeley.info/Planning_and_Development/Redevelopment_Agency/West_Berkeley_Plan_(The).aspx (accessed October 2020).

_____. 2009. Existing General Plan Land Use Diagram. https://www.cityofberkeley.info/uploadedFiles/IT/Level_3_-_General/gp_landuse.pdf (accessed October 2020).

_____. 2020a. City of Berkeley Community GIS Portal. https://www.cityofberkeley.info/gisportal/ (accessed October 2020).

_____. 2020b. Berkeley Municipal Code. Last amended July 28, 2020. https://www.codepublishing.com/CA/Berkeley/ (accessed October 2020).

### Section 3, Environmental Setting

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

U.S. Climate Data. 2020. "Climate Berkeley – California." https://www.usclimatedata.com/climate/berkeley/california/united-states/usca0087 (accessed November 2020).

### Section 4.1, Air Quality

Bay Area Air Quality Management District (BAAQMD). 2014. Improving Air Quality & Health in Bay area Communities. April 2014. https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program/documents (accessed November 2020).

_____. 2017a. California Environmental Quality Act: Air Quality Guidelines. San Francisco, CA. May 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en (accessed August 2020).

_____. 2017b. "Air Quality Standards and Attainment Status." Last modified January 5, 2017. http://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status (accessed November 2020).

_____. 2017c. Final 2017 Clean Air Plan. San Francisco, CA. April 19, 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en (accessed November 2020).

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

California Air Resources Board (CARB). 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April 2005. https://www.arb.ca.gov/ch/handbook.pdf (accessed November 2020).

_____. 2017. Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways. April 2017. https://ww3.arb.ca.gov/ch/rd_technical_advisory_final.pdf (accessed November 2020).

_____. 2020a. "Inhalable Particulate Matter and Health ($PM_{2.5}$ and $PM_{10}$). https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health#:~:text=Short%2Dterm%20exposures%20to%20PM10,to%20years)%20exposure%20to%20PM2 (accessed November 2020).

_____. 2020b. "Overview: Diesel Exhaust & Health." https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health (accessed November 2020).

_____. 2020c. Top 4 Summary. https://www.arb.ca.gov/adam/topfour/topfour1.php (accessed November 2020).

California Department of Forestry and Fire Protection. 2018. "Incidents." https://www.fire.ca.gov/incidents/ (accessed November 2020).

National Highway Traffic Safety Administration. 2020. "Fact Sheet: SAFE Vehicles Rule." https://www.nhtsa.gov/corporate-average-fuel-economy/safe-fact-sheet (accessed November 2020).

Ramboll US Consulting, Inc. 2021Air Quality and Health Risk Assessment Environmental Impact Report. Bayer CEQA Long-rage Development Project Berkeley, California. January 25, 2021. Included as Appendix C.

South Coast Air Quality Management District. 2005. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. May 6, 2005. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf (accessed November 2020).

United States Environmental Protection Agency (U.S. EPA). 2013. Policy Assessment for the Review of the Lead National Ambient Air Quality Standards, External Review Draft. https://www3.epa.gov/ttn/naaqs/standards/pb/data/010913_pb-draft-pa.pdf (accessed September 2020).

_____. 2020a. "Nonattainment Area for Criteria Pollutants (Green Book)." Last modified: August 31, 2020. https://www.epa.gov/green-book (accessed November 2020).

_____. 2020b. Outdoor Air Quality Data – Monitor Values Report." https://www.epa.gov/outdoor-air-quality-data/monitor-values-report (accessed November 2020).

## Section 4.2, Cultural and Tribal Cultural Resources

Arrigoni, Aimee. 2014. California Department of Parks and Recreation form 523. Building 28, 28A, & 50.

Basin Research Associates. 2000. Archaeological Resources Assessment - Bayer South Properties Project, 7th, Carleton, and Grayson Streets, City of Berkeley, Alameda County.

Berkeley, City of N.d. West Berkeley Strategic Statement. Accessed on July 2, 2020 at: https://www.cityofberkeley.info/Planning_and_Development/Home/West_Berkeley_-_Physical_Form.aspx

Chavez, David and Jan M. Hupman. 2000. Archaeological Resources Investigations for the EBMUD East Bayshore Recycled Water Project, Alameda County, California. Submitted to Parsons Engineering Services. October.

Milliken, R. T., R.T. Fitzgerald, M. G. Hylkema, R. Groza, T. Origer, D. G. Bieling, A. Leventhal, R. S. Wiberg, A. Gottsfield, D. Gillette, V. Bellifemine, E. Strother, R. Cartier, and D. A. Fredrickson 2007. Punctuated Cultural Change in the San Francisco Bay Area. In California Prehistory: Colonization, Culture, and Complexity. AltaMira Press.

Moratto, Michael J. 1984. California Archaeology. Academic Press, New York.

National Environmental Title Research Online (NETROnline). Var. Historic Aerials. Historic aerial imagery of the project site and vicinity, online at https://www.historicaerials.com/viewer (accessed September 14, 2020).

Kroeber, Alfred J. 1925. Handbook of the Indians of California. Bureau of American Ethnology, Bulletin 78. Originally published 1925, Smithsonian Printing Office, Washington, D.C. Unabridged reprint 1976, Dover Publications, Inc. New York.

ProQuest Var. Digital Sanborn Maps, 1867–1970. San Born Fire Insurance Map Company. Berkeley. vol 2. https://digitalsanbornmaps-proquest-com.ezproxy.lapl.org/ (accessed September 30, 2020).

Rincon Consultants, Inc. 2021. Bayer HealthCare LLC Development Agreement Amendment Administrative Draft Cultural Resources Technical Report. January 2021. Included as Appendix D.

Skowronek, Russell K. 1998. Sifting the Evidence: Perceptions of Life at the Ohlone (Costanoan) Missions of Alta California. Ethnohistory 45: 675-708.

University of California, Santa Barbara (UCSB) Map & Imagery Lab. 1931. Aerial photograph, Flight C-1820, Frame 58. Accessed September 14, 2020 at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/.

_____. 1947. Aerial photograph, Flight GS-CP, Frame 6-12. Accessed October 5, 2020 at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/.

_____. 1965. Aerial photograph, Flight CAS-65-130, Frame 15-112. Accessed October 5, 2020 at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/.

United States Geological Survey (USGS). 1895. San Francisco, CA [map]. 7.5-minute topographical map. United States Geological Society. “Get Maps: topoView.” https://ngmdb.usgs.gov/topoview/viewer (accessed September 14, 2020).

_____. 1899. San Francisco, CA [map]. 7.5-minute topographical map. United States

Geological Society. "Get Maps: topoView." https://ngmdb.usgs.gov/topoview/viewer (accessed September 14, 2020).

_____. 1915. San Francisco, CA [map]. 7.5-minute topographical map. United States Geological Society. "Get Maps: topoView." https://ngmdb.usgs.gov/topoview/viewer (accessed September 14, 2020).

## Section 4.3, Greenhouse Gas Emissions

Association of Bay Area Governments (ABAG). 2017. "2040 Projections." http://projections.planbayarea.org/ (accessed December 2020).

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

Bay Area Air Quality Management District (BAAQMD). 2017a. Final 2017 Clean Air Plan. San Francisco, CA. April 19, 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en (accessed December 2020).

_____. 2017b. *California Environmental Quality Act: Air Quality Guidelines.* San Francisco, CA. May 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en (accessed December 2020).

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

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

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

_____. 2020a. *Staff Report - Climate Action Plan and Resilience Update*. July 21, 2020. https://www.cityofberkeley.info/climate/ (accessed December 2020).

____. 2020c. Berkeley Electric Mobility Roadmap. Adopted July 2020. https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/City%20of%20Berkeley%20Electric%20Mobility%20Roadmap_2020.pdf (accessed March 2021).

California Air Pollution Control Officers Association. 2008. CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA). January 2008.

California Air Resources Board (CARB). 2007. California Greenhouse Gas Inventory – By IPCC Category. 1990-2004 Inventory. Available at: https://ww3.arb.ca.gov/cc/inventory/archive/tables/ghg_inventory_ipcc_90_04_sum_2007-11-19.pdf (Accessed December 2020).

_____. 2008. Climate Change Scoping Plan. Sacramento, CA. December 2008.

_____. 2011. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider the "LEV III" Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, and to the Evaporative Emission Requirements for Heavy-Duty Vehicles. December 7, 2011. http://www.arb.ca.gov/regact/2012/leviiighg2012/levisor.pdf (accessed December 2020).

_____. 2014. AB 32 Scoping Plan Website. Updated June 2014. http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm (accessed December 2020).

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

_____. 2018. EMFAC2017 Volume III – Technical Documentation v.1.0.2. July 20, 2018. https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf (accessed December 2020).

_____. 2019. "California Greenhouse Gas Emission Inventory – 2019 Edition. Last modified: August 12, 2019. https://ww3.arb.ca.gov/cc/inventory/data/data.htm (accessed December 2020).

California Climate Change Center (CCCC). 2006. Climate Scenarios for California.

California Department of Food and Agriculture. 2020. "California Agricultural Production Statistics." https://www.cdfa.ca.gov/statistics/ (accessed December 2020).

California Department of Water Resources. 2018. Indicators of Climate Change in California. May 2018. https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf (accessed December 2020).

California Natural Resources Agency. 2009. 2009 California Climate Adaptation Strategy. March 2009. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf (accessed December 2020).

E3. 2020. Achieving Carbon Neutrality in California: PATHWAYS Scenarios Developed for the California Air Resources Board. Available at: https://ww2.arb.ca.gov/sites/default/files/2020-08/e3_cn_draft_report_aug2020.pdf. (accessed December 2020).

Intergovernmental Panel on Climate Change (IPCC). 2014a. Climate Change 2014: Mitigation of Climate Change. Summary for Policymakers - Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

_____. 2014b. Climate Change 2014 Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland.

_____. 2018. Summary for Policymakers. In: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. https://www.ipcc.ch/sr15/ (accessed December 2020).

Lawrence Berkeley National Laboratory (LBL). 2011. California's Energy Future – The View to 2050. May. Available at: http://ccst.us/publications/2011/2011energy.php (accessed December, 2020).

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

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

National Highway Traffic Safety Administration. 2020. "Fact Sheet: SAFE Vehicles Rule." https://www.nhtsa.gov/corporate-average-fuel-economy/safe-fact-sheet (accessed December 2020).

National Oceanic and Atmospheric Administration. 2020. "Global Climate Report for Annual 2019." State of the Climate. January 2020. https://www.ncdc.noaa.gov/sotc/global/201813 (accessed December 2020).

Parmesan, C. August 2006. Ecological and Evolutionary Responses to Recent Climate Change.

Ramboll US Consulting, Inc. 2021. Greenhouse Gas Environmental Impact Report. Bayer CEQA Long-rage Development Project Berkeley, California. January 25, 2021. Included as Appendix E.

State of California. 2018. California's Fourth Climate Change Assessment Statewide Summary Report. August 27, 2018. http://www.climateassessment.ca.gov/state/ (accessed December 2020).

United States Environmental Protection Agency (U.S. EPA). 2020. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018. U. S. EPA #430-R-20-002. April 2020. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2018 (accessed December 2020).

World Meteorological Organization. 2013. A summary of current and climate change findings and figures: a WMO information note. March 2013. https://library.wmo.int/opac/index.php?lvl=notice_display&id=15892#.Wt9-Z8gvzIU (accessed December 2020).

_____. 2020. "Greenhouse Gases." https://public.wmo.int/en/our-mandate/focus-areas/environment/greenhouse%20gases (accessed December 2020).

## Section 4.4, Hazards and Hazardous Materials

California Department of Resources, Recycling, and Recovery (CalRecycle). 2021. Solid Waste Information System (SWIS) website, https://www2.calrecycle.ca.gov/SolidWaste/Site/Search. Accessed February 2021.

California Department of Toxic Substances Control (DTSC). 2021a. EnviroStor website, http://www.EnviroStor.dtsc.ca.gov/public/. Accessed February 2021.

_____. 2021b. Hazardous Waste and Substances Site List – Site Cleanup (Cortese List), http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm. Accessed February 2021.

California Occupational Safety and Health (Cal/OSHA). 2020. The Cal/OSHA Hazard Communication Regulation — a Guide for Employers That Use Hazardous Chemicals. November 2020. Available at: https://www.dir.ca.gov/dosh/dosh_publications/hazcom.pdf (accessed February 2021).

California State Water Resources Control Board (SWRCB). 2021a. GeoTracker website, http://GeoTracker.waterboards.ca.gov/. Accessed February 2021.

_____. 2021b. online Statewide PFAS Investigation online Public Map Viewer: https://www.waterboards.ca.gov/pfas/. Accessed February 2021.

City of Berkeley. 1993. West Berkeley Plan. Available at: https://www.cityofberkeley.info/ContentDisplay.aspx?id=406#:~:text=The%20West%20Berkeley%20Plan%20(1993,vital%20district%20of%20the%20city (accessed February 2021).

_____. 2001. City of Berkeley General Plan Disaster Preparedness and Safety Element. Available at: https://www.codepublishing.com/CA/Berkeley/ (accessed December 2020).

_____. 2010. Environmental Management Area Map. December 8, 2010. https://www.cityofberkeley.info/uploadedFiles/IT/Level_3_-_General/ema.pdf (accessed February 2021).

_____. 2019. 2019 Local Hazard Mitigation Plan. December 10, 2019. https://www.cityofberkeley.info/uploadedFiles/Fire/Level_3_-_General/Council%20Resolution%2069236%20Adopt%20the%20Local%20Hazard%20Mitigation%20Plan.pdf (accessed February 2021).

East Bay Municipal Utilities District (EBMUD). 2020. 2019 Pretreatment Report. February 27, 2020. Available at: https://www.ebmud.com/index.php/download_file/force/6077/195/?2019_Pretreatment_Annual_Report.pdf (accessed February 2021).

Farallon Consulting, L.L.C. (Farallon). 2020. Phase I Environmental Site Assessment (ESA). October 21, 2020. Included as Appendix F.

National Institutes of Health (NIH). 2019. NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines). April 2019. Available at: https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf

Unites States Environmental Protection Agency (USEPA). 2019. Radiation Sources and Doses. August 6, 2019. Available at: https://www.epa.gov/radiation/radiation-sources-and-doses#averagedoses (accessed February 2021).

United States Pipeline Hazardous Materials Safety Administration (PHMSA). 2021. National Pipeline Mapping System (NPMS) website. Alameda County, https://www.npms.phmsa.dot.gov/PublicViewer/ (accessed February 2021).

## Section 4.5, Noise

Caltrans. 2013. Transportation and Construction Vibration Guidance Manual. (CT-HWANP-RT-13-069.25.3) September. Available at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

City of Berkeley. 1993. West Berkeley Plan. Available at: https://www.cityofberkeley.info/ContentDisplay.aspx?id=406#:~:text=The%20West%20Berkeley%20Plan%20(1993,vital%20district%20of%20the%20city.

_____. 2003. City of Berkeley General Plan. Available at: https://www.codepublishing.com/CA/Berkeley/.

_____.2014. Berkeley Municipal Code. Available at: https://www.cityofberkeley.info/Planning_and_Development/Home/General_Plan__A_Guide_for_Public_Decision-Making.aspx.

_____. 2010. City of Berkeley. Draft Environmental Impact Report, West Berkeley Project. Available at: https://www.cityofberkeley.info/Planning_and_Development/Redevelopment_Agency/West_Berkeley_Project_Draft_EIR.aspx

_____. 2020. Berkeley Municipal Code. Available at: https://www.codepublishing.com/CA/Berkeley/

eNoise. 2020. Outdoor Sound Curtain Specifications. https://www.enoisecontrol.com/products/outdoor-sound-curtains/?gclid=CjwKCAiA7939BRBMEiwA-hX5JyvkgGvQLbw4IGLV5--j3mnR1Tp8WFjCkgtJIzUDj1A2Dk1BegjTGhoCoKQQAvD_BwE. Accessed on November 19, 2020.

Federal Highway Administration (FHWA). 2006. *FHWA Highway Construction Noise Handbook*. (FHWAHEP-06-015; DOT-VNTSC-FHWA-06-02). Available at: http://www.fhwa.dot.gov/environment/construction_noise/handbook.

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

Fehr & Peers. 2020. Bayer Berkeley Project. Transportation Findings. September 28

First Carbon Solutions. 2020. *Noise Impact Analysis Bayer Development Agreement Extension Project*. City of Berkeley, California. November 30, 2020.

## Section 4.6, Transportation

Berkeley, City of. 1993. The West Berkeley Plan. https://www.cityofberkeley.info/Planning_and_Development/Redevelopment_Agency/West_Berkeley_Plan_(The).aspx (accessed October 2020).

_____. 2001. City of Berkeley General Plan Transportation Element. Available at: https://www.codepublishing.com/CA/Berkeley/.

_____. 2010. City of Berkeley Pedestrian Master Plan. June 2010. Available at: https://www.cityofberkeley.info/pedestrian/.

_____. 2012. Berkeley Complete Streets Policy. December 11, 2012. Available at: https://www.cityofberkeley.info/uploadedFiles/Public_Works/Level_3_-_Transportation/Berkeley%20Complete%20Street%20Resolution%2012%2011%2012.pdf

_____. 2017. City of Berkeley Bicycle Plan. May 2, 2017. https://www.cityofberkeley.info/berkeleybikeplan/ (accessed February 2021)Fehr & Peers. 2020. Bayer Berkeley Project – CEQA Transportation Findings. December 14, 2020. Included as Appendix H.

Office of Planning and Research (OPR). 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf (accessed November 2020).

## Section 4.7, Tribal Cultural Resources

Kroeber, Alfred J. 1925. Handbook of the Indians of California. Bureau of American Ethnology, Bulletin 78. Originally published 1925, Smithsonian Printing Office, Washington, D.C. Unabridged reprint 1976, Dover Publications, Inc. New York.

Moratto, Michael J. 1984. California Archaeology. Academic Press, New York.

Rincon Consultants, Inc. 2021. Bayer HealthCare LLC Development Agreement Amendment Administrative Draft Cultural Resources Technical Report. January 2021. Included as Appendix D.

Skowronek, Russell K. 1998. Sifting the Evidence: Perceptions of Life at the Ohlone (Costanoan) Missions of Alta California. Ethnohistory 45: 675-708.

## Section 4.8, Utilities and Service Systems

Berkeley, City of. 2001. City of Berkeley General Plan. Environmental Management Element https://www.cityofberkeley.info/Planning_and_Development/Home/General_Plan_-_Environmental_Management_Element(2).aspx (accessed December 2020).

_____. 2012. Sewer System Hydraulic Modeling and Capacity Assessment: Final Report. Prepared by RMC. October 2012.

_____. 2020a. Personal communication via email from Heidi Obermeit, Recycling Program Manager, City of Berkeley regarding the solid waste diversion rate for Berkeley to Annaliese Miller, Associate Environmental Planner, Rincon Consultants, Inc. September 24, 2020.

California Department of Resource Recycling and Recovery (CalRecycle). 2018. “History of California Solid Waste Law.” https://www.calrecycle.ca.gov/laws/legislation/calhist (accessed December 2020).

_____. 2021. Solid Waste Information System (SWIS). https://www.calrecycle.ca.gov/SWFacilities/ (accessed March 2021).

East Bay Municipal Utilities District. 2015. Urban Water Supply Management Plan. [online]: http://www.ebmud.com/water-and-drought/about-your-water/water-supply/urban-water-management-plan/ (accessed December 2020).

Ramboll US Consulting, Inc. 2021. Greenhouse Gas Environmental Impact Report. Bayer CEQA Long-rage Development Project Berkeley, California. January 25, 2021. Included as Appendix E.

Stop Waste. 2018. "Countywide Integrated Waste Management Plan." http://www.stopwaste.org/resource/reports/countywide-integrated-waste-management-plan-coiwmp (accessed September 2020).

### Section 5, Other CEQA Considerations

United Nations Centre for Human Settlements (UNCHS). 1993. Development of National Technological Capacity for Environmentally Sound Construction. http://www.nzdl.org/gsdlmod?e=d-00000-00---off-0cdl--00-0----0-10-0---0---0direct-10---4-------0-1l--11-en-50---20-about---00-0-1-00-0-0-11-1-0utfZz-8-00&cl=CL1.123&d=HASH01fc437f30577674713e5bd8.5.1&gt=1 (accessed January 2021).

### Section 6, Alternatives

Caltrans. 2013. Transportation and Construction Vibration Guidance Manual. (CT-HWANP-RT-13-069.25.3) September. Available at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

## 7.2 List of Preparers

This EIR was prepared by the City of Berkeley, with the assistance of Rincon Consultants, Inc. Consultant staff involved in the preparation of the EIR are listed below.

#### RINCON CONSULTANTS, INC.

Abe Leider, AICP CEP, Principal
Karly Kaufman, MESM, Project Manager
Jonathan Berlin, MESM, Senior Environmental Planner
Lucy Sundelson, Associate Planner
Jacob Cisneros, Sustainability Associate
Annaliese Miller, Environmental Planner
Chris Shields, Senior Environmental Scientist
Julie Welch Marshall, Director – Due Diligence
Savanna Vrevich, Environmental Scientist
Shannon Carmack, Principal and Senior Architectural Historian
Steven Treffers, MHP, Senior Architectural Historian
Hannah Haas, MA, Senior Archaeologist
James Williams, MA, Architectural Historian
Mary Pfeiffer, Archaeologist
Allysen Valencia, GIS Specialist
Audrey Brown, GIS Specialist
Jacob Kato, GIS Specialist
Eric Holtz, GIS Specialist