

## 6.0 ALTERNATIVES

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The California Environmental Quality Act (CEQA) requires that an 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 also evaluates the comparative merits of the alternatives (*CEQA Guidelines* Section 15126.6). Alternatives that avoid or substantially reduce significant impacts are considered, even if these alternatives would impede to some degree the attainment of project objectives or would be more costly to the project applicant (*CEQA Guidelines* Section 15126.6(b)). 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 (*CEQA Guidelines* Section 15126.6(a)).

The project has been described and analyzed in the previous chapters with an emphasis on potentially significant and unavoidably significant impacts. 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 chapter also includes an analysis of the No Project Alternative.

In response to the Notice of Preparation for this EIR, several commenters expressed concern regarding project alternatives and stated that alternative off-site locations should be considered in the EIR. Sites specifically identified in the scoping comments include the UC Berkeley Richmond Field Station. These scoping comments are addressed in the impact assessment presented below.

### 6.1 OBJECTIVES OF THE CRT FACILITY PROJECT

Key objectives of the proposed project are to:

- Provide an integrated and appropriately designed facility that would allow for the continued operation and future advancement of the Berkeley Lab's NERSC High Performance Computing national users facility, Computational Research Division and joint Berkeley Lab/UC Berkeley Computational Science & Engineering programs;
- Provide adequate space, chilling capacity, and infrastructure to accommodate next-generation computing equipment and to allow for continual future upgrades to such equipment;
- Provide accessibility to a large, reliable, and economical electrical power source. The power source should be capable of serving both the immediate and potential future needs of Berkeley Lab's computing program;

- Provide researchers with convenient access to other Lab scientific facilities, programs, researchers, and services; locate the facility such that it fosters interaction and collaboration between the project and UC Berkeley programs; and
- Meet University of California policies on sustainability and achieve efficiencies in energy conservation, temperature control, operational and maintenance services, and transportation (i.e., near public transportation, and without provision of large amounts of parking).

## 6.2 IMPACTS OF THE CRT FACILITY PROJECT

To develop project alternatives, the Lab 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 environmental topics: aesthetics; air quality; biological resources; geology and soils; hazards and hazardous materials; hydrology and water quality; noise; transportation and traffic; and utilities, service systems, and energy. All impacts were found to be less than significant or less than significant after incorporation of mitigation measures, with the exception of impacts related to construction noise, which were found to be significant and unavoidable.

### *Aesthetics*

**Section 4.1, Aesthetics**, of this EIR identified potentially significant impacts related to project construction activities (Impact VIS-1), which could be reduced to a less than significant level with project-level mitigation. No significant and unavoidable impacts were identified for aesthetics.

### *Air Quality*

**Section 4.2, Air Quality**, identified less than significant impacts, with project-specific mitigation for construction impacts. No significant unavoidable impacts were identified for air quality.

### *Biological Resources*

**Section 4.3, Biological Resources**, of this EIR identified a potentially significant impact to nesting birds related to construction activities (Impact BIO-3), which could be reduced to a less than significant level with project-level mitigation. No significant and unavoidable impacts were identified for biological resources.

### *Cultural Resources*

**Section 4.4, Cultural Resources**, of this EIR, identified less than significant impacts on historic resources, archaeological resources, and human remains. No significant unavoidable impacts were identified related to cultural resources.

### *Geology and Soils*

**Section 4.5, Geology and Soils**, identified a potentially significant impact related to exposure of people and structures to seismic ground-shaking hazards (Impact GEO-2), which would be reduced to a less than significant level with project-specific mitigation, and less than significant impacts related to rupture of an earthquake fault, landslide hazards, substantial soil erosion, and hazard associated with expansive soils. No significant and unavoidable impacts were identified related to geology.

### *Hazards and Hazardous Materials*

**Section 4.6, Hazards and Hazardous Materials**, identified less than significant impacts related to use and storage of hazardous materials and wildland fire hazards. No significant unavoidable impacts were identified for hazards.

### *Hydrology and Water Quality*

**Section 4.7, Hydrology and Water Quality**, of this EIR, identified potentially significant impacts related to flooding (Impact HYDRO-2) and storm water quality (Impact HYDRO-4), which would be reduced to a less than significant level with project-specific mitigation. No significant and unavoidable impacts were identified for hydrology and water quality.

### *Land Use and Planning*

**Section 4.8, Land Use and Planning**, of this EIR, identified less than significant impacts. No significant unavoidable impacts were identified related to land use.

### *Noise*

**Section 4.9, Noise**, identified less than significant impacts related to noise and vibration associated with operational conditions. Significant unavoidable impacts were identified for noise associated with construction and demolition activities.

### *Population and Housing*

**Section 4.10, Population and Housing**, of this EIR identified less than significant impacts. No significant unavoidable impacts were identified related to population and housing.

### *Public Services*

**Section 4.11, Public Services**, of this EIR identified less than significant impacts. No significant unavoidable impacts were identified related to public services.

### *Transportation and Traffic*

**Section 4.12, Transportation and Traffic**, identified less than significant impacts related to traffic, and no project-level significant unavoidable impacts were identified for transportation and traffic. The project traffic would make a potentially considerable contribution to the cumulative (2025) traffic congestion impact (Cumulative Impact TRANS-1).

### *Utilities, Service Systems, and Energy*

**Section 4.13, Utilities, Service Systems, and Energy**, of this EIR, identified less than significant impacts related to water supply, sanitary sewer service, and energy use. No significant unavoidable impacts were identified for utilities, service systems, and energy.

### *Cumulative Impacts*

**Section 5.0, Cumulative Impacts**, of this EIR identified less than significant cumulative impacts of the proposed project on all resources areas except traffic. Computational Research and Theory (CRT) Cumulative Impact TRA-1 shows that long term development in the project area, in conjunction with the proposed project, would significantly affect level of service at three study intersections, and that the impact would be significant and unavoidable because LBNL cannot guarantee the implementation of the improvements that would be needed to restore the level of service of the affected intersection to an acceptable level.

## **6.3 ALTERNATIVES TO THE PROJECT**

### **6.3.1 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.

### *Reduced Density Alternative*

A reduced-density alternative examined for this EIR would include the supercomputer equipment floor and a reduced office area, but no high-rise office structure. It was assumed that the footprint of the building would remain at approximately 40,000 gross square feet (gsf), similar to the proposed project. The conceptual design considered for this alternative would consist of one main building with a lower-lying, wide structure extending north-south across the site to house the computer equipment floors and one or two stories over a portion of the computer floor to provide a reduced amount of office space as compared to the proposed project. Other project characteristics such as common areas, building design, colors and materials, lighting, landscaping, and access would presumably remain relatively the same as described for the proposed project.

Such an alternative would achieve some of the project objectives identified for the CRT facility presented above, including the opportunity to (1) foster interaction and collaboration between the project and UC Berkeley programs; (2) provide adequate space to accommodate next-generation computing equipment and allow for regular upgrades to such equipment; and (3) project a reliable power source for the project's computer equipment needs. The elimination of most of the office portion of the facility would not locate the facility such that researchers have convenient access to other Lab scientific facilities, a key project objective, and would only partially meet the objective to integrate and appropriately design the facility for advanced research in computational science and engineering.

This alternative was rejected because it would not reduce potentially significant or significant impacts of the project. Because the project would be developed on the same location as the proposed project, this alternative would have significant and unavoidable construction noise impacts similar to those of the proposed project. Significant and unavoidable operational impacts related to cumulative traffic conditions would also occur, although the project's contribution to them would be somewhat reduced. Construction-related impacts to aesthetics, biological resources, and hydrology and water quality, as well as operational impacts related to hydrology and water quality, would not be significantly reduced or avoided. For these reasons, a lower-density alternative was eliminated from further consideration in this EIR.

### *Alternate On-Site Locations*

Several areas within LBNL were considered for their potential to accommodate the proposed project; these included:

- Building 51A. With this location, Building 51A, located in the west-central portion of the LBNL site, would be demolished. The foundation would also be partially removed. A multi-story building

would be constructed consisting of a 32,000 gsf computer floor (with high ceiling) and three floors totaling 100,000 gsf rising above the computer floor.

- **Building 90.** With this location, at the western end of the LBNL site, the trailers that currently exist on this site would need to be moved to another location. Cut and fill would be required as part of the site preparation. A two-story building would be constructed with a 32,000 gsf computer floor with a 21-foot-high ceiling, 10,000 gsf for scientific cluster support, and 90,000 gsf of office space. Electrical power would be extended from the Blackberry switching station, and the building's central utility plant would be located nearby.
- **Building 90/49 Split Site.** With this location, the trailers that currently exist on the Building 90 site would need to be moved to another location. Cut and fill would be required as part of the site preparation. A two-level building would be constructed in the current location of Building 90. The two-level building would consist of approximately 40,000 gsf of computer floor with a 21-foot high ceiling and an approximately 10,000 gsf second-story level to house office space. In addition, Building 49, a building previously proposed for the current proposed CRT project site, would be constructed on the western portion of the project site.

Significant drawbacks were found for these locations. The Building 51A site is adjacent to Building 51, the former Bevatron, and scheduled construction of the project at this location would be affected and possibly precluded by the Building 51 demolition schedule. In addition, the site has known groundwater contamination and site geotechnical conditions may not be suitable for construction of a multi-story building. Building 90 is located relatively close to residential areas in the City of Berkeley and could have significant aesthetic impacts and noise impacts on nearby residents. The Building 90 site is also relatively distant from the UC campus and other Berkeley Lab buildings and would not be easily accessible for staff and students. Finally, the Building 90/49 split site would place a building on the proposed CRT site and would have impacts similar to those of the proposed project, in addition to the impacts to the Building 90 location. For these reasons, these three alternative locations were eliminated from further consideration in this EIR.

### *Alternate Off-Site Locations*

The 2006 LRDP EIR considered an off-site alternative location that would involve use of the Richmond Field Station for expansion of the Lab. The 2006 LRDP EIR concluded that this alternative would reduce some significant impacts identified for the development anticipated under the 2006 LRDP, but would not eliminate any significant impacts because the Richmond Field Station could only accommodate a portion of the development anticipated in the 2006 LRDP, and development would still need to occur on the Lab site. While this alternative could provide occupiable building space for the CRT project, it would not meet the CRT project objectives to expand functionality of Lab facilities, provide for cross-disciplinary research, or foster collaborative work environments among researchers, since it would result in a division of resources between locations. The Richmond Field Station does not have adequate power supplies to

meet future project needs, and thus does not meet the CRT project objective of providing accessibility to a large, reliable, and economical electrical power source that could serve both the immediate and potential future needs of the Berkeley Lab's computing programs. In addition, if the CRT Facility were located at the Richmond Field Station, it would be too distant from the main UC campus, where many student and staff researchers who would use the CRT Facility are located. For this reason, an off-site location at the Richmond Field Station was rejected from further consideration in this EIR. Locating the proposed project at Mare Island, Alameda Air Base, Merced, or Nevada (locations mentioned by commenters with regard to the CRT and Helios projects) would not be feasible for the same reasons noted above.

Location of the CRT Facility on the UC Berkeley campus was also considered but rejected because the building space and population associated with the proposed project are not included in the UC Berkeley 2020 LRDP. Additionally, suitable space for construction or relocation of the High-Performance Computing center (HPC) is not available on the UC Berkeley campus. Therefore, locating the proposed CRT project on the UC Berkeley campus was eliminated from further consideration in this EIR.

### **6.3.2 Alternatives Considered in Detail**

As noted earlier in this section, the proposed project would result in significant and unavoidable impacts related to construction noise and transportation and traffic. There would also be potentially significant or significant impacts related to aesthetics, biology, and hydrology and water quality; these would be reduced to a less than significant level with the implementation of project-specific mitigation measures. 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 significant environmental impacts of the proposed project, especially the significant and unavoidable impact related to noise and the significant and unavoidable impact related to cumulative traffic. The following alternatives were evaluated in detail for their ability to avoid or minimize the significant environmental impacts of the proposed project. 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***

CEQA requires that a "No Project" alternative be considered. "No Project" is generally considered to be equivalent to a "no development" alternative. With this alternative, the proposed project would not be

implemented. However, the site is designated for development by the 2006 LRDP, and thus future development could be constructed at the project site. The existing LBNL facility in Oakland would continue to be utilized.

### **Relationship to Project Objectives**

Alternative 1 would not achieve any of the project's key objectives identified above.

### **Comparative Analysis of Impacts**

#### *Aesthetics*

There would be no impact to aesthetics because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar impacts as identified for the proposed project associated with construction and degradation of visual character.

#### *Air Quality*

There would be no impact to air quality because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar air quality impacts as identified for the proposed project.

#### *Biological Resources*

There would be no impact to biological resources on and off site since the project would not be constructed under this alternative. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar biological resource impacts as identified for the proposed project.

#### *Cultural Resources*

Under the No Project Alternative, there would be no impacts to cultural resources as the project would not be built. 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 and there could be similar less than significant impacts on cultural resources with the incorporation of 2006 LRDP mitigation measures.



### ***Geology and Soils***

There would be no impact associated with geology and soils because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar geology and soil impacts as identified for the proposed project.

### ***Hazards and Hazardous Materials***

There would no impact associated with wildland fires because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar wildland fire impacts as identified for the proposed project.

### ***Hydrology and Water Quality***

There would no impact associated with hydrology and water quality on and off site because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar hydrology and water quality impacts as identified for the proposed project.

### ***Land Use and Planning***

There would no impact associated with land use and planning because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar land use and planning impacts as identified for the proposed project.

### ***Noise***

There would no impact associated with noise because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar noise impacts, as identified for the proposed project.

### ***Population and Housing***

Under the No Project Alternative, the proposed project would not be built. Therefore, no new population would be added to LBNL. However, under the 2006 LRDP, the project site could be developed with

Research and Academic uses. Therefore, less than significant population and housing impacts similar to those described for the proposed project could occur.

#### *Public Services*

Under the No Project Alternative, the proposed project would not be built. Therefore, there would be no impacts related to public services. However, under the 2006 LRDP, the project site could be developed with Research and Academic uses. Therefore, less than significant impacts on public services similar to those described for the proposed project could occur. Mitigation measures similar to those identified for the proposed project would potentially be required to reduce the impacts to a less than significant level.

#### *Transportation and Traffic*

There would no impact associated with transportation and traffic because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and could increase traffic conditions similar to the impacts identified for the proposed project.

#### *Utilities and Service Systems*

There would no impact associated with utilities services that would be provided to the site since the project would not be built. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and could increase the demand for utilities services, similar to the impacts identified for the proposed project.

#### *Cumulative Impacts*

Under the No Project Alternative, the proposed project would not be built. Therefore, all of the cumulative impacts would be avoided, including the significant and unavoidable cumulative traffic impact. However, under the 2006 LRDP, the project site could be developed with Research and Academic uses. Therefore, cumulative impacts similar to those described for the proposed project could occur.

### *Alternative 2: Low Profile Design Alternative*

This alternative would configure the supercomputer facilities (equipment floors) and office facilities components of the CRT facility as a single wide building mass approximately three stories high. The intent of this alternative is to reduce the perceived bulk and height of the proposed multi-story building. The supercomputer facilities (equipment floors) would be constructed in roughly the same footprint

designated for the proposed project. This building would consist of two machine floors with approximately 20,000 gsf for a mechanical basement space and approximately 32,000 gsf for the HPC equipment floor. The main office block (office facilities) would rise two to three stories above the computer level and would provide a variety of general office, computer configuration and support, software support, videoconferencing, meeting, and visualization laboratory spaces, similar to the proposed project.

The total square footage of the building would be approximately 113,000 gsf. The amount of office space would be reduced compared to the proposed project. In addition, the amount of common space would be reduced with this alternative since there would be no upper-level loggia or pedestrian connection with the Building 70 complex. Access, parking, circulation, and landscape features would be generally similar to those including in the proposed project.

### **Relationship to Project Objectives**

Alternative 3 would achieve some of the key project objectives identified for the CRT facility project. Specifically, implementation of Alternative 3 would achieve the following: (1) provide an integrated and appropriately designed facility for advanced research in computational science and engineering; (2) foster interaction and collaboration between the project and UC Berkeley programs; (3) provide adequate space to accommodate next-generation computing equipment and allow for regular upgrades to such equipment; and (4) project a reliable power source for the project's computer equipment needs. The reduction in the height of the building would reduce convenient access to other Lab scientific facilities, and the reduced office space would only partially achieve the project's objective related to providing adequate space for research programs.

### **Comparative Analysis of Impacts**

#### *Aesthetics*

Implementation of Alternative 2 would reduce the overall height of the CRT facility and its corresponding visual prominence, especially when viewed against the existing mass and bulk of existing structures surrounding the project site. A single three- or four-story building would be constructed rather than the one-story computing facility and six-story office portion of the building. **Figure 6.0-1, Low Profile Design Alternative**, demonstrates that the project would not be visible from the public viewpoint of Hearst and Shattuck Avenues. The reduced height of the building would likely make it unobtrusive or not visible from other viewpoints as well. Temporary construction-related impacts would occur with this alternative, similar to the proposed project. However, the reduction in the mass and bulk

of the buildings would further reduce the less than significant impact to the visual character of the area identified for the proposed project.

### *Air Quality*

Implementation of Alternative 2 would result in the construction of approximately 113,000 gsf of building space that would house the supercomputer facilities and office facilities land uses. The amount of construction and the intensity of the land use proposed under this alternative would be similar to the proposed project, with the exception of a reduced common area. Given the relatively similar intensity between Alternative 2 and the proposed project, construction and operational air quality impacts would be less than significant, similar to the proposed project. Mitigation measures similar to the ones identified for the proposed project would be implemented and would reduce this impact to a less than significant level.

### *Biological Resources*

Implementation of this alternative would result in a slightly reduced area of disturbance compared to the proposed project. Other project components, such as landscaping, access, pedestrian access, etc., would remain the same. Given this, implementation of this alternative would result in similar potential impacts to on- and off-site biological resources. With the exception of potential construction impacts to nesting birds, which would be reduced to less than significant with mitigation, less than significant impacts were identified for the proposed project related to biological resources, and no mitigation is required. Therefore, impacts to biological resources with this alternative would be less than significant or less than significant with mitigation, similar to the proposed project.

### *Cultural Resources*

Under this alternative, the elevation of the building would be reduced, but the footprint impacts of the proposed project would be only slightly less than those of the proposed project. Therefore, this alternative would not reduce any of the less than significant impacts of the proposed project on cultural resources.

### *Geology and Soils*

Implementation of Alternative 2 would result in a slightly reduced area of disturbance compared to the proposed project. However, similar to the proposed project, development of this alternative would require earthmoving activities during construction, such as grading and excavation, and the removal of vegetation would loosen and expose soils. Construction-related erosion control practices and the



development of a site-specific erosion control plant, along with adherence to the requirements of the LRDP MM-GEO-3a and 3b, would reduce impacts to a less than significant level, similar to the proposed project. Alternative 2 would result in the similar, less than significant impacts related to seismic earth shaking hazards, landslide hazards, substantial soil erosion, and hazard associated with expansive soils as under the proposed project. No new or increased geological hazard impacts are anticipated under this alternative.

### *Hazards and Hazardous Materials*

The project site is located in the Oakland-Berkeley Hills in an area prone to wildland fires. Similar to the proposed project, a significant impact related to risk of loss, injury or death involving wildland fires is not expected because the building would be designed and constructed in conformance with the requirements for office occupancy as defined by the California Building Code, Type I Fire Resistive Construction, and fire code safety requirements. Additionally, automatic sprinklers would be installed and a vegetation management program implementing fire-resistant ground cover would be implemented as part of this alternative. Given the above, wildland fire hazards would be less than significant, similar to the proposed project.

### *Hydrology and Water Quality*

Under this alternative, the elevation of the building would be reduced by three to four floors. The footprint impacts of the proposed project would be slightly reduced. Therefore, this alternative will not reduce any of the impacts of the proposed project on hydrology and water quality, including the potentially significant impacts related to flooding and storm water quality, and the same mitigation measures as proposed for the project would be required.

### *Land Use and Planning*

Under Alternative 2, the elevation of the building would be reduced and the footprint impacts of the proposed project would be slightly reduced. However, the uses within the building would remain unchanged. Therefore, this alternative will not alter the proposed project's less than significant impact related to land use and planning.

### *Noise*

The amount of construction and the intensity of the land use proposed under this alternative would be similar to the proposed project, with the exception of reduced common area. Given the relatively similar intensity between Alternative 2 and the proposed project, construction-related noise impacts would be

significant and unavoidable, as with the proposed project. Operational-related noise would be less than significant, similar to the proposed project.

### ***Population and Housing***

Because the LBNL on-site population would increase by the same number of persons under this alternative, the project's less than significant impacts on population and housing would remain unchanged.

### ***Public Services***

Because the LBNL on-site population would increase by the same number of persons under this alternative, the project's less than significant impacts on public services would remain unchanged.

### ***Transportation and Traffic***

Implementation of Alternative 2 would result in approximately the same number of persons on site and the same number of vehicle trips as would be generated by the proposed project. Project-generated traffic for the proposed project was determined to be less than significant since it would cause increases in traffic at nearby intersections that would be less than threshold levels. Project impacts related to parking, mass transit use, and pedestrian and bicycle facilities were also determined to be less than significant. Implementation of Alternative 2 would have impacts similar to those of the proposed project. No new or increased transportation and traffic impacts are anticipated under this alternative.

### ***Utilities and Service Systems***

Implementation of Alternative 2 would result in the same number of persons on site and would thus create the same demand for water, generation of wastewater, and energy use as the proposed project. No new or increased utility and energy impacts are anticipated under this alternative.

### ***Cumulative Impacts***

Because the LBNL population increase and therefore traffic increase under this alternative would be the same as that for the proposed project, the project's contribution to the significant cumulative 2025 traffic impact would remain unchanged.

### ***Alternative 3: Alternate LBNL Location***

This alternative would make use of other space within LBNL to develop the CRT facility project. Alternative 3 would place a multi-story building on the current Building 25 and 25A location, near the

geographical center of the Berkeley Lab site. Buildings 25 and 25A and associated ancillary buildings would be demolished. Slope filling would be required as part of the site preparation. The building would consist of 32,000 gsf of computer space, with a high ceiling, and three additional floors to house office space, totaling up to 140,000 gsf. Electrical utilities and chillers would be located in a 24,000 gsf basement level; cooling towers would be placed on the roof. Electrical power would be extended from the Grizzly Peak substation.

### **Relationship to Project Objectives**

Alternative 3 would achieve some project objectives related to providing adequate space and power needed for the research programs. However, it would not meet or would only partially meet CRT project objectives to provide convenient access to other Lab scientific facilities, programs, researchers, and services, or to locate the facility such that it fosters interaction and collaboration between the project and UC Berkeley programs, since it would place the project on a site more distant from the Building 70 complex and from the main UC campus, where many student and staff researchers who would use the CRT Facility are located. The project site would not be within walking distance of the UC Berkeley campus, and would not allow easy interaction among program staff in the CRT facility and those in the Building 70 complex.

### **Comparative Analysis of Impacts**

#### *Aesthetics*

Implementation of this alternative would place the CRT project on a more visually prominent site at the Berkeley Lab, and would increase the project's visibility compared to the proposed project. Construction activity would still occur and would be visible from public viewpoints. Mitigation measures similar to the ones identified for the proposed project would be implemented and would reduce this impact to a less than significant level. The reduction in building height compared to the proposed project would substantially reduce the building's visual bulk; however, because of the site location, the visual impact on visual character would not be substantially reduced under this alternative and would likely be greater than that of the proposed project. Depending on the siting and design of the building, Alternative 3 has the potential to have significant and unavoidable visual impacts related to visual character and light and glare.

#### *Air Quality*

Implementation of Alternative 3 would result in the construction of approximately 140,000 gsf of building space that would house the supercomputer facilities and office facilities land uses. The amount of



construction and the intensity of the land use proposed under this alternative would be similar to the proposed project, with the exception of a reduced common area. Given the relatively similar intensity between Alternative 3 and the proposed project, construction and operational air quality impacts would be less than significant, similar to the proposed project. Mitigation measures similar to the ones identified for the proposed project would be implemented and would reduce this impact to a less than significant level.

### ***Biological Resources***

Implementation of this alternative would place new construction on a site that is largely developed with buildings and pavement. The proposed project's less than significant impact associated with tree removal would be reduced under this alternative as fewer trees are present on this site. Given this, implementation of this alternative would result in reduced potential impacts to on- and off-site biological resources. There is no potential for new or increased biological resource impacts under this alternative.

### ***Cultural Resources***

The location of Alternative 3 is in an existing developed and disturbed area, and no known cultural resources are located on or near the project site. Under this alternative, the impacts would be similar to those of the proposed project. Therefore, this alternative would not reduce any of the less than significant impacts of the proposed project on cultural resources.

### ***Geology and Soils***

Implementation of Alternative 3 would result in a similar density of development as the proposed project. As with the proposed project, development of this alternative would require earthmoving activities during construction, such as grading and excavation, and the removal of vegetation would loosen and expose soils. Construction-related erosion control practices and the development of a site-specific erosion control plan, along with adherence to the requirements of the LRDP MM-GEO-3a and 3b, would reduce impacts to a less than significant level, similar to the proposed project. Alternative 3 would result in the similar, less than significant impacts related to seismic earth shaking hazards, landslide hazards, substantial soil erosion, and hazard associated with expansive soils as under the proposed project. No new or increased geological hazard impacts are anticipated under this alternative.

### ***Hazards and Hazardous Materials***

The project site is located in the Oakland-Berkeley Hills in an area prone to wildland fires. Similar to the proposed project, a significant impact related to risk of loss, injury or death involving wildland fires is not

expected because the building would be designed and constructed in conformance with the requirements for office occupancy as defined by the California Building Code, Type I Fire Resistive Construction, and fire code safety requirements. Additionally, automatic sprinklers would be installed and a vegetation management program implementing fire-resistant ground cover would be implemented as part of this alternative. Given the above, wildland fire hazards would be less than significant, similar to the proposed project. No new or increased hazardous impacts are anticipated under this alternative.

### *Hydrology and Water Quality*

Under this alternative, the area of impermeable surfaces would be increased relative to existing conditions. Therefore, this alternative would generate increased storm water runoff compared to existing conditions, similar to the proposed project. This could increase the impacts of the proposed project on hydrology and water quality, including the potentially significant impacts related to flooding and storm water quality, and the same mitigation measures as proposed for the project would be required. No new or increased hydrology and water quality impacts are anticipated under this alternative.

### *Land Use and Planning*

Under Alternative 3, the elevation of the building would be reduced and the footprint impacts of the proposed project may be slightly reduced. However, the uses within the building would remain unchanged. Therefore, this alternative will not alter the proposed project's less than significant impact related to land use and planning.

### *Noise*

The amount of construction and the intensity of the land use proposed under this alternative would be similar to the proposed project, with the exception of reduced common area. However, the project would be located further from sensitive receptors including residential areas, and the significant and unavoidable short-term construction noise impacts identified for the proposed project would be reduced to a less than significant level. Project-generated traffic for the proposed project was determined to be less than significant since it would cause an imperceptible change to the noise environment. Therefore, implementation of Alternative 3 would have lesser impacts than the proposed project and would avoid a significant and unavoidable impact. No new or increased noise impacts are anticipated under this alternative.

### *Population and Housing*

Because the LBNL on-site population would increase by the same number of persons under this alternative, the project's less than significant impacts on population and housing would remain unchanged.

### *Public Services*

Because the LBNL on-site population would increase by the same number of persons under this alternative, the project's less than significant impacts on public services would remain unchanged.

### *Transportation and Traffic*

Implementation of Alternative 3 would result in approximately the same number of persons on site and the same number of vehicle trips as would be generated by the proposed project. Project-generated traffic for the proposed project was determined to be less than significant since it would cause increases in traffic at nearby intersections that would be less than threshold levels. Project impacts related to parking, mass transit use, and pedestrian and bicycle facilities were also determined to be less than significant. Implementation of Alternative 3 would have impacts similar to those of the proposed project. No new or increased transportation and traffic impacts are anticipated under this alternative.

### *Utilities and Service Systems*

Implementation of Alternative 3 would result in the same number of persons on site and would thus create the same demand for water, generation of wastewater, and energy use as the proposed project. No new or increased utility and energy impacts are anticipated under this alternative.

### *Cumulative Impacts*

Because the LBNL population increase and therefore traffic increase under this alternative would be the same as that for the proposed project, the project's contribution to the significant cumulative 2025 traffic impact would remain unchanged.

## **6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

**Table 6.0-1** 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.

**Table 6.0-1  
Summary Comparison of CRT Project Alternatives**

<b>CRT Project Impact</b>		<b>Proposed CRT Project (Before Mitigation)</b>	<b>No Project Alternative</b>	<b>Low Profile Design Alternative</b>	<b>Alternate LBNL Location Alternative</b>
VIS-1	Construction activities associated with the project would create temporary aesthetic nuisances for adjacent land uses.	PS (Less than Significant with Mitigation)	NI*	=/-	=
VIS-2	The proposed project would alter views of the LBNL site and would result in a substantial adverse effect to a scenic vista or substantially damage scenic resources.	LTS (Less than Significant)	NI*	-	+
BIO-3	The proposed project would not adversely affect special-status nesting birds (including raptors) such that nests are destroyed, they abandon their nests or that their reproductive efforts fail.	PS (Less than Significant with Mitigation)	NI*	=	-
HYDRO-2	Development of the site would alter surface drainage patterns on the site which could result in increased peak flows and induce flooding in downstream reaches.	PS (Less than Significant with Mitigation)	NI*	=	=
HYDRO-4	Stormwater runoff from the proposed parking area, access road and other impervious surfaces could potentially contribute to long-term pollutant discharges to surface waters, including on-site streams and downstream to Strawberry Creek and the Bay.	PS (Less than Significant with Mitigation)	NI*	=	=
NOISE-1	Construction activities would temporarily elevate noise levels at the project site and surrounding areas.	S (Significant and Unavoidable)	NI*	=	-
Cumulative TRANS-1	Implementation of the proposed CRT project, in conjunction with Berkeley Lab growth under the 2006 LRDP, and other regional growth would degrade the level of service at certain local intersections under 2025 conditions.	S (Significant and Unavoidable)	NI*	=	=

CRT Project Impact		Proposed CRT Project (Before Mitigation)	No Project Alternative	Low Profile Design Alternative	Alternate LBNL Location Alternative
Cumulative TRANS-2	Construction vehicle traffic associated with the proposed CRT project, combined with construction traffic from other LBNL projects, UC Berkeley projects, and other projects proposed in Berkeley, would temporarily and intermittently result in a potentially significant cumulative impact on the local roadways, but the project's contribution would not be considerable.	S (Less than Significant)	NI*	=	=

Source:

<sup>1</sup> Table Note NI\*: There could be environmental impacts from the development of another project at the proposed site, pursuant to the 2006 LRDP.

**KEY**

- S Significant impact
- LTS Less-than-significant impact
- NI No Impact
- = Impact similar to proposed project
- Impact less than proposed project
- + Impact greater than 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, *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, the location of the proposed project at an alternate LBNL location (Alternative 3) would reduce the project's significant and unavoidable construction noise impact and could reduce some of the project's less than significant impacts on biological resources, but would result in a greater visual impact. The project's noise impacts, although significant and unavoidable, would be temporary in nature. Aesthetic impacts would be permanent.

Therefore, the Low Profile Design alternative (Alternative 2) is considered the environmentally superior alternative because it would reduce the visual impacts of the proposed project, although all other significant impacts would remain unchanged including the significant and unavoidable impact related to construction noise. This alternative would meet most of the objectives of the proposed project but would reduce the space for important program elements and therefore would adversely affect the project's goal of providing adequate space for program activities.