

5.0 ALTERNATIVES

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) contain an analysis describing a range of reasonable alternatives to a project that could feasibly attain most of the basic objectives of the project while avoiding or substantially lessening any significant impacts. The analysis must evaluate the comparative merits of the alternatives (*State CEQA Guidelines* Section 15126.6). Alternatives that avoid or substantially reduce significant impacts should be considered, even if these alternatives would impede to some degree the attainment of project objectives or would be more costly to the project proponent (*State CEQA Guidelines* Section 15126.6(b)). The alternatives do not need to consider less than significant impacts identified for the proposed project. An EIR need not consider every conceivable alternative to a project, but rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation (*State CEQA Guidelines* Section 15126.6(a)).

The analysis in this section is intended to inform the public and decision makers of alternatives to the project and to provide a meaningful evaluation, analysis, and comparison of these alternatives with the proposed project. As required by CEQA, this section also includes an analysis of the No Project alternative.

In response to the Notice of Preparation for this EIR, commenters requested that the EIR evaluate alternative project sites at the Richmond Field Station and the vacant NUMMI plant in Fremont. These scoping comments are addressed in the alternatives analysis presented below.

5.1.1 Project Objectives

Key objectives of the proposed project are to:

- Consolidate existing LBNL and UC Berkeley solar energy research programs in one facility in close proximity to the unique user facilities at the LBNL hill site that will be used by the SERC program researchers, in partnership with the researchers currently located in those LBNL facilities, including the National Center for Electron Microscopy, the Molecular Foundry, the Advanced Light Source, and the proposed computing facilities of NERSC (for which the proposed SERC facility will serve as a testing site for new computer systems);
- Locate the SERC facility so as to optimally draw upon the intellectual, technological, and material resources of the Department of Energy LBNL programs and facilities, the primary focus of which is energy research;

- Minimize travel between the UC Berkeley campus and the LBNL hill site to allow SERC researchers to conduct research at LBNL while maintaining their teaching and research activities on the UC Berkeley campus;
- Avoid duplication of facilities and remove the physical constraints to intellectual exchange and collaboration that has resulted from the dispersed program locations; and
- Provide an integrated, economical and appropriately designed facility for high-level research in solar energy sources and technologies that will become a benchmark for energy-efficiency in future similar building types.

5.1.2 Impacts of the Proposed Project

To develop project alternatives, UC LBNL considered the project objectives and reviewed the significant impacts of the proposed project, identified those impacts that could substantially be avoided or reduced through an alternative, and determined the appropriate range of alternatives to be analyzed. **Section 4.0, Environmental Setting, Impacts and Mitigation Measures**, of this EIR evaluates the potential for the proposed project to result in significant impacts to the following resource areas: aesthetics, air quality, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, transportation and traffic, and wastewater and energy systems. The analysis in **Section 4.0** revealed that with the implementation of the 2006 LBNL Long Range Development Plan (LRDP) EIR mitigation measures that are already included in the proposed project, the proposed project would not result in any potentially significant or significant project-specific impacts, but it would contribute to a significant and unavoidable cumulative traffic impact. In all other resource areas, as shown by the analysis in the Initial Study, the project's impacts would be less than significant.

SERC Cumulative Impact TRANS-2 shows that traffic associated long term development in the project area, which includes the traffic associated with the proposed project, would significantly affect level of service at four study intersections (Durant Avenue/Piedmont Avenue, Hearst Avenue/Gayley Road-La Loma Avenue, Gayley Road/Stadium Rim Way, and Bancroft Way/Piedmont Avenue). The cumulative impact would be significant and unavoidable because even though UC LBNL has committed to pay its fair share of the cost of the required improvements at the intersections, and this remains a binding mitigation commitment, the impact would be considered significant and unavoidable because the intersections are not within the jurisdiction of the University and there is not yet an adopted reasonable plan for improvements at these intersections. Therefore, it cannot be determined at this time whether the impacts would be mitigated to a less than significant level.

Alternatives that would meet most of the project objectives and would avoid or reduce the project's impacts, especially the project's significant unavoidable impact, were identified and analyzed in detail. **Table 5.0-1, Summary Comparison of Project Alternatives**, presented at the end of this section,

compares the alternatives to the proposed project focusing on whether or not the alternative would avoid or reduce the project's significant impact. The table also identifies significant impacts that would result from some of the proposed alternatives but would not result from project implementation.

5.2 ALTERNATIVES TO THE PROJECT

5.2.1 Alternatives Considered But Not Evaluated in Detail

This section discusses alternatives that were considered for the project but were not evaluated in detail because they did not meet project objectives or were found to be infeasible for technical, environmental, or social reasons.

Building 51 Site

Under this alternative, the new SERC facility would be constructed at the current site of Building 51, near the center of the LBNL hill site. Building 51 housed the former Bevatron accelerator; both the building and the accelerator are currently being demolished and cleaned up for hazardous materials contamination. The demolition and clean-up is not expected to be completed until spring 2011. According to UC LBNL, current demolition of Building 51 is limiting access for subsurface investigations. Therefore, sufficient information will not be available to determine whether the subsurface contamination could affect the SERC construction schedule at this site. Furthermore, depending on the extent of contamination encountered beneath the building, clean-up activities could extend the schedule significantly. Therefore, it is likely that the site would not be available for the construction of the SERC project in a timely manner. Furthermore, the SERC project would use a very small portion of the Building 51 site and would not represent a good use of a relatively large building site at the LBNL hill site. This alternative is also located in the northern portion of the LBNL hill site, further away from the Advanced Light Source and Molecular Foundry. In addition, this alternative would not reduce any of the project impacts. For these reasons, this alternative was considered not feasible and was not evaluated in detail in this EIR.

On-Site Renovation

Under this alternative, an existing building at the LBNL hill site would be renovated and improved to house the SERC project. This project alternative is not evaluated in detail because the LBNL hill site has a shortage of available space in existing buildings. Existing available building space is insufficient to house the occupants and operations proposed for the SERC project. Due to this limitation, this alternative was not evaluated in detail in this EIR.

Reduced Site Alternative

Under this alternative, the new SERC facility would be constructed at the same site as the proposed project, but would be a smaller facility potentially with two stories rather than the proposed three stories. The programs that are not accommodated in the reduced facility would be moved to another location on the LBNL hill site. However, the LBNL hill site has a shortage of available space in existing buildings, and additional space would need to be built elsewhere on the LBNL hill site to house the programs that are not accommodated in the reduced SERC facility. As this alternative would require the construction of an additional facility in another portion of the hill site, it would not reduce any environmental impacts as compared to the proposed project and may in fact result in greater environmental impacts. The construction of more than one building would also not be cost effective and this alternative would not meet one of the project objectives, which is to consolidate all LBNL and UC Berkeley solar energy research programs in one facility. Therefore, this alternative was not evaluated in detail in this EIR.

Off Site Location at the former NUMMI plant in Fremont

Under this alternative, the project would be located at the former NUMMI plant in Fremont, and would either use one of the existing vacated automobile manufacturing buildings or construct a new building on vacant lands at the plant site. This alternative is not evaluated in detail because it would not meet any of the key objectives of the proposed project which include ease of access to unique and top-rated scientific facilities at the LBNL hill site, ease of collaboration with other researchers at LBNL and UC Berkeley and to draw upon the intellectual, technological, and material resources of the Department of Energy LBNL energy research programs and facilities. For some of the SERC researchers who would hold joint appointments at LBNL and UC Berkeley, this alternative would result in loss of time traveling to the UC Berkeley campus. At the Fremont location, the project would not create a facility that draws upon the intellectual, technological, and material resources of LBNL and UC Berkeley. For these reasons, this alternative was considered infeasible and was not evaluated in detail in this EIR.

5.2.2 Alternatives Considered in Detail

As noted earlier in this section, the proposed project would contribute to a significant and unavoidable cumulative traffic impact. In all other resource areas, with the implementation of LRDP mitigation measures, which are included in the proposed project, the project's impacts would be less than significant. Therefore, the focus of this alternatives analysis is on the ability of the alternatives presented below to avoid or minimize the contribution to the significant and unavoidable cumulative impact on traffic. Note that in the discussion below, resource areas where project impacts would be less than significant are also discussed with the view to determine whether the alternatives would further reduce

less than significant impacts of the proposed project and also to determine whether the alternative would result in a significant impact on a resource area where the project would not result in a significant impact.

Alternative 1: No Project Alternative

CEQA requires that a “No Project” alternative be considered. “No Project” is required to describe the consequences of not approving the proposed project. With this alternative, the proposed project would not be constructed at the project site and the research programs associated with the SERC project would not be consolidated or advanced. It should be noted that adoption of the No Project Alternative would not necessarily preclude ultimate development of the project site with another use in accordance with the 2006 LRDP. The project site is designated as Research and Academic under the 2006 LRDP. This land use designation provides for scientific research and associated support functions. Given the size of the project site, a comparable sized three-story building or somewhat taller (greater than three stories) building could be built on the site. Note that any building at this location could not exceed the height of the ALS building. The 2006 LRDP Height Zone Map designates the project area as a Special Viewshed Zone, which means that building heights shall not extend into the viewing plane of the ALS dome when viewed from the intersection of University Avenue and Milvia Street in downtown Berkeley. The ALS dome is 88 feet in height.

Relationship to Project Objectives

Alternative 1 would not achieve any of the project objectives.

Comparative Analysis of Impacts

Aesthetics

There would be no impact related to aesthetics because the project would not be built on the site. However, some development could occur on the project site as the area is identified for development of Research and Academic uses under the 2006 LRDP. Depending on the size of the building that is developed, there could be impacts similar to those of the proposed project associated with construction activities and light and glare or greater visual impacts from the construction of a taller or larger building.

Air Quality

There would be no impact to air quality because the project would not be built on the site. However, under the 2006 LRDP, some development of Research and Academic uses could occur on the project site,

and there could be air quality impacts similar to those of the proposed project from the construction and operation of that project or greater air quality impacts from the construction of a taller or larger building.

Geology and Soils

There would be no impacts related to geology and soils as the project would not be built. However, under the 2006 LRDP, the project site could be developed with Research and Academic uses. Therefore, there could be impacts similar to those of the proposed project related to geology and soils or greater impacts from the construction of a taller or larger building.

Greenhouse Gas Emissions

There would be no contribution to greenhouse gas emissions under this alternative because the project would not be built on the site. However, under the 2006 LRDP, some development of Research and Academic uses could occur on the project site, and there could be similar or greater greenhouse gas emission impacts from construction and operation of that project as compared to the proposed project.

Hazards and Hazardous Materials

Under the No Project Alternative, the proposed project would not be built. Therefore, there would be no impacts related to hazardous material use or other hazards. However, under the 2006 LRDP, the project site could be developed with Research and Academic uses and impacts similar to or greater than those of the proposed project could occur from the construction of a similar or larger building.

Hydrology and Water Quality

The No Project Alternative would avoid impacts related to storm water quality. The No Project Alternative would not improve the storm drainage system, which currently has inadequate capacity during wet weather events, but this improvement would then be done as part of the approved Seismic Phase 2 project. Additionally, some development could occur on the project site as the area is identified for development of Research and Academic uses under the 2006 LRDP and there could be impacts on hydrology and water quality similar to those of the proposed project from that development.

Noise

Under the No Project Alternative, the proposed project would not be built. Therefore, there would be no impacts related to noise. However, under the 2006 LRDP, the project site could be developed with Research and Academic uses and construction and operational noise impacts similar to or greater than those described for the proposed project could occur from the construction of a similar or larger building.

Transportation and Traffic

There would be no near-term impact to transportation and traffic because the project would not be built on the site. However, under the 2006 LRDP, development similar to or greater than the proposed project could occur on the project site and similar or greater impacts, including cumulative impacts could occur.

Wastewater and Energy Systems

Under the No Project Alternative, the proposed project would not be built. Therefore, impacts related to wastewater and energy systems would not occur. However, under the 2006 LRDP, the project site could be developed with Research and Academic uses. Therefore, impacts similar to or greater than those described for the proposed project could occur from the construction of a similar or larger building.

Alternative 2: Upper Bevatron Alternative

This alternative would use another site within the LBNL hill site boundaries for development of the proposed project. This location is approximately 1,000 feet west of the proposed project site, immediately south of the Bevatron building (Building 51), near the intersection of Lawrence Road and McMillan Road. Under this alternative, the new building would be constructed on the undeveloped strip between Lawrence Road to the south and McMillan Road to the north. Because the area available is limited, in order to accommodate the SERC facility, this would be a three-story, 48-foot-high building with a footprint of 300 by 60 feet. Parking would be provided to the northeast of the building and would be accessible via McMillan Road. Similar to the proposed project, about 60 researchers would be associated with this alternative.

Relationship to Project Objectives

This alternative would achieve all of the project objectives, but would place the SERC at a somewhat greater distance from ALS and the Molecular Foundry.

Comparative Analysis of Impacts

Aesthetics

This alternative would place the SERC project at a relatively low elevation within the LBNL hill site. Construction activity under this alternative would not be visible from off-site residential areas or public roadways. This alternative consists of a three-story building in a location that permits buildings up to four stories tall as designated by the 2006 LRDP Height Zone Map. The impact related to light and glare would be similar to the proposed project under this alternative. Therefore, the less than significant visual

impacts of the proposed project would be slightly reduced until this alternative. All cumulative impacts would remain unchanged under this alternative.

Air Quality

A similar amount of construction activity would be involved for this alternative as compared to the proposed project because although this alternative would not excavate for a partial basement level, it is a currently undeveloped steeply sloping site and would require similar to greater amounts of grading prior to construction. The operational impacts of this alternative would be similar to those of the proposed project because the alternative would require similar stationary equipment. Because the parking spaces included in the alternative would be the same as under the proposed project, vehicle emissions would also be similar. Therefore, this alternative would result in less than significant air quality impacts, similar to the proposed project. All cumulative impacts would remain unchanged under this alternative.

Geology and Soils

Geologic conditions at this site have not been characterized but are generally expected to be similar to the geologic conditions underlying the proposed project site. Therefore, this alternative would have generally similar impacts related to geology and soils as compared to the proposed project. All cumulative impacts would remain unchanged under this alternative.

Greenhouse Gas Emissions

GHG emissions from project construction at the upper Bevatron site would be similar to the proposed project because construction activities would be comparable. In addition, operation of the facility would involve the same area and stationary sources, including the cooling tower, boilers, and an emergency generator, as the proposed project. The total number of vehicle trips generated would be similar to the proposed project, and therefore mobile source emissions from this alternative would be similar to the proposed project. Therefore, similar to the proposed project, this alternative would result in less than significant GHG impacts.

Hazards and Hazardous Materials

The same research programs and the same amount of research space would be included in this alternative. Therefore, overall, this alternative would result in similar impacts related to hazards and hazardous materials as the proposed project. All cumulative impacts would remain unchanged under this alternative.

Hydrology and Water Quality

The project footprint under this alternative would be similar to the proposed project. However, this alternative would generate somewhat more storm water runoff than the proposed project because the alternative site is currently undeveloped, whereas the proposed project site is currently occupied by existing buildings and pavement. Nevertheless, stormwater runoff increase would not be substantially greater at this site because under existing conditions, infiltration is limited by the site's steep slopes. In addition, the proposed project if developed at this site, would be required to control runoff such that the post development flows do not exceed the pre-development flows. The alternative site is distant from the tritium and volatile organic compound contaminated groundwater plumes and therefore to the extent that groundwater dewatering is required at this site, it would not affect the plumes. All cumulative impacts would remain unchanged under this alternative.

Noise

This alternative would involve a similar amount of construction activity compared to the proposed project as it would also construct a new approximately 40,000 gsf building on a site that requires grading, resulting in a similar amount of construction noise. Due to its location within the LBNL hill site, off-site receptors would not have an uninterrupted line of sight of this construction site and so would not experience any impacts from construction noise. The operational noise impacts of this alternative would be similar to the less than significant impacts of the proposed project because the alternative would require similar on-site stationary equipment and would be approximately 1,500 feet from the nearest off-site sensitive receptors. There would be no change in vehicular noise because the same number of vehicles would access the site as under the proposed project. Therefore, this alternative would have generally similar impacts related to noise as compared to the proposed project. All cumulative impacts would remain unchanged under this alternative.

Transportation and Traffic

Access to the parking area under this alternative would be via McMillan Road to the northeast of the building. This alternative would involve a similar amount of construction traffic compared to the proposed project as it would also construct a new 40,000 gsf building on a site that requires grading, resulting in a similar amount of construction trips. The operational traffic impacts of this alternative would be similar to the less than significant impacts of the proposed project because the alternative would also relocate 40 employees to the LBNL hill site and hire 10 new employees and would provide a similar amount of parking as compared to the proposed project. Therefore, this alternative would result in less than significant traffic impacts similar to the proposed project.

The cumulative impact from project traffic in conjunction with other area traffic would still occur and would be significant and unavoidable.

Wastewater and Energy Systems

Because the size of the proposed facility under this alternative would be comparable to the proposed project and the LBNL on-site population would increase by the same number of persons under this alternative, the project's less than significant impacts on wastewater and energy systems would remain unchanged under this alternative. All cumulative impacts would also remain unchanged under this alternative.

Alternative 3: Former California Department of Health Services (DHS) Site

Under this alternative, the SERC facility would be located on a University-owned site on the western edge of the UC Berkeley campus in the City of Berkeley.

The approximately 2.4-acre site covers almost the entire block defined by Oxford, Hearst, Shattuck, and Berkeley Way, and was formerly occupied by a 215,000 gsf building which has been demolished. The California Department of Health Services (DHS) was the former occupant of the building. The site has been approved by the UC Board of Regents (The Regents) for redevelopment to locate the Helios Energy Research Facility, a new building that would house an energy research program. The Helios facility would be located in the northeastern quadrant of the city block adjacent to existing apartments. There are no specific projects at this time proposed for the western one-half of the DHS site although UC Berkeley anticipates that it will use the remainder of the DHS site for a community health campus. The site is part of the area identified as the Adjacent Blocks area in the UC Berkeley 2020 LRDP. The UC Berkeley LRDP provides for the development of 1.25 million gross square feet (gsf) of new building space in the Adjacent Blocks area with about 800,000 gsf within the blocks west of the campus, which include the DHS site.

Under this alternative, a new three-story SERC building would be constructed in the western portion of the DHS site along the Shattuck Avenue frontage. Several aspects of this alternative such as research programs that would occupy the building and total population would be the same as the proposed project. The alternative would provide no parking spaces for the users of the facility, other than the required number of handicap parking spaces, as adequate parking and transit services are available in the vicinity of this site. Existing utilities at the site are adequate to support the demands of the SERC facility.

Construction of the new facility at this site would require minimal grading since the site is flat. The former DHS building on the site has been demolished by UC Berkeley in conjunction with the construction of the Helios facility.

Construction of the SERC facility at the former DHS site by UC LBNL would not be an activity covered by the LBNL 2006 LRDP EIR, and the 2006 LRDP EIR mitigation measures would not apply to this alternative. However, UC LBNL would voluntarily apply the UC Berkeley 2020 LRDP mitigation measures to this alternative so as to avoid or reduce its environmental impacts. This alternative is evaluated below assuming that appropriate UC Berkeley 2020 LRDP mitigation measures would be implemented as part of the alternative by UC LBNL.

Relationship to Project Objectives

Alternative 2 would not achieve the project objective of consolidating existing LBNL and UC Berkeley solar energy research programs in one facility in close proximity to the unique user facilities at the LBNL hill site that will be used by the SERC program researchers, in partnership with the researchers currently located in those LBNL facilities. It would also not place the SERC at a location where its researchers could easily draw upon the intellectual, technological, and material resources of LBNL.

Comparative Analysis of Impacts

Aesthetics

This alternative would place the SERC project on the edge of the UC Berkeley campus where it would be visible from the surrounding public roadways. The existing visual conditions at the DHS site are poor, - in the recent past, the site featured an abandoned and undistinguished state institutional laboratory and office building surrounded by asphalt; currently the area is a demolition site. The proposed facility would be constructed on a small portion of the existing DHS site footprint and would be three stories tall. This alternative would likely improve the existing visual character of the site. In addition, requirements under the UC Berkeley 2020 LRDP, including lighting design requirements and visual character mitigation measures, would be implemented as part of this alternative. Therefore, similar to the proposed project visual impacts under this alternative would be less than significant. Given the flat topography and the urban setting, the cumulative visual impacts from construction and operation of buildings in the vicinity of the former DHS site would be slightly reduced, in comparison to the proposed project.

Air Quality

Emissions from construction traffic and construction equipment resulting from this alternative would be similar to the proposed project because construction activities would be similar. Construction-related emissions would not exceed BAAQMD significance thresholds for any criteria pollutant. Similar to the proposed project, this alternative is unlikely to result in unacceptable increases in ambient CO concentrations due to construction.

Operation of the SERC facility at the former DHS site would involve the same area and stationary sources, including the cooling tower, boilers, and an emergency generator, as the proposed project. The total number of vehicle trips generated under this alternative would be similar to the proposed project because the DHS site is well-served by public transit and the SERC project would not provide parking spaces at the site. Therefore, operational emissions of criteria pollutants under this alternative would be similar to those estimated and reported in **Section 4.2** for the proposed project. Impacts from toxic air contaminants would also be similar and less than significant. Therefore, similar to the proposed project, this alternative would result in less than significant air quality impacts.

Construction of four UC Berkeley projects (Warren Hall Replacement/Li Ka Shing Center, Community Health Campus Phase 1, DHS Demolition/Helios, and Berkeley Art Museum/PFA) would occur within 1,000 feet of and concurrently with the SERC facility at the former DHS site. Cumulative effects related to air quality would be slightly greater than the Proposed Action under this alternative because there would be more building space under construction in the vicinity of the SERC project at this site in comparison to the location on the LBNL hill site. Operation of the SERC facility at this site and UC Berkeley projects in the vicinity of the DHS site would result in stationary and area source emissions that would be comparable to those at the LBNL hill site.

Geology and Soils

Similar to the proposed project, the former DHS site is not underlain by an active fault, or located in a liquefaction hazard zone, or in an area of landslide risk or soil instability. The University has implemented a process for the design of new buildings that applies the best available engineering procedures to maximize safety and resiliency. Implementation of continuing campus best practices, including compliance with the UC Policy on Seismic Safety and incorporation of geotechnical recommendations that reduce hazards, would reduce risks to people and structures from seismic hazards. Erosion impacts would also be minimized through compliance with the NPDES stormwater pollution prevention requirements. Therefore, similar to those of the proposed project, this alternative would result in less than significant geology and soils impacts. All cumulative impacts of this alternative related to geology and soils would also be similar to the cumulative impacts of the proposed project.

Greenhouse Gas Emissions

GHG emissions from project construction at the former DHS site would be similar to the proposed project because construction activities would be comparable. In addition, operation of the SERC project would involve the same area and stationary sources, including the cooling tower, boilers, and an emergency generator, as the proposed project. The total number of vehicle trips generated would be similar to or

lower than the proposed project due to the availability of transit services, and therefore mobile source emissions from this alternative would be similar to or less than the proposed project. Therefore, as with the proposed project, this alternative would result in less than significant GHG impacts.

Hazards and Hazardous Materials

Existing on-site contamination at the former DHS site is not a concern for the SERC project should it be constructed there because decontamination, hazardous materials removal, and demolition will be completed by UC Berkeley prior to the construction of the Helios Energy Research Facility. Similar to the LBNL hill site, UC Berkeley has an emergency response plan that includes evacuation routes. Given the location of the site in a flat urban setting, the risk for wildland fires to occur at or near the site is low. The Oakland Metropolitan Airport is more than 9.7 miles southeast of the DHS site, and the site is not located within the vicinity of a private airstrip. Therefore, this alternative would result in less than significant hazards and hazardous materials impacts similar to those of the proposed project. The alternative site is located in a flat urban setting that is not prone to wildland fires. Therefore, the potential for site to be exposed to wildland fires would be less than the proposed project and the alternative would further reduce the less than significant wildland fire impact.

As with the proposed project, cumulative development by UC Berkeley in the vicinity of the alternative site would comply with applicable regulations. Therefore, cumulative hazardous materials impacts of this alternative would also be similar to the cumulative impacts of the proposed project. Based on the topography and urban setting of the alternative site, the potential exposure of cumulative development from wildland fires would be reduced, in comparison to the cumulative development at the LBNL site. The cumulative impact related to wildland fire would be less than significant under the alternative.

Hydrology and Water Quality

The former DHS site is an infill site on flatlands. Because the site is already developed with impervious surfaces, the construction of the SERC project at this site would not generate any new storm water. Construction-phase water quality impacts would be addressed by the SWPPP that would be implemented in compliance with NPDES requirements, and long term water quality impacts would be addressed by BMPs that are implemented by UC Berkeley under its storm water management plan. The former DHS site is also outside of any tsunami hazard zone and is not vulnerable to inundation from sea level rise in the next century. Therefore, this alternative would result in less than significant hydrology and water quality impacts similar to those of the proposed project. However, construction of the SERC project at the DHS site would not improve the storm drainage system at the LBNL hill site, which has inadequate capacity during wet weather events, a benefit that would be provided if the project were

constructed at the proposed site at LBNL. All cumulative impacts of this alternative would also be similar to the cumulative impacts of the proposed project.

Noise

In the vicinity of the former DHS site, traffic noise on the street network dominates the noise environment. Along Shattuck Avenue, typical hourly average noise levels range from 68 to 71 dB(A) during the daytime and drop to about 55 dB(A) at night. The measured day/night average noise level on Shattuck Avenue in the Campus Park area was 71 L_{dn} (UC Berkeley 2009).

Construction and operation of the SERC project under this alternative would generate noise in the vicinity of the former DHS site. Development of the facility would be subject to the mitigation measures prescribed in the UC Berkeley 2020 LRDP EIR that would reduce noise levels associated with facility operation and construction. Mechanical equipment selection and shielding would be utilized to ensure noise levels from operation of the facility do not cause City of Berkeley Noise Ordinance limits to be violated in the vicinity. Construction noise-control specification would include such information as general provisions, definitions, submittal requirements, construction limitations, requirements for noise and vibration monitoring and control plans, noise-control materials and methods. However, despite implementation of control measures, the noise generated by construction of the SERC project at this site would exceed the levels set by the local ordinance at the 1910 Oxford Street apartments, which are on the same city block as the former DHS site. The close proximity to the nearest sensitive receptors would result in an increased potentially significant construction noise impact under this alternative as compared to the proposed project.

However, because of the site's proximity to transit facilities, this alternative would not result in a substantial increase in vehicle trips. Therefore, the increase in traffic noise due to this alternative would be less than significant, similar to the proposed project.

Development of SERC project, in addition to other UC Berkeley projects in the vicinity of the former DHS site, would elevate noise levels in the vicinity where ambient noise levels currently exceed noise levels that are considered acceptable for residential uses. Given the close proximity of the 1910 Oxford Street apartments and other residential receptors to the construction of these projects, the alternative's contribution to the cumulative noise impacts would be considerable. The cumulative construction noise impact under the alternative would be greater than the cumulative noise impact of the proposed project.

Transportation and Traffic

Under this alternative, it is assumed that no parking would be provided at the former DHS site. Given the site's proximity to the Downtown Berkeley BART station, and the availability of AC transit bus service and UC Berkeley and LBNL shuttle service near the site, the majority of the 50 relocating and 10 new staff is expected to use public transit. Persons who would drive would be expected to use UC parking facilities near the site including the Genetics garage. The addition of a small number of trips by the SERC project is not expected to adversely affect the road network. Similar to the proposed project, this alternative would result in less than significant project-level traffic impacts.

This alternative would add trips to one of the four study intersections (Hearst and Gayley) that would experience significant cumulative traffic impacts under the LBNL 2006 LRDP because SERC researchers would need to travel to the LBNL hill site to use the Lab's user facilities. However, because these trips would not likely occur during peak hours, the alternative would not contribute to the significant and unavoidable cumulative traffic impact at the Hearst and Gayley intersection or the other three study intersections that would be affected by the proposed project under cumulative conditions. However, this alternative would add trips to other downtown Berkeley intersections that are expected to operate poorly under cumulative conditions. The EIR prepared for the UC Berkeley 2020 LRDP concluded that new traffic added by growth on the campus through 2020 would increase vehicle trips and traffic congestion at the University Avenue and Sixth Street intersection and University Avenue and San Pablo Avenue intersection, leading to substantial degradation in level of service. This alternative would contribute to this cumulative impact. The project would be subject to UC Berkeley 2020 LRDP mitigation measures which are designed to reduce the impacts of new traffic added by growth on the campus but would remain significant and unavoidable. Therefore, the alternative's contribution to a significant cumulative traffic impact would be similar to that of the proposed project.

Wastewater and Energy Systems

Implementation of the SERC project at the DHS site would result in a demand for utilities such as water supply and infrastructure, wastewater facilities, stormwater drainage facilities, and solid waste services. As an infill site, the DHS site is well served by utilities and additional improvements would likely not be required. If utility improvement are required, they would be constructed within city streets and on the former DHS site—in environments that are already disturbed—and their construction would not result in substantial adverse environmental effects. Therefore, impacts related to wastewater and energy systems under this alternative would be less than significant, similar to the proposed project. All cumulative impacts of this alternative would also be similar to the cumulative impacts of the proposed project.

Alternative 4: Richmond Field Station Site

Under this alternative, the proposed SERC project would be located at the UC Berkeley Richmond Field Station (RFS). The RFS is located in Richmond off of Interstate 580 (I-580). The 152-acre academic teaching and research facility consists of about 100 acres of uplands and about 52 acres of marsh and bay lands. The RFS was formerly used for industrial purposes and there is remnant contamination that has been the subject of environmental investigation and remediation over a number of years.¹ UC Berkeley is conducting additional investigations of groundwater and soil contamination to determine if more clean-up is required.

The proposed SERC project site at RFS is a 3.2-acre parcel bound by Seaver Avenue to the west, South 47th Street to the east, and two un-named streets to the north and south. This site is an existing storage area for California Partners for Advanced Transit and Highways research vehicles. Although a building (Building 167) is present in the southern portion of this site, this building would not be displaced by the SERC project, as adequate undeveloped land area is available to locate the SERC building on the site without removing this building. The new SERC building would be three stories tall and would have a similar footprint compared to the proposed project. All attributes of the project program and population at this alternate location would be the same as that of the proposed project. The number of employees that would be accommodated in the facility would remain the same as for the proposed project (about 60 persons). However, unlike the proposed project, which involves the relocation of about 40 persons to the LBNL hill site and the hiring of 10 new employees, this alternative involves the relocation of all 50 persons to the RFS site and the hiring of 10 new employees. Because the RFS is not well served by public transit, this alternative would include the creation of 60 parking spaces for all employees, unlike the proposed project that would provide about 26 parking spaces.

Construction of the new facility at this site would require minimal grading since the site is flat. However, because the RFS site is close to sea level, construction of a basement would likely not be possible without resulting in high costs, and therefore the building would need to be specially designed to accommodate vibration and light sensitive equipment.

Construction of the SERC project at RFS by UC LBNL would not be an activity covered by the LBNL 2006 LRDP EIR, and the 2006 LRDP EIR mitigation measures would not apply to this alternative. However, UC LBNL would voluntarily apply the same mitigation measures to this alternative so as to avoid or reduce its environmental impacts. This alternative is evaluated below assuming that appropriate LRDP mitigation measures would be imposed on the alternative by UC LBNL.

¹ A description of the Richmond Field Station including past industrial activities and ongoing clean-up can be found online at: <http://rfs.berkeley.edu/about.html#thefacility>.

Relationship to Project Objectives

This alternative would not achieve the project objective of consolidating existing LBNL and UC Berkeley solar energy research programs in one facility in close proximity to the unique user facilities at the LBNL hill site that will be used by the SERC program researchers, in partnership with the researchers currently located in those LBNL facilities. It would also not place the SERC at a location where its researchers could easily draw upon the intellectual, technological, and material resources of LBNL. Due to its distance from UC Berkeley and LBNL, this alternative would not minimize travel between the RFS site, the UC Berkeley campus, and the LBNL hill site. Some of the SERC researchers would need to travel to the UC Berkeley campus for their teaching and research activities and most researchers would need to travel to the LBNL hill site to use the Lab's user facilities.

Comparative Analysis of Impacts

Aesthetics

Although the visual setting of the bayside RFS differs from the setting of the LBNL hill site, the building design would be similar at both locations. Unlike the proposed project, all three levels of the building under this alternative would likely be above grade. However, the RFS is not located within a scenic vista and this alternative would not substantially alter the visual character of the area, as the SERC project would be constructed among the existing light industrial and institutional buildings. Furthermore, the building would be largely screened from public views from the Bay Trail and housing by intervening buildings and vegetation. Therefore, similar to the proposed project, visual impacts under this alternative would be less than significant. Given that there are no concurrent projects in the vicinity of the site, the cumulative impact related to visual resources would be minimal.

Air Quality

Emissions from construction traffic and construction equipment resulting from this alternative would be similar to the proposed project because construction activities would be similar. Construction-related emissions would not exceed BAAQMD significance thresholds for any criteria pollutant. Similar to the proposed project, this alternative is unlikely to result in unacceptable increases in ambient CO concentrations due to construction.

Operation of the SERC project at the RFS site would involve the same area and stationary sources, including the cooling tower, boilers, and an emergency generator, as the proposed project. However, under this alternative, mobile source emissions would likely increase because the number of vehicles traveling to the site would increase as it is assumed for this analysis that all 60 employees associated with

the SERC project would drive to the site because of the limited transit service to the RFS site. Therefore, the overall operational emissions related to the operation of the SERC facility at the RFS site would be slightly higher than the proposed project, but would remain below BAAQMD significance thresholds. In summary, this alternative would result in slightly increased less than significant air quality impacts as compared to the proposed project. Cumulative impacts related to air quality would be greater than the proposed project under this alternative as it would result in the higher emissions from construction traffic and equipment and from operational stationary and area sources. Since the emissions would remain below BAAQMD significance thresholds, the cumulative impact would be less than significant. In addition, given that there are no cumulative projects in the vicinity of the RFS site, the cumulative toxic air contaminants impact would be slightly less as compared to the LBNL site.

Cultural Resources

This alternative site is in an area that has previously been disturbed. Building 167, which is present on the alternative site, is less than 50 years old and is therefore unlikely to be considered a historic resource. Furthermore, the construction of the SERC facility would not require the removal of or alterations to Building 167. Based on a records search conducted by the Northwest Information Center (NWIC) of the California Historic Resources Information System (CHRIS), NWIC concluded that although there are no known pre-historic or historic resources present on the alternative site, there is a moderate to high potential of encountering unrecorded prehistoric archaeological resources and a moderate potential of encountering historic-period archaeological resources in the proposed SERC site at RFS (see **Appendix 5.0**). Therefore compared to the proposed project, this alternative has a greater potential to affect cultural resources and would require additional evaluation.

Geology and Soils

The RFS alternative site is located further from the Hayward fault (approximately 2.2 miles) than the proposed project site which is within about 0.5 mile of the Hayward fault. Neither site is at risk of damage from fault rupture. Although the proposed project would place people closer to an active fault and the associated seismic hazards, the effects of locating the SERC building close to the fault could be mitigated by building design. Therefore, the RFS alternative would result in less than significant impacts related to seismic hazard from proximity to an active fault that are similar to the impacts of the proposed project.

The RFS site is located near the Bay margins and the potential for liquefaction-related impacts is likely greater at this site than at the proposed project site. However, based on maps prepared by the Association of Bay Area Governments (ABAG), the site is located in an area that has a moderate to very low susceptibility for liquefaction due to water saturation (ABAG 2009) and based on soil borings, the central

portion of the RFS does not have a high liquefaction potential. Therefore, this alternative would have a slightly greater potential for impact related to liquefaction hazard and piers would likely be required to construct on this site. Overall, the impacts related to geology and soils resulting from this alternative would be similar to those of the proposed project. All cumulative impacts of this alternative related to geology and soils would also be similar to the less than significant cumulative impacts of the proposed project.

Greenhouse Gas Emissions

GHG emissions from construction of the SERC facility at the RFS site would be similar to the proposed project because construction activities would be generally comparable. Under this, mobile source emissions would likely increase for two reasons: first, the number of vehicles traveling to the site would increase compared to the proposed project, and second, researchers at the SERC who hold joint positions with UC LBNL and UC Berkeley would need to undertake additional trips to UC Berkeley for teaching and to LBNL hill site to use some of the unique research facilities at that location. Therefore, the GHG emissions related to the operation of the SERC project at the RFS site would be higher. Emissions from all other sources would be similar to those estimated for the proposed project. Therefore, this alternative would result in slightly increased less than significant GHG impacts as compared to the proposed project.

Hazards and Hazardous Materials

A portion of the RFS site has been remediated for various metals that had exceeded site-specific human and ecological target levels, and soil management and groundwater monitoring programs are in place to ensure ecological and human safety. However, a portion of the site is contaminated with pyrite cinders that are currently being investigated by UC Berkeley. It is anticipated that the University would remediate the site entirely, in compliance with California Department of Toxic Substances Control (DTSC) requirements, prior to development. Therefore, the SERC project could be safely developed at this site and would not result in human health effects from exposure to contamination.

The RFS also has an emergency response plan that includes evacuation routes, similar to the LBNL hill site. Given the geography of the site near a marsh, the risks of wildland fires at the RFS site are lower than the proposed project site. The RFS site is more than 12.5 miles north of the Oakland Metropolitan Airport, and is also not located within the vicinity of a private airstrip. Therefore, the hazards and hazardous materials impacts resulting from this alternative would be less than significant, similar to the proposed project.

Development of the SERC project at the RFS site would incrementally increase handling of hazardous materials and wastes at the RFS site, but would not be subject to risks associated with wildland fires.

Compliance with applicable regulations would reduce cumulative impacts related to risk of accidents involving hazardous materials to a less than significant level.

Hydrology and Water Quality

The SERC facility would be located in a portion of the RFS that is currently undeveloped, and therefore the facility would add new impervious surfaces that would generate increased storm water runoff. Due to the site's close proximity to the San Francisco Bay, hydromodification impacts of this increased runoff are not a concern for this site. However, water quality could be affected by the runoff generated by the parking lot that would be built at the site to accommodate the SERC project population. Compliance with NPDES requirements would reduce potential impacts related to erosion, sedimentation, and water quality.

The Association of Bay Area Governments' (ABAG) maps of tsunami danger show that only the marshland in the southern portion of RFS is in a tsunami inundation area (ABAG 2010). SERC construction at RFS, which is in the upland area, would not therefore place personnel at undue risk from tsunamis. In addition, according to the sea level rise map prepared by the San Francisco Bay Conservation and Development Commission (BCDC), the SERC site at RFS is not vulnerable to inundation from sea level rise in the next century (BCDC 2008). This alternative would result in less than significant impacts to hydrology and water quality that would be slightly increased as compared to the proposed project.

Development of the alternative would incrementally increase storm water runoff at the RFS site. Compliance with NPDES requirements would minimize the alternative's contribution to cumulative hydrology and water quality impacts. The cumulative impact would be less than significant, similar to the proposed project.

Noise

Noise levels related to operation and construction of the SERC project under this alternative would be the same as described under the proposed project. The RFS site is not located near sensitive receptors. The nearest residential neighborhood is located more than 1,500 feet from the alternative site, and there are several intervening buildings between the alternative site and the homes in this neighborhood and a clear line of sight is not available. Given the intervening buildings and distance to the residences, it is expected that the residential receptors would not be exposed to substantial noise level increases from project construction and operation. The vehicular traffic generated under this alternative would not travel past any homes and therefore would not increase ambient noise levels near sensitive receptors. Therefore, similar to the proposed project, noise impacts under this alternative would be less than significant. The

alternative would reduce the cumulative noise impacts in comparison to the proposed project because it would be located further from off-site sensitive receptors and there would be no other construction projects nearby.

Transportation and Traffic

Under this alternative, approximately 60 employees would be added to the RFS site. RFS is located directly off of I-580 and although the site can be accessed via three interchanges, the Regatta interchange provides the most direct access to the site. Vehicles traveling to and from the RFS site via the Regatta interchange travel through one major intersection - the intersection of Regatta Boulevard and Meade Street, which currently operates at an acceptable level of service. Conservatively assuming that all 60 employees would drive to the site, it is anticipated that this alternative would generate up to 6 AM peak hour trips and 6 PM peak hour trips, based on trip generation rates for Single Tenant Office uses in the Institute of Traffic Engineers (ITE) *Trip Generation* guide (ITE 2008). Assuming conservatively that all these vehicles would use the Regatta interchange, this volume of traffic when added to the roadways would not adversely affect the Regatta Boulevard and Meade Street intersection. Therefore, this alternative would result in less than significant traffic impacts, similar to the proposed project.

As noted in **Section 3.0, Project Description**, some of the SERC principal investigators are anticipated to hold joint appointments as UC LBNL researchers and UC Berkeley professors and therefore are anticipated to travel between the SERC facility and the UC Berkeley campus during the course of the day. In addition, SERC researchers are expected to use the LBNL user facilities such as ALS, Molecular Foundry and NECM extensively. Therefore, in addition to the peak hour trips noted above that would result from the researchers commuting to RFS, locating the SERC facility at RFS would result in numerous additional trips during the course of the day.

This alternative would add trips to one of the four study intersections (Hearst and Gayley) that would experience significant cumulative traffic impacts under the LBNL 2006 LRDP because SERC researchers would need to travel to the LBNL hill site to use the Lab's user facilities. However, because these trips would not likely occur during peak hours, the alternative would avoid the significant and unavoidable cumulative traffic impact of the proposed project at the Hearst and Gayley intersection and the other three study intersections that would be affected by the proposed project under cumulative conditions. As mentioned above, the roadways and intersections in the vicinity of the alternative site currently operate at acceptable levels of service and the relocation of 60 employees to the area would not result in any cumulative impacts.

Wastewater and Energy Systems

An estimated 60 people would be added to the RFS site under this alternative, in comparison to 50 persons added to the LBNL hill site under the proposed project. Therefore, demands for utilities services, including water, wastewater, and solid waste disposal, under the alternative would be slightly higher in comparison. However, based on current usage levels and capacity, it is anticipated that sufficient utilities and service systems would be available for the SERC project at the RFS site.

Energy demands under the alternative would be the same as the proposed project. PG&E provides electricity to the RFS via a 12-kilovolt (kv) electrical line (UC Berkeley 2008). The electrical system is at 65 percent capacity. Assuming the line operates at a maximum load of 600 amperes, the remaining capacity would be 2.5 MW per day. The SERC project would require up to 380 kW per day, so electrical improvements would not be required. As no utility improvements would be required, this alternative would have slightly reduced less than significant impacts as compared to the proposed project.

The RFS site is located in a largely developed area currently served by sufficient utilities and service systems to accommodate development projects through 2013. The alternative would not contribute to the need for improvements to the wastewater or electrical infrastructure. Similar to the proposed project, the cumulative impact would be less than significant.

Alternative 5: Leased Facility on San Pablo Avenue

Under this alternative, UC LBNL would lease a portion of the 508,000 gsf building located at 6701 San Pablo Avenue, in the cities of Berkeley, Emeryville, and Oakland. This alternative would involve interior tenant improvements to provide the needed office and laboratory space. To provide adequate cooling, cooling towers and chillers would be constructed on top of or adjacent to the building.

Unlike the Proposed Action, which involves the relocation of about 40 persons to the LBNL hill site and hiring 10 new employees, this alternative involves the relocation of about 50 persons to the alternative site and hiring 10 new employees. The site has parking spaces for 100 cars inside the building and 300 outside the building, and there is a potential to increase parking from 400 to 1,200 spaces at the site.

The entire site is impervious and there are three ornamental trees in front of the building on San Pablo Avenue. Unlike the Proposed Action, which would require construction of a new three-story facility and improvements, construction activities under this alternative would be limited to interior modifications and installation of cooling and heating equipment.

Relationship to Project Objectives

Alternative 5 would not achieve the project objective of consolidating existing LBNL and UC Berkeley solar energy research programs in one facility in close proximity to the unique user facilities at the LBNL hill site that will be used by the SERC program researchers, in partnership with the researchers currently located in those LBNL facilities. It would also not place the SERC at a location where its researchers could easily draw upon the intellectual, technological, and material resources of LBNL. Due to its distance from UC Berkeley and LBNL, this alternative would not minimize travel between the SERC at the San Pablo Avenue site, the UC Berkeley campus and the LBNL hill site. Some of the SERC researchers would need to travel to the UC Berkeley campus for their teaching and research activities and most researchers would need to travel to the LBNL hill site to use the Lab's user facilities. In addition, by utilizing an existing building, this alternative would not meet the project objective to provide an integrated, economical, and appropriately designed facility for high-level research in solar energy sources and technologies that will become a benchmark for energy-efficiency in future similar building types.

Aesthetics

Use of an existing building would not have any visual impacts. This alternative would further reduce the less than significant visual impacts that would occur under the proposed project. All the cumulative impacts would be reduced compared to the proposed project.

Air Quality

Under this alternative, construction activities would be limited to the construction of interior modifications and installation of cooling and heating equipment. Given that the extent of construction would be less under this alternative, the emissions related to construction would be proportionally lower and would not exceed BAAQMD significance thresholds for any criteria pollutants. Similar to the proposed project, this alternative is unlikely to result in an unacceptable increase in ambient CO concentrations due to construction.

Operation of the facility at the alternative site would involve area and stationary sources that are similar to the proposed project and emissions from stationary sources would likely be similar. The total number of vehicle trips generated under this alternative would be similar to the proposed project due to the availability of transit and shuttle services to the site, and mobile source emissions would therefore be similar and would remain below the BAAQMD significance thresholds. Therefore, this alternative would further reduce the less than significant air quality impacts of the proposed project. All cumulative air quality impacts would also be reduced compared to the proposed project.

Cultural Resources

The leased facility site on San Pablo Avenue is developed with a warehouse-type building (Marchant Building) constructed by the Marchant Calculator Company in 1956 and parking spaces and no undeveloped land is present on the site. There are no archaeological resources known to exist on the site. To the extent that cooling towers and the generator are installed on the ground adjacent to the existing building, the ground disturbance for the installation of this equipment would take place at a previously disturbed site and as such would not affect archaeological resources.

According to a records search conducted at the NWIC and consultation with NWIC staff, an architectural evaluation of the Marchant Building was conducted in 2006 which concluded that the building was potentially eligible for the National Register of Historic Places. The building has not been recorded with the State Office of Historic Preservation at this time (see **Appendix 5.0**). Although the alternative involves the use of the building with no exterior modifications and only interior improvements, however, construction of cooling towers and installation of the generator adjacent to or on the rooftop of the building could represent alterations to a potential historic resource. Therefore, this alternative could result in a significant impact on a historic resource, an environmental impact that would not occur under the proposed project.

Geology and Soils

The building proposed for lease was constructed in 1956 and has been improved since then to comply with current building codes. The building is not located on an active fault and therefore there is no risk of damage from fault rupture. Since the building is in a low liquefaction hazard zone, the risk for damage to the building and equipment as a result of seismic ground-shaking would be low. The potential for landslide and soil instability impacts is also low because the alternative site is flat. Therefore, this alternative would result in less than significant impacts related to geology and soils, similar to the proposed project. The alternative would not contribute to a cumulative impact related to geology and soils, and the cumulative impacts would be reduced compared to the proposed project.

Greenhouse Gas Emissions

Under this alternative, the extent of construction would be less and the GHG emissions related to construction would be proportionally lower. The total number of vehicle trips generated under this alternative would be similar to the proposed project due to the availability of transit and shuttle services. GHG emissions related to the operation of the SERC project at the San Pablo Avenue site would be similar to the proposed project. Therefore, this alternative would further reduce the less than significant GHG impacts of the proposed project.

Hazards and Hazardous Materials

The impacts associated with the use of hazardous materials on site would remain the same under this alternative as the nature of the work conducted at the SERC project would remain the same as the proposed project. Therefore, this alternative would result in similar hazards and hazardous materials impacts as compared to the proposed project. All cumulative impacts would be similar to the proposed project.

Hydrology and Water Quality

Under this alternative, no new construction would occur, and therefore, impacts related to construction-phase erosion and sedimentation, and stormwater quality, and dewatering operations would not occur. Impacts related to hydrology and water quality would be slightly reduced under this alternative as compared to the proposed project and would remain less than significant. All cumulative impacts would be reduced compared to the proposed project.

Noise

This alternative would have no construction-related noise impacts, as it would involve only interior modifications to an existing building and installation of new equipment adjacent to or on top of the building. The operation of the SERC at this location would generate a small number of additional daily trips to the site and roof-top equipment could increase ambient noise levels. However, the traffic increase would be too small to result in a perceptible increase in noise levels. With respect to roof-top equipment noise, implementation of 2006 LRDP mitigation measures voluntarily as part of this alternative would control the noise to acceptable levels and nearby residential receptors would not be affected. Impacts related to construction noise would be slightly reduced under this alternative as compared to the proposed project and while the operational noise impacts would be greater due to the proximity of the residential receptors, the impacts would be reduced to less than significant with the mitigation incorporated into the alternative. All cumulative noise impacts would be reduced compared to the proposed project.

Transportation and Traffic

There would be minimal construction-related truck trips associated with this alternative as it would involve use of an existing building with minimal renovations. Access to the site is typically from I-80/580 and State Route 24 via Ashby and San Pablo Avenues. Users of the facility could also enter the site from Seventh Street off of Ashby Avenue. Intersections along Ashby Avenue and San Pablo Avenue were evaluated for the *West Berkeley Project Draft EIR* (City of Berkeley 2010). According to the LOS analysis

prepared for that EIR, the intersections of Ashby Avenue and San Pablo Avenue, and Ashby Avenue and Seventh Street currently function at LOS D during the evening peak hour (City of Berkeley 2006). The relocation of about 50 employees to South Berkeley and hiring of 10 new employees would result in incremental delay at these intersections. However, with implementation of mitigation measures incorporated into the, that alternative would be unlikely to result in significant operational traffic impacts as the area is served by four-lane city streets. This alternative would further reduce the less than significant traffic impacts of the proposed project.

As noted in **Section 3.0, Project Description**, some of the SERC principal investigators are anticipated to hold joint appointments as UC LBNL researchers and UC Berkeley professors and therefore are anticipated to travel between the SERC facility and the UC Berkeley campus during the course of the day. In addition, SERC researchers are expected to use the LBNL user facilities such as ALS, Molecular Foundry and NECM extensively. Therefore, in addition to the peak hour trips noted above that would result from the researchers commuting to the San Pablo site, locating the SERC facility at this site would result in numerous additional trips during the course of the day.

This alternative would add trips to one of the four study intersections (Hearst and Gayley) that would experience significant cumulative traffic impacts under the LBNL 2006 LRDP because SERC researchers would need to travel to the LBNL hill site to use the Lab's user facilities. However, because these trips would not likely occur during peak hours, the alternative would avoid the significant and unavoidable cumulative traffic impact of the proposed project at the Hearst and Gayley intersection and the other three study intersections that would be affected by the proposed project under cumulative conditions. As mentioned above, the alternative site vicinity is served by four-lane city streets and traffic added by the relocation of 50 and hiring of 10 new employees to the area would not result in a significant cumulative traffic impact.

Wastewater and Energy Systems

The SERC facility would be adequately served by the existing utilities infrastructure under this alternative and improvements, other than the installation of cooling and other equipment on the rooftop or adjacent to the building, would not be required. This alternative would further reduce the less than significant impacts of the proposed project related to wastewater and energy systems. All cumulative impacts would be reduced compared to the proposed project.

5.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 5.0-1 presents a summary comparison of the alternatives with the proposed project with the purpose of highlighting whether the alternative would result in similar, greater, or lesser environmental impacts than the proposed project.

The No Project Alternative would avoid all of the significant environmental impacts of the proposed project. This alternative would therefore be the environmentally superior alternative. It would, however, not meet any of the proposed project's objectives.

If the No Project Alternative is the environmentally superior alternative, State *CEQA Guidelines* Section 15126(d) (2) requires that an EIR identify an environmentally superior alternative from amongst the other alternatives evaluated in the EIR.

Of the other alternatives evaluated in this EIR, Upper Bevatron site (Alternative 2), would have similar impacts as the proposed project in all resource areas except aesthetic impacts, which would be slightly reduced, and hydrology impacts, which would be slightly increased due to conversion of undeveloped land. This alternative would not avoid the proposed project's significant cumulative traffic impact.

The former DHS site alternative (Alternative 3) would also contribute to a significant and unavoidable cumulative traffic impact and would also have a greater project-level and cumulative noise impact, as it is located closer to sensitive receptors.

The Leased Facility on San Pablo Avenue alternative (Alternative 5) would avoid the significant and unavoidable cumulative traffic impact of the proposed project, and would further reduce the less than significant impacts to aesthetics, air quality, greenhouse gas emissions, hydrology and water quality, noise, traffic, and wastewater and energy systems as it is an existing building and would require minimal improvements. However, the building has been evaluated as a potential historic resource and alterations to a potential historic resource could adversely affect it, potentially resulting in a significant impact.

The location of the proposed project at the RFS location (Alternative 4) would slightly increase the project's less than significant impact related to greenhouse gas emissions, as it would result in greater mobile source emissions, and increase the project's less than significant impact related to hydrology and water quality because it would increase the amount of storm water runoff from impervious surfaces. This alternative would also have greater potential for affecting sensitive archaeological resources than the proposed project. All other impacts would be comparable. However, the alternative would avoid the proposed project's significant cumulative traffic impact and is therefore considered the environmentally superior alternative. This alternative would not meet most of the objectives of the proposed project as it

would place the SERC project away from the LBNL hill site and the UC Berkeley campus and would not provide easy access to LBNL scientific facilities.

5.4 REFERENCES

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**Table 5.0-1
Summary Comparison of SERC Project Alternatives**

SERC Project Impact		Proposed SERC Project (Before Mitigation)	No Project Alternative	Upper Bevatron Alternative	Former DHS Site Alternative	RFS Site Alternative	San Pablo Avenue Alternative
SERC NOISE-1	Construction activities would temporarily elevate noise levels at the project site and surrounding areas but not above the significance threshold for construction noise.	Less than significant	No impact However, there would be similar less than significant noise impacts from the construction of another building at the project site, pursuant to the 2006 LRDP.	Less than significant Similar to the proposed project.	Significant Construction activities would generate noise levels that would exceed significance thresholds at the nearest residential receptors.	Less than significant	Significant Construction activities would generate noise levels that would exceed significance thresholds at the nearest residential receptors.
Cumulative NOISE-1	The proposed project would not make a cumulatively considerable contribution to noise impacts associated with construction of multiple projects at the LBNL hill site during the 2010 to 2013 construction window.	Less than significant	No impact However, there would be similar less than significant impacts from the development of another project at the proposed site, pursuant to the 2006 LRDP.	Less than significant Similar to the proposed project.	Significant Construction activities would contribute to a significant cumulative noise impact.	Less than significant This alternative would not contribute to a significant cumulative noise impact.	Less than significant This alternative would not contribute to a significant cumulative noise impact.
Cumulative TRANS-1	The proposed project would make a cumulatively considerable contribution to long-term traffic impacts in the project vicinity.	Significant and unavoidable	No impact However, there would be similar or greater impacts from the development of another project at the proposed site, pursuant to the 2006 LRDP.	Significant and unavoidable Similar to the proposed project.	Significant and unavoidable This alternative would contribute to significant cumulative traffic impacts at intersections in downtown Berkeley.	Less than significant This alternative would not contribute to a significant cumulative traffic impact.	Less than significant This alternative would not contribute to a significant cumulative traffic impact.
New Impact (related to Alternatives 4 and 5)	Construction of the SERC facility could have an adverse effect on cultural resources.	Less than significant	No impact However, there could be similar less than significant impacts from the development of another project at the proposed site, pursuant to the 2006 LRDP.	Less than significant Similar to the proposed project.	Less than significant Similar to the proposed project.	Less than significant However, there is a higher potential for encountering archaeological resources compared to the proposed project.	Potentially significant This alternative could result in a significant impact on a historic resource.