LAWRENCE BERKELEY NATIONAL LABORATORY LONG-RANGE DEVELOPMENT PLAN

Final Environmental Impact Report
SCH No. 2000102046
LBNL/PUB-5517

Prepared for:
Lawrence Berkeley National Laboratory

July 2007

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CHAPTER I
Introduction

A. CEQA Process

On October 21, 2005, the University of California, the Lead Agency under the California Environmental Quality Act (CEQA), circulated for public review a Draft Environmental Impact Report (Draft EIR or DEIR) on the proposed Lawrence Berkeley National Laboratory (LBNL, Berkeley Lab, or the Laboratory) Building 51 and Bevatron Demolition project. The 47-day public review and comment period on the Draft EIR began on October 21, 2005, and closed on December 7, 2005. LBNL held a public hearing on the Draft EIR on November 16, 2005.

The Final EIR is an informational document prepared by the Lead Agency that must be considered by decision makers before approving or denying the proposed project. California Environmental Quality Act Guidelines Section 15132 specifies the following:

> The Final EIR shall consist of:
>
> (a) The Draft EIR or a revision of the draft.
>
> (b) Comments and recommendations received on the Draft EIR either verbatim or in summary.
>
> (c) A list of persons, organizations, and public agencies commenting on the Draft EIR.
>
> (d) The response of the Lead Agency to significant environmental points raised in review and consultation process.
>
> (e) Any other information added by the Lead Agency.

This document has been prepared pursuant to the CEQA Guidelines. This Final EIR incorporates comments from public agencies and the general public, and contains appropriate responses by the Lead Agency to those comments.

B. Method of Organization

Following this introduction (Chapter I), Chapter II of this Final EIR illustrates textual changes, some of which were made in response to comments on the Draft EIR.

Chapter III contains a list of persons that testified at the February 26, 2007 public hearing, a list of persons, agencies, and organizations that submitted written comments on the Draft EIR, a transcript of the public hearing, and reproductions of the written comments. Each comment is labeled with a number in the margin.

Chapter IV contains responses by the University to the public and agency comments.

Chapter V contains the Mitigation Monitoring and Reporting Program for the project.

CHAPTER II
Revisions to the Draft EIR

The following corrections and changes are made to the Draft EIR and are incorporated as part of the Final EIR. Revised or new language is underlined (except where an entire passage is newly added, where underlining is not used in the interest of clarity). Deleted language is indicated by ~~strikethrough~~ text.

Where a change is made as part of a response to a comment on the Draft EIR, the comment number is noted in brackets at the end of the text change. Where no comment number is given, the change is initiated by LBNL staff.

On DEIR p. IV.B-13, the following is added prior to the heading "City of Oakland General Plan" in recognition of the City of Berkeley nanoparticles ordinance:

> *City of Berkeley Manufactured Nanoparticle Disclosure Ordinance*
>
> The City of Berkeley in 2006 approved a change to the Hazardous Materials and Wastes Management portion of its Municipal Code. The amendment adds to facilities subject to reporting requirements, in addition to facilities that handle hazardous material or waste in certain quantities, those facilities "that manufacture or use manufactured nanoparticles," and requires such facilities to disclose "current toxicology of the materials reported, to the extent known, and how the facility will safely handle, monitor, contain, dispose, track inventory, prevent releases and mitigate such materials." [C-25]

On page IV.B-41, Impact AQ-4 included discussion of a cumulative risk analysis (reported later in Chapter IV.B) that was not done as part of the Health Risk Assessment (HRA). The analysis simply worked with the individual HRA's from LBNL and UCB. The first paragraph under Impact AQ-4 is revised as follows:

> A human health risk assessment was prepared to identify risks resulting from the implementation of the LRDP (Golder, 2007). The ~~health~~ risk assessment examined total lifetime excess cancer risk results to typical on-site workers and off-site residents from development during the LRDP period as well as existing LBNL operations at the start of the LRDP period ~~and the potential cumulative risk from other contributing sources in the vicinity of LBNL~~.

On page IV.C-42, Mitigation Measure BIO-2a referred to "Buildings S-2 and S-0" due to an editorial error. The second sentence of the second paragraph under MM BIO-2a has been revised

to accurately describe the correct locations for proposed development under the Illustrative Development Scenario. (This change is also hereby made in DEIR Table II-1, in Chapter II, Summary):

> However, development in specific locations including Buildings ~~S-2 and S-0~~ S-1 and S-9, as well as Parking Structures and Lots PS-1 and PL-9 and Roads R-2 and R-5, could require fill of or create the potential for accidental discharges to jurisdictional waters.

On page IV.D-8, the last two sentences of the final paragraph (continuing to page IV.D-9) have been revised to provide updated information about the Bevatron/Building 51 landmark designation:

> ~~The landmark designation is currently pending appeal the Berkeley City Council.~~ In January 2007, the Berkeley City Council upheld the Landmarks Preservation Commission's decision on appeal. [C-17]

On page IV.D-14, the last two sentences of the first full paragraph on have been revised to rectify an editorial error and to clarify potential impacts to Buildings 71 and 88:

> There are no current plans to demolish Buildings 71 and 88 as part of the 2006 LRDP. However, demolition of Buildings 71 and 88 during the LRDP term is possible, particularly if driven by future safety concerns or programmatic needs. Should the buildings ~~prove to~~ be formally found eligible for National Register listing, and were their demolition to be proposed and to occur under the 2006 LRDP, such demolition would result in a significant and unavoidable impact and implementation of Mitigation Measure D.2 would be required. (See Appendix E for additional discussion of Buildings 71 and 88.) [C-18]

On DEIR p. IV.E-22, Mitigation Measure GEO-1 has been revised to clarify that emergency access plans are in place at LBNL, and that the mitigation measure is intended to apply to new projects developed pursuant to the LRDP. (This change is also hereby made in DEIR Table II-1, in Chapter II, Summary):

> Seismic emergency response and evacuation plans shall be prepared for each new project at LBNL that is developed pursuant to the 2006 LRDP. These plans shall incorporate potential inaccessibility of the Blackberry Canyon entrance and identify alternative ingress and egress routes for emergency vehicles and facility employees in the event of roadway failure from surface fault rupture. [P-1]

Section IV.G, Hydrology and Water Quality, has been revised to account for newly coordinated stormwater management efforts for the Strawberry Creek watershed between LBNL and UC Berkeley, and in anticipation of regulatory changes in the State Water Resources Control Board's permitting program. The revised section is presented in its entirety in Appendix A of this document. The revised Hydrology and Water Quality section also includes the following changes made in responses to specific comments:

On page IV.G-11, text under the heading Total Maximum Daily Load (TMDL) – Section 303(d) of the Clean Water Act is revised as follows to incorporate the Regional Water Control Board's 2005 establishment of a TMDL for the pesticide diazinon and pesticide-related toxicity in urban creeks of the Bay Area. [C-30]

On page IV.G-25, reference to Table IV.G-1 was included as part of the discussion regarding increased impervious surface area. Table IV.G-1 was inadvertently omitted from the DEIR due to editorial error. Table IV.G-1 is included in the revised Hydrology and Water Quality section in Appendix A. [C-29]

On page IV.L-6, the paragraph under "LBNL Trip Generation" is revised as follows to incorporate the percentages of traffic that use the various LBNL gates:

> Traffic entering and leaving the Berkeley Lab hill site was counted at each of the three LBNL gates on Thursday, October 29, 2003. The counts indicated that daily vehicle trip generation is approximately 5,700 (split roughly evenly between inbound and outbound traffic), with about 61 percent using the Blackberry Canyon gate, 21 percent using the Grizzly Peak gate, and 18 percent using the Strawberry Canyon gate. During the morning peak hour, approximately 610 vehicle trips were made to and from the site, 540 of which were inbound (the peak direction). In the afternoon peak hour, 660 vehicle trips were made to and from the site, 585 of which were outbound (the peak direction). Use of the three gates during the morning and afternoon peak hours is relative similar to the above-stated pattern. [C-47]

On page IV.L-28, the paragraphs under "Affected Intersections" is revised as follows to incorporate the percentage change in traffic at study intersections:

> With implementation of the 2006 LRDP, significant deterioration in LOS would occur at three intersections:
>
> - Hearst Avenue at Gayley Road/La Loma Avenue (#6; signalized) would be at LOS E during both peak hours without the LRDP; the LRDP would cause the p.m. peak-hour service level to degrade to LOS F, and would increase traffic by more than 5 percent (i.e., 6.7% [a.m.] and 6.4% [p.m.]) during both peak hours.
>
> - Gayley Road at Stadium Rim Way (#7; all-way-stop-controlled) would be at LOS F during both peak hours without and with the LRDP; the LRDP would increase traffic by more than 5 percent (i.e., 6.2% [a.m.] and 5.1% [p.m.]) during both peak hours.[10]

[10] The EIR for the Southeast Campus Integrated Projects (SCIP), published by UC Berkeley in October 2006 (UC Berkeley, 2006), identifies a significant impact due to the Integrated Projects analyzed in that EIR, and identifies installation of a traffic signal as mitigation for that impact. Because this mitigation measure would be implemented prior to construction of the Maxwell Family Field parking structure (one of the Integrated Projects) should the SCIP be implemented, this would avoid the significant impact at this intersection due to the LBNL 2006 LRDP. However, this EIR identifies the significant impact because, for purposes of a conservative analysis, it is not presumed that the SCIP will be implemented.

- Durant Avenue at Piedmont Avenue (#8; all-way-stop-controlled) would be at LOS E and LOS D during the a.m. and p.m. peak hours, respectively, without the LRDP; the LRDP would cause the peak-hour LOS to degrade one service level, to LOS F in the a.m. peak hour and to LOS E in the p.m. peak hour.

The intersection~~s of Channing Way/Piedmont Avenue (#17; two-way stop) and~~ of Bancroft Way/Gayley Road-Piedmont Avenue (#20; all-way stop) would be at ~~LOS E or~~ LOS F in 2025 in both the morning and afternoon peak hours without traffic from LRDP development. Because the LRDP-generated increase in traffic volumes would be less than the significance threshold of a 5-percent increase (i.e., 4.3% and 3.4% in the a.m. and p.m. peak hours, respectively) at ~~these~~ this intersection~~s~~, the project would not result in a significant impact. [C-53]

On page IV.L-31 – 32, the text concerning mitigation measures for Impact **TRANS-1** is revised as follows to reflect the results of continuing consultation with the City regarding the feasibility of mitigation at local intersections (these changes are also made in DEIR Table II-1, in Chapter II, Summary):

TRANS-1a: LBNL shall work with UC Berkeley and the City of Berkeley to design and install a signal at the Gayley Road/Stadium Rim Way intersection, when a signal warrant analysis shows that the signal is needed. The intersection would meet one-hour signal warrants for peak-hour volume and peak-hour delay under 2025 conditions with implementation of the LBNL 2006 LRDP. LBNL shall contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for a periodic (annual or biennial) signal warrant check to allow the City to determine when a signal is warranted, and for installation of the signal. Should the City determine that alternative mitigation strategies may reduce or avoid the significant impact, the Lab shall work with the City and UC Berkeley to identify and implement such alternative feasible measure(s). See also Mitigation Measure TRANS-1d, development and implementation of a new Transportation Demand Management Program.

With the implementation of this mitigation measure, the intersection of Gayley Road/Stadium Rim Way would operate at an acceptable level of service (LOS B or better under traffic signal control) during both the a.m. and p.m. peak hours. ~~Because LBNL could not implement this measure on its own, but would need the cooperation of UC Berkeley and/or the City of Berkeley, this impact would be considered significant and unavoidable.~~

This mitigation measure is proposed to be adopted as part of the LRDP and will be monitored through the LRDP mitigation monitoring and reporting program. It will thus continue to be a binding mitigation commitment of LBNL. Under CEQA case law, however, when the lead agency contributes fair-share funding to a mitigation measure that will be carried out by another entity, there must be some evidence of a reasonable plan in place in order for the lead agency to

conclude that the adopted mitigation will reduce the impact to a less than significant level (*City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341). LBNL has discussed this with the City, and based on that consultation, LBNL understands there have been some discussions of improvements at Gayley Road/Stadium Rim Way. Also, the University has retained a consultant to perform studies related to these improvements, but there is not yet a plan in place for the improvements. As such, it cannot be determined at this time that this impact will be mitigated to a less than significant level. Accordingly, this impact would still be considered significant and unavoidable, but LBNL would contribute to fair-share funding which, if a reasonable plan is implemented, would mitigate these impacts to a less than significant level.

TRANS-1b: LBNL shall work with the City of Berkeley to design and install a signal at the Durant Avenue/Piedmont Avenue intersection, when a signal warrant analysis shows that the signal is needed. LBNL shall contribute funding, on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for a periodic (annual or biennial) signal warrant check to allow the City to determine when a signal is warranted, and for installation of the signal. Should the City determine that alternative mitigation strategies may reduce or avoid the significant impact, the Lab shall work with the City and UC Berkeley to identify and implement such alternative feasible measure(s). See also Mitigation Measure TRANS-1d, development and implementation of a new Transportation Demand Management Program.

With the implementation of this mitigation measure, the Durant Avenue/Piedmont Avenue intersection would operate at an acceptable level of service (LOS B or better under traffic signal control) during both the a.m. and p.m. peak hours. ~~Because LBNL could not implement this measure on its own, but would need the cooperation of the City of Berkeley, this impact would be considered significant and unavoidable.~~

This mitigation measure is proposed to be adopted as part of the LRDP and will be monitored through the LRDP mitigation monitoring and reporting program. It will thus continue to be a binding mitigation commitment of LBNL. Under CEQA case law, however, when the lead agency contributes fair-share funding to a mitigation measure that will be carried out by another entity, there must be some evidence of a reasonable plan in place in order for the lead agency to conclude that the adopted mitigation will reduce the impact to a less than significant level (*City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341). LBNL has discussed this with the City, and based on that consultation, LBNL understands there have been some discussions of improvements at Gayley Road/Stadium Rim Way. Also, the University has retained a consultant to perform studies related to these improvements, but there is not yet a plan in place for the improvements. As such, it cannot be determined at this time that this impact will be mitigated to a less than significant level.

Accordingly, this impact would still be considered significant and unavoidable, but LBNL would contribute to fair-share funding which, if a reasonable plan is implemented, would mitigate these impacts to a less than significant level.

~~**No mitigation is available**~~ **Mitigation Measure TRANS-1c:** LBNL shall fund and conduct a study to evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at the intersection of Hearst Avenue at Gayley Road/La Loma Avenue. This intersection is currently signalized, and physical geometric limitations constrain improvements within its current right-of-way. All four corners of this intersection are occupied by existing UC Berkeley facilities, including Foothill Student Housing, Cory Hall, and outdoor tennis courts, as well as the Founders' Rock. The LOS analyses herein used conservative assumptions so as to not underestimate potential project impacts. For example, even though the approach widths at this intersection allow drivers to maneuver past other vehicles as they near the intersection, the absence of pavement striping to delineate separate lanes dictated that the analysis conservatively assume all vehicle movements on each approach are made on a single lane. Similarly, without the certainty that standard lane widths (and adequate storage lengths) could be provided, possible improvement measures were not relied on to judge that significant impacts would be mitigated to less-than-significant levels. Judging the success of possible mitigation measures with a conservative standard is reasonable, but in consultation with City of Berkeley staff, the Lab will conduct a further study to re evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at this intersection. That additional study will be conducted by the Lab as part of the TDM program set forth below as Mitigation Measure TRANS-1d. If such mitigation is determined by Berkeley Lab to be feasible, then Berkeley Lab shall contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for the installation of the improvements. ~~Analyses indicate that little can be done to mitigate future LOS conditions without acquiring additional right-of-way or prohibiting certain turning movements, such as minor left-turn movements. Although it might be possible to lengthen the existing very short dedicated right-turn lanes, the existing improvements would limit the degree to which the length of these lanes could be increased, and as such, they would not likely result in appreciable improvement in intersection operations.~~

This mitigation measure will be monitored through the LRDP mitigation monitoring and reporting program. It will thus continue to be a binding mitigation commitment of LBNL. Under CEQA case law, however, when the lead agency contributes fair-share funding to a mitigation measure that will be carried out by another entity, there must be some evidence of a reasonable plan in place in order for the lead agency to conclude that the adopted mitigation will reduce the impact to a less than significant level (*City of Marina v. Board of*

Trustees of the California State University (2006) 39 Cal.4th 341). LBNL will reevaluate its conclusion that there is not feasible mitigation for this intersection, and will retain and fund a consultant to perform that reevaluation. However, given that LBNL has evaluated all of the potential mitigation that has been suggested and concluded that mitigation is not feasible, and given the absence of a City plan for such improvements, it cannot be determined at this time that this impact will be mitigated to a less than significant level. Accordingly, this impact would still be considered significant and unavoidable, but LBNL shall fund the study pursuant to the TDM program, and would contribute to fair-share funding which, if feasible mitigation is identified and a plan to proceed with that mitigation is implemented, would mitigate this impact to a less than significant level.

TRANS-1d: LBNL shall develop and implement a new Transportation Demand Management (TDM) Program to replace its existing TDM program. This enhanced TDM Program has been drafted in consultation with the City of Berkeley, and is proposed to be adopted by the Lab following The Regents' consideration of the 2006 LRDP. The new draft proposed TDM Program is attached to this EIR as Appendix G. The proposed TDM Program includes several implementation phases tied to the addition of parking to LBNL. The final provisions of the TDM Program may be revised as it is finally adopted but will include a TDM coordinator and transportation committee, an annual inventory of parking spaces and a gate count, a study of more aggressive TDM measures, investigation of a possible parking fee, investigation of sharing services with UC Berkeley and an alternative fuels program. The TDM program shall also include funding of a study to reevaluate the feasibility of mitigation at the Hearst and Gayley/LaLoma intersection. The new draft proposed TDM Program also includes a requirement that LBNL conduct an additional traffic study to reevaluate traffic impacts on the earliest to occur of 10 years following the certification of this EIR or the time at which the Lab formally proposes a project that will bring total development of parking spaces pursuant to the 2006 LRDP to or above 375 additional parking spaces.

Significance after Mitigation: ~~Significant and unavoidable at~~ Potentially mitigable to a less than significant level at (1) Hearst Avenue/Gayley Road/La Loma Avenue intersection; ~~potentially mitigable to a less-than-significant level at~~ (2) Gayley Road/Stadium Rim Way and (3) Durant Avenue/Piedmont Avenue intersections, but considered significant and unavoidable because there is not yet a plan in place for such improvements at these intersections, and as such, it cannot be determined at this time that the impact will be mitigated to a less than significant level. ~~LBNL could not implement the mitigation measures (installation of traffic signals, with the Lab funding its fair share of the cost) on its own, as these improvements would be under the jurisdiction of the City of Berkeley.~~ [C-55]

On DEIR p. IV.L.39, Best Practice TRANS-6a is revised as follows to include LBNL's commitment to work with the City of Berkeley and, where necessary, UC Berkeley, to minimize construction-related traffic impacts:

> Early in construction period planning, LBNL shall meet with the contractor for each construction project to describe and establish best practices for reducing construction period impacts on circulation and parking in the vicinity of the project site. The Lab will work with the City of Berkeley Transportation and Public Works Departments to review the truck routes and the Construction Traffic Management Plans, as appropriate. Where construction traffic could interact with traffic from construction traffic from UC Berkeley, UC Berkeley staff would be invited to participate in these discussions between LBNL and the City. [C-58]

On pages IV.L-12, 26, 29, and 30, Tables IV.L-3, 5, 6, and 7 are revised to provide the method of traffic control at each intersection in Table IV.L-3 and, in all four tables, to indicate that the intersection of Channing Way /Piedmont Avenue is now a roundabout, and to provide the calculated delay values at each intersection. The revised tables appear on the following pages. [C-49, 50, 51, 53, and 54]

On page IV.L-44, the text concerning mitigation measures for Impact TRANS-8 is revised as follows to reflect the results of continuing consultation with the City regarding the feasibility of mitigation at local intersections (these changes are also made in DEIR Table II-1, in Chapter II, Summary):

> **Mitigation Measure TRANS-8:** LBNL shall implement Mitigation Measure TRANS-1a (work with UC Berkeley and the City of Berkeley to design and install a signal at the Gayley Road/Stadium Rim Way intersection; LBNL would contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, to install the signal) and Mitigation Measure TRANS-1b (work with the City of Berkeley to design and install a signal at the Durant Avenue/Piedmont Avenue intersection, when a signal warrant analysis shows that the signal is needed; LBNL would contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, to install the signal and for monitoring to determine when a signal is warranted).
>
> With the implementation of these mitigation measures, the intersections of Gayley Road/Stadium Rim Way and Durant Avenue/Piedmont Avenue would operate at LOS B or better during both the a.m. and p.m. peak hours.
>
> As explained earlier, the intersection of Hearst Avenue at Gayley Road/La Loma Avenue is currently signalized, and physical geometric limitations constrain improvements within its current right-of-way. Without the certainty that standard lane widths (and adequate storage lengths) could be provided, possible

improvement measures were not relied on to judge that significant impacts would be mitigated to less-than-significant levels. Judging the success of possible mitigation measures with a conservative standard is reasonable, but in consultation with City of Berkeley staff, the Lab shall fund and conduct a study to evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at this intersection. That additional study will be conducted by the Lab as part of the TDM program set forth above as Mitigation Measure TRANS-1d. If such mitigation is determined by Berkeley Lab to be feasible, then Berkeley Lab shall contribute funding on a fair share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for the installation of the improvements. ~~Analyses indicate that little can be done to mitigate future LOS conditions without acquiring additional right-of-way or prohibiting certain turning movements, such as minor left-turn movements. Therefore, no mitigation is available for cumulative impacts on this intersection.~~

Significance after Mitigation: Traffic impacts were found to be ~~significant and unavoidable at (1) Hearst Avenue/Gayley Road/La Loma Avenue intersection. Traffic impacts were found to be~~ potentially mitigable to less-than-significant levels at (1) Hearst Avenue/Gayley Road/La Loma Avenue intersection, (2) Gayley Road/Stadium Rim Way and (3) Durant Avenue/Piedmont Avenue intersections, but considered significant and unavoidable because there is not yet a reasonable plan for improvements at these intersections, and as such, it cannot be determined at this time whether the impact will be mitigated to a less than significant level. ~~LBNL could not implement mitigation measures on its own, as these improvements would be under the jurisdiction of the City of Berkeley.~~ [C-55]

On page IV.M-4, the last sentence of the third full paragraph is revised as follows to incorporate corrected information provided by the City of Berkeley:

The City of Berkeley's sewer system transports the effluent from both monitoring stations to EBMUD's north interceptor sewer and the EBMUD Adeline Interceptor originating at Woolsey St/Adeline St in Berkeley and then to the treatment facility in Oakland. [C-67]

On page IV.M-6, the third sentence under the heading "Sewer System Conditions and Upgrade" is revised as follows to incorporate corrected information provided by the City of Berkeley:

The City of Berkeley's infiltration/inflow correction program was initiated in 1987 and includes rehabilitation or replacement of 50 percent of the City's existing system over 30 years, as well as installation of 12 miles of new sewer lines to accommodate overflow conditions by the year ~~2007~~ 2017. [C-67]

On page IV.M-6, the fourth sentence under the heading "Sewer System Conditions and Upgrade" is revised as follows to incorporate corrected information provided by the City of Berkeley:

A ~~22-mile~~ 3-mile interceptor line along Adeline Street, completed in 1992, now conveys wet weather flow to EBMUD's storage and treatment facilities. [C-67]

References – Chapter II

California Regional Water Quality Control Board, San Francisco Bay Region, Resolution R2-2005-0063, Amending the Water Quality Control Plan for the San Francisco Bay Region to Establish a Water Quality Attainment Strategy and Total Maximum Daily Load (TMDL) for Diazinon and Pesticide-Related Toxicity in Bay Area Urban Creeks. Adopted November 16, 2005. Available on the internet at: http://www.waterboards.ca.gov/rwqcb2/TMDL/urbancrksdiazinontmdl.htm.

TABLE IV.L-3 (*revised*)
EXISTING INTERSECTION LEVEL OF SERVICE (LOS)[a]

Intersection	Control	AM Peak		PM Peak	
		LOS	Delay (seconds)	LOS	Delay (seconds)
1. University Avenue at SB Shattuck Avenue	Signal	B	19.7	B	18.2
2. Hearst Avenue at Shattuck Avenue	Signal	A	6.1	B	14.5
3. University Avenue at Oxford Street	Signal	C	29.0	B	18.2
4. Hearst Avenue at Oxford Street	Signal	A	10.0	D	52.8
5. Hearst Avenue at Euclid Avenue	Signal	B	15.4	B	16.9
6. Hearst Avenue at Gayley Road/La Loma Avenue	Signal	C	22.4	C	24.3
7. Gayley Road at Stadium Rim Way	All-Way Stop	D	26.2	D	34.7
8. Durant Avenue at Piedmont Avenue	All-Way Stop	C	17.4	C	17.6
9. Dwight Way at Piedmont Avenue	Signal	A	9.4	B	13.1
10. College Avenue at Bancroft Way	Signal	B	11.8	B	12.3
11. Durant Avenue at College Avenue	Signal	A	9.2	B	13.4
12. Telegraph Avenue at Dwight Way	Signal	B	16.2	C	20.2
13. Shattuck Avenue at Bancroft Way	Signal	A	8.6	B	12.7
14. Shattuck Avenue at Durant Way	Signal	B	11.3	B	14.0
15. Grizzly Peak Boulevard at Centennial Drive	All-Way Stop	B	10.2	C	17.7
16. Cyclotron Road at Highland Place	Two-Way Stop	B	12.7	B	12.7
17. Channing Way at Piedmont Avenue	Roundabout	A	5.7	A	6.3
18. Panoramic Way at Canyon Rd./Stadium Rim Way	Two-Way Stop	B	10.2	B	12.1
19. Centennial Drive at Stadium Rim Way	All-Way Stop	A	9.2	B	12.2
20. Bancroft Way at Gayley Road/Piedmont Avenue	All-Way Stop	F	*[b]	F	*[b]

[a] The level of service (LOS) and delay for two-way (side-street) stop intersections represent the worst movement or approach. The LOS and delay for other intersections (signalized and all-way stop) represent the overall intersection.

[b] Based on 2000 Highway Capacity Manual methodology, this intersection operates at LOS D during the a.m. peak hour and LOS C during the p.m. peak hour under existing conditions. However, this does not take into account pedestrian volumes. Based on field observations, this intersection has a heavy pedestrian volume, resulting in major delays (and LOS F conditions) for vehicles under existing conditions.

SOURCE: Wilbur Smith Associates, 2004.

TABLE IV.L-5 (*revised*)
INTERSECTION LEVEL OF SERVICE (LOS) – 2025 WITHOUT PROJECT[a]

Intersection	Control	AM Peak		PM Peak	
		LOS	Delay (seconds)	LOS	Delay (seconds)
1. University Avenue at SB Shattuck Avenue	Signal	D	35.7	C	21.5
2. Hearst Avenue at Shattuck Avenue	Signal	A	8.2	C	23.9
3. University Avenue at Oxford Street	Signal	D	39.5	C	29.0
4. Hearst Avenue at Oxford Street	Signal	B	11.7	D	50.1
5. Hearst Avenue at Euclid Avenue	Signal	B	17.1	B	16.3
6. Hearst Avenue at Gayley Road/La Loma Avenue	Signal	E	57.3	E	57.2
7. Gayley Road at Stadium Rim Way	All-Way Stop	F	72.6	F	73.5
8. Durant Avenue at Piedmont Avenue	All-Way Stop	E	45.5	D	34.2
9. Dwight Way at Piedmont Avenue	Signal	B	10.9	B	13.6
10. College Avenue at Bancroft Way	Signal	C	16.9	C	15.6
11. Durant Avenue at College Avenue	Signal	B	13.4	B	13.6
12. Telegraph Avenue at Dwight Way	Signal	B	18.2	C	34.3
13. Shattuck Avenue at Bancroft Way	Signal	B	10.6	C	21.8
14. Shattuck Avenue at Durant Way	Signal	B	13.9	C	23.4
15. Grizzly Peak Boulevard at Centennial Drive	All-Way Stop	B	11.1	C	23.2
16. Cyclotron Road at Highland Place	Two-Way Stop	B	14.5	C	13.0
17. Channing Way at Piedmont Avenue	Roundabout	A	9.9	A	6.3
18. Panoramic Way at Canyon Rd./Stadium Rim Way	Two-Way Stop	B	10.3	B	12.5
19. Centennial Drive at Stadium Rim Way	All-Way Stop	A	9.5	B	11.9
20. Bancroft Way at Gayley Road/Piedmont Avenue	All-Way Stop	F	*[b]	F	*[b]

[a] The level of service (LOS) and delay for two-way (side-street) stop intersections represent the worst movement or approach. The LOS and delay for other intersections (signalized and all-way stop) represent the overall intersection.

[b] Based on 2000 Highway Capacity Manual methodology, this intersection operates at LOS D during the a.m. peak hour and LOS C during the p.m. peak hour under existing conditions. However, this does not take into account pedestrian volumes. Based on field observations, this intersection has a heavy pedestrian volume, resulting in major delays (and LOS F conditions) for vehicles under existing conditions. The actual amount of increased delay that addition of traffic generated by development other than the project would cause to the intersection is not known.

SOURCE: Wilbur Smith Associates, 2004.

TABLE IV.L-6 (*revised*)
INTERSECTION LEVEL OF SERVICE (LOS) – 2025 WITH PROJECT[a]

Intersection	Control	AM Peak		PM Peak	
		LOS	Delay (seconds)	LOS	Delay (seconds)
1. University Avenue at southbound Shattuck Avenue	Signal	D	39.5	C	23.5
2. Hearst Avenue at Shattuck Avenue	Signal	A	8.3	C	25.6
3. University Avenue at Oxford Street	Signal	D	40.2	C	30.6
4. Hearst Avenue at Oxford Street	Signal	B	11.8	D	50.9
5. Hearst Avenue at Euclid Avenue	Signal	B	18.5	B	18.0
6. Hearst Avenue at Gayley Road/La Loma Avenue	Signal	**E**	**68.0**	**F**	**84.1**
7. Gayley Road at Stadium Rim Way	All-Way Stop	**F**	**89.2**	**F**	**92.7**
8. Durant Avenue at Piedmont Avenue	All-Way Stop	**F**	**55.9**	**E**	**36.8**
9. Dwight Way at Piedmont Avenue	Signal	B	10.9	B	13.6
10. College Avenue at Bancroft Way	Signal	C	17.0	C	15.9
11. Durant Avenue at College Avenue	Signal	B	13.8	B	13.7
12. Telegraph Avenue at Dwight Way	Signal	B	18.3	C	34.3
13. Shattuck Avenue at Bancroft Way	Signal	B	10.6	C	22.3
14. Shattuck Avenue at Durant Way	Signal	B	14.2	C	23.7
15. Grizzly Peak Boulevard at Centennial Drive	All-Way Stop	B	11.4	D	27.3
16. Cyclotron Road at Highland Place	Two-Way Stop	C	16.0	C	16.7
17. Channing Way at Piedmont Avenue	Roundabout	B	10.5	B	10.7
18. Panoramic Way at Canyon Rd./Stadium Rim Way	Two-Way Stop	B	10.4	B	12.6
19. Centennial Drive at Stadium Rim Way	All-Way Stop	A	9.8	B	13.1
20. Bancroft Way at Gayley Road/Piedmont Avenue	All-Way Stop	F	*[b]	F	*[b]

Bold-face text indicates significant impact.

[a] The level of service (LOS) and delay for two-way (side-street) stop intersections represent the worst movement or approach. The LOS and delay for other intersections (signalized and all-way stop) represent the overall intersection.

[b] Based on 2000 Highway Capacity Manual methodology, this intersection operates at LOS D during the a.m. peak hour and LOS C during the p.m. peak hour under existing conditions. However, this does not take into account pedestrian volumes. Based on field observations, this intersection has a heavy pedestrian volume, resulting in major delays (and LOS F conditions) for vehicles under existing conditions. The actual amount of increased delay that addition of traffic generated by the project would cause to the intersection is not known, but because the LRDP-generated increase in traffic volumes would be less than the significance threshold of a 5-percent increase (i.e., 4.3% and 3.4% in a.m. and p.m. peak hours, respectively) at this intersection, the project would not result in a significant impact.

SOURCE: Wilbur Smith Associates, 2004.

TABLE IV.L-7 (*revised*)
LEVEL OF SERVICE (LOS) COMPARISON – 2025 WITH AND WITHOUT PROJECT[a]

Intersection[b]	Existing		2025 No Project		2025 w/Project	
	LOS	Delay	LOS	Delay	LOS	Delay
AM Peak Hour						
1. University Avenue at southbound Shattuck Avenue	B	19.7	D	35.7	D	39.5
2. Hearst Avenue at Shattuck Avenue	A	6.1	A	8.2	A	8.3
3. University Avenue at Oxford Street	C	29.0	D	39.5	D	40.2
4. Hearst Avenue at Oxford Street	A	10.0	B	11.7	B	11.8
5. Hearst Avenue at Euclid Avenue	B	15.4	B	17.1	B	18.5
6. Hearst Avenue at Gayley Road/La Loma Avenue	C	22.4	E	57.3	**E**	**68.0**
7. Gayley Road at Stadium Rim Way (AWSC)	D	26.2	F	72.6	**F**	**89.2**
8. Durant Avenue at Piedmont Avenue (AWSC)	C	17.4	E	45.5	**F**	**55.9**
9. Dwight Way at Piedmont Avenue	A	9.4	B	10.9	B	10.9
10. College Avenue at Bancroft Way	B	11.8	C	16.9	C	17.0
11. Durant Avenue at College Avenue	A	9.2	B	13.4	B	13.8
12. Telegraph Avenue at Dwight Way	B	16.2	B	18.2	B	18.3
13. Shattuck Avenue at Bancroft Way	A	8.6	B	10.6	B	10.6
14. Shattuck Avenue at Durant Way	B	11.3	B	13.9	B	14.2
15. Grizzly Peak Boulevard at Centennial Drive (AWSC)	B	10.2	B	11.1	B	11.4
16. Cyclotron Road at Highland Place (TWSC)	B	12.7	B	14.5	C	16.0
17. Channing Way at Piedmont Avenue (Roundabout)	A	5.7	A	9.9	B	10.5
18. Panoramic at Canyon Rd/Stadium Rim Way (TWSC)	B	10.2	B	10.3	B	10.4
19. Centennial Drive at Stadium Rim Way (AWSC)	A	9.2	A	9.5	A	9.8
20. Bancroft Way at Gayley Rd./Piedmont Ave. (AWSC)	F	*[b]	F	*[b]	F	*[b]
PM Peak Hour						
1. University Avenue at southbound Shattuck Avenue	B	18.2	C	21.5	C	23.5
2. Hearst Avenue at Shattuck Avenue	B	14.5	C	23.9	C	25.6
3. University Avenue at Oxford Street	B	18.2	C	29.0	C	30.6
4. Hearst Avenue at Oxford Street	D	52.8	D	50.1	D	50.9
5. Hearst Avenue at Euclid Avenue	B	16.9	B	16.3	B	18.0
6. Hearst Avenue at Gayley Road/La Loma Avenue	C	24.3	E	57.2	**F**	**84.1**
7. Gayley Road at Stadium Rim Way (AWSC)	D	34.7	F	72.6	**F**	**92.7**
8. Durant Avenue at Piedmont Avenue (AWSC)	C	17.6	D	34.2	**E**	**36.8**
9. Dwight Way at Piedmont Avenue	B	13.1	B	13.6	B	13.6
10. College Avenue at Bancroft Way	B	12.3	C	15.6	C	15.9
11. Durant Avenue at College Avenue	B	13.4	B	13.6	B	13.7
12. Telegraph Avenue at Dwight Way	C	20.2	C	34.3	C	34.3
13. Shattuck Avenue at Bancroft Way	B	12.7	C	21.8	C	22.3
14. Shattuck Avenue at Durant Way	B	14.0	C	23.4	C	23.7
15. Grizzly Peak Boulevard at Centennial Drive (AWSC)	C	17.7	C	23.2	D	27.3
16. Cyclotron Road at Highland Place (TWSC)	B	12.7	B	13.0	C	16.7
17. Channing Way at Piedmont Avenue (Roundabout)	A	6.3	A	6.3	B	10.7
18. Panoramic at Canyon Rd/Stadium Rim Way (TWSC)	B	12.1	B	12.5	B	12.6
19. Centennial Drive at Stadium Rim Way (AWSC)	B	12.2	B	11.9	B	13.1
20. Bancroft Way at Gayley Rd./Piedmont Ave. (AWSC)	F	*[c]	F	*[c]	F	*[c]

Bold-face text indicates significant impact.

[a] The level of service (LOS) and delay for two-way (side-street) stop intersections represent the worst movement or approach. The LOS and delay for other intersections (signalized and all-way stop) represent the overall intersection.

[b] All intersections are signalized, unless identified differently (AWSC = All-Way Stop Control; TWSC = Two-Way Stop Control).

[c] Based on 2000 Highway Capacity Manual methodology, this intersection operates at LOS D during the a.m. peak hour and LOS C during the p.m. peak hour under existing conditions. However, this does not take into account pedestrian volumes. Based on field observations, this intersection has a heavy pedestrian volume, resulting in major delays (and LOS F conditions) for vehicles under existing conditions. The actual amount of increased delay that addition of traffic generated by the project and other developments would cause to the intersection is not known, but because the LRDP-generated increase in traffic volumes would be less than the significance threshold of a 5-percent increase (i.e., 4.3% and 3.4% in a.m. and p.m. peak hours, respectively) at this intersection, the project would not result in a significant impact.

SOURCE: Wilbur Smith Associates, 2004.

TABLE II-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Aesthetics and Visual Quality		
VIS-1: Construction of the proposed LRDP buildings would create temporary aesthetic nuisances for adjacent land uses. (Less than Significant)	None required.	Less than Significant
VIS-2: The proposed project could alter views of the LBNL site, and could result in a substantial adverse effect to a scenic vista or substantially damage scenic resources. (Significant and Unavoidable)	No mitigation is identified beyond the implementation of the LBNL Design Guidelines and the accompanying policy direction in the draft LRDP, and this impact is considered significant and unavoidable. However, Chapter V of this EIR includes the Reduced Growth 1 Alternative, which would result in lesser changes in the visual environment by constructing less overall building square footage and buildings of reduced height and mass. This alternative would result in lesser aesthetic impacts than would the proposed project.	Significant and Unavoidable
VIS-3: The proposed project would alter the existing visual character of the Lab site and could substantially degrade the existing visual character and quality of the site and its surroundings. (Significant and Unavoidable)	No mitigation is identified beyond the implementation of the LBNL Design Guidelines and the accompanying policy direction in the draft LRDP, and this impact is considered significant and unavoidable. However, Chapter V of this EIR includes the Reduced Growth 1 Alternative, which would result in lesser changes in the visual environment by constructing less overall building square footage and buildings of reduced height and mass. This alternative would result in lesser aesthetic impacts than would the proposed project.	Significant and Unavoidable
VIS-4: Implementation of the LRDP would introduce new sources of light and glare into the LBNL site and increase the overall level of ambient light in the site vicinity. (Significant; Less than Significant with Mitigation)	**VIS-4a:** All new buildings on the LBNL hill site constructed pursuant to the 2006 LRDP shall incorporate design standards that ensure lighting would be designed to confine illumination to its specific site, in order to minimize light spillage to adjacent LBNL buildings and open space areas. Consistent with safety considerations, LBNL project buildings shall shield and orient light sources so that they are not directly visible from outside their immediate surroundings. **VIS-4b:** New exterior lighting fixtures shall be compatible with existing lighting fixtures and installations in the vicinity of the new building, and will have an individual photocell. In general, and consistent with safety considerations, exterior lighting at building entrances, along walkways and streets, and at parking lots shall maintain an illumination level of not more than 20 Lux (approximately 2 foot-candles). **VIS-4c:** All new buildings on the LBNL hill site constructed pursuant to the 2006 LRDP shall incorporate design standards that preclude or limit the use of reflective exterior wall materials or reflective glass, or the use of white surfaces for roofs, roads, and parking lots, except in specific instances when required for energy conservation.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Aesthetics and Visual Quality (cont.)		
VIS-5: Implementation of the LRDP, in conjunction with cumulative development, would alter the visual character of, and change views of, the Oakland-Berkeley hills in the vicinity of Berkeley Lab. (Less than Significant)	None required.	Less than Significant
Air Quality		
AQ-1: Construction of new facilities proposed under the LBNL 2006 LRDP would generate short-term emissions of fugitive dust and criteria air pollutants that would affect local air quality in the vicinity of construction sites. (Significant; Less than Significant with Mitigation)	**AQ-1a:** The BAAQMD's approach to dust abatement calls for "basic" control measures that should be implemented at all construction sites, "enhanced" control measures that should be implemented at construction sites greater than four acres in area, and "optional" control measures that should be implemented on a case-by-case basis at construction sites that are large in area or are located near sensitive receptors, or that, for any other reason, may warrant additional emissions reductions (BAAQMD, 1999). During construction of individual projects proposed under the LRDP, LBNL shall require construction contractors to implement the appropriate level of mitigation (as detailed below), based on the size of the construction area, to maintain project construction-related impacts at acceptable levels; this would reduce the potential impact to a less-than-significant level. Elements of the "basic" dust control program for project components that disturb less than one acre shall include the following at a minimum: • Water all active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever possible. • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer). • Pave, apply water three times daily (or as sufficient to prevent dust from leaving the site), or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Air Quality (cont.)		
AQ-1 (cont.)	• Sweep daily or as appropriate (with water sweepers using reclaimed water if possible) all paved access roads, parking areas and staging areas at construction sites. • Sweep streets daily or as appropriate (with water sweepers using reclaimed water if possible) if visible soil material is carried onto adjacent public streets. Elements of the "enhanced" dust abatement program for project components that disturb four or more acres shall include all of the "basic" measures in addition to the following measures: • Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more). • Enclose, cover, water twice daily (or as sufficient to prevent dust from leaving the site), or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.). • Limit traffic speeds on unpaved roads to 15 miles per hour. • Install sandbags or other erosion control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible. Elements of the "optional" control measures are strongly encouraged at construction sites that are large in area or located near sensitive receptors, or that for any other reason may warrant additional emissions reductions: • Install wheel washers for all exiting trucks, or wash off tires or tracks of all trucks and equipment leaving the site. • Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas. • Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour. • Limit the area subject to excavation, grading, and other construction activity at any one time.	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Air Quality (cont.)		
AQ-1 (cont.)	• Pave all roadways, driveways, sidewalks, etc. as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. • Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off-site. Their duties shall include holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons shall be provided to the BAAQMD prior to the start of construction. **AQ-1b:** To mitigate equipment exhaust emissions, LBNL shall require its construction contractors to comply with the following measures: • Construction equipment shall be properly tuned and maintained in accordance with manufacturers' specifications. • Best management construction practices shall be used to avoid unnecessary emissions (e.g., trucks and vehicles in loading and unloading queues would turn their engines off when not in use). • Any stationary motor sources such as generators and compressors located within 100 feet of a sensitive receptor shall be equipped with a supplementary exhaust pollution control system as required by the BAAQMD and the California Air Resources Board. • Incorporate use of low-NOx emitting, low-particulate emitting, or alternatively fueled construction equipment into the construction equipment fleet where feasible, especially when operating near sensitive receptors. • Reduce construction-worker trips with ride-sharing or alternative modes of transportation.	
AQ-2: Proposed development under the LBNL 2006 LRDP would generate long-term emissions of criteria air pollutants from increases in traffic and stationary sources. (Less than Significant)	None required.	Less than Significant
AQ-3: Proposed development under the LBNL 2006 LRDP would increase carbon monoxide concentrations at busy intersections and congested roadways in the project vicinity. (Less than Significant)	None required.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Air Quality (cont.)		
AQ-4: Implementation of the proposed 2006 LRDP would expose people to toxic air contaminants. (Significant; Less than Significant with Mitigation)	**AQ-4a:** To avoid the single location where implementation of the 2006 LRDP would result in an increase in health risk in excess of the 10-in-one-million threshold, LBNL shall adjust, prior to the construction of parking structure PS-1 (or similarly configured building), the exhaust system of the existing generator near Building 90 to reduce or eliminate the restriction on upward exhaust flow caused by the existing rain cap. For example, modeling indicates that removal of the rain cap would reduce the risk caused by construction of parking structure PS-1 in proximity to the existing generator to a level below 10 in one million. The Lab could install a hinged rain cap, which would prevent moisture infiltration into the generator but still allow unobstructed exhaust flow and would avoid the significant impact identified in the health risk assessment.	Less than Significant
AQ-5: The project, together with anticipated future cumulative development in Berkeley and the Bay Area in general, would contribute to regional increases in criteria air pollutants. (Less than Significant)	None required.	Less than Significant
AQ-6: Even though cumulative emissions of toxic air contaminants would decrease, implementation of the LBNL 2006 LRDP, in combination with other potential contributing projects, would contribute to cumulative emissions of toxic air contaminants that result in an excess cancer risk that exceeds, and would continue to exceed, 10 in one million. (Significant and Unavoidable)	Because most of the cancer risk from TACs is due to diesel particulate, measures to reduce the risk (beyond regulations already in place that will substantially reduce diesel particulate emissions in the next 20 years) would include those measures that could reduce vehicular travel to and from Berkeley Lab. Implementation of Mitigation Measure TRANS-1c, development and implementation of a new Transportation Demand Management Program (see Section IV.L, Transportation/Traffic), would result in a concomitant increase in vehicular emissions, including those of TACs. However, even with implementation of this measure, Berkeley Lab, as a major employer and thus a substantial source of vehicular traffic, would likely continue to contribute to Bay Area-wide emissions of TACs for the foreseeable future.	Significant and Unavoidable
Biological Resources		
BIO-1: Development proposed under the 2006 LRDP would result in the permanent and/or temporary removal of some existing native and non-native vegetation. (Less than Significant)	None required.	Less than Significant
BIO-2: Development under the 2006 LRDP could result in adverse impacts to drainages and/or wetlands subject to Corps and CDFG jurisdiction, including permanent or temporary fill, and accidental discharges of fill materials or other deleterious substances during construction. (Significant; Less than Significant with Mitigation)	**BIO-2a:** Future development under the 2006 LRDP shall avoid, to the extent feasible, the fill of potentially jurisdictional waters. Therefore, during the design phase of any future development project that may affect potentially jurisdictional waters, a preliminary evaluation of the project site shall be made by a qualified biologist to determine if the site	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Biological Resources (cont.)		
BIO-2 (cont.)	is proximate to potentially jurisdictional waters and, if deemed necessary by the biologist, a wetlands delineation shall be prepared and submitted to the Corps for verification. Most development projected under the 2006 LRDP would have no potential for impacts on jurisdictional waters. However, development in specific locations including Buildings S-1 and S-9 ~~S-2 and S-0~~, as well as Parking Structures and Lots PS-1 and PL-9 and Roads R-2 and R-5, could require fill of or create the potential for accidental discharges to jurisdictional waters. It should be noted that the preferable form of mitigation recommended by the Corps is avoidance of jurisdictional waters. To the extent practicable, new development under the 2006 LRDP shall be located so as to avoid the fill of jurisdictional waters. **BIO-2b:** Any unavoidable loss of jurisdictional waters shall be compensated for through the development and implementation of a project-specific Wetlands Mitigation Plan. In the event that potential impacts to streams resulting from a 2006 LRDP development project are identified, compensation for loss of jurisdictional waters would be based on the Corps-verified wetlands delineation identified in Mitigation Measure BIO-2.a. During the permit application process for specific development project(s) with identified impacts on jurisdictional drainages or wetlands, LBNL would consult with the Corps, CDFG, and Regional Water Quality Control Board regarding the most appropriate assessment and mitigation methods to adequately address losses to wetland function that could occur as a result of the development project(s). A project-specific wetland mitigation plan would be developed prior to project implementation and submitted to permitting agencies for their approval. The plan may include one or more of the following mitigation options: restoration, rehabilitation, or enhancement of drainages and wetlands in on-site areas that remain unaffected by grading and project development or off-site at one or more suitable locations within the project region; creation of on-site or off-site drainages or wetlands at a minimum of a 1:1 functional equivalency or acreage ratio (as verified by the Corps); purchase of credits in an authorized mitigation bank acceptable to the Corps and CDFG; contributions in support of restoration and enhancement programs located within the project region (such as those operated by local non-profit organizations including the Friends of Strawberry Creek, the Urban Creeks Council, or the Waterways Restoration Institute); or other options approved by the appropriate regulatory agency at the time of the specific project approval.	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Biological Resources (cont.)		
	All mitigation work proposed in existing wetlands or drainages on- or off-site shall be authorized by applicable permits. **BIO-2c:** To the extent feasible, construction projects that might affect jurisdictional drainages and/or wetlands could be scheduled for dry-weather months. Avoiding ground-disturbing activities during the rainy season would further decrease the potential risk of construction-related discharges to jurisdictional waters.	
BIO-3: Construction activities proposed under the 2006 LRDP could adversely affect special-status nesting birds (including raptors) such that they abandon their nests or such that their reproductive efforts fail. (Significant; Less than Significant with Mitigation)	**BIO-3:** Direct disturbance, including tree and shrub removal or nest destruction by any other means, or indirect disturbance (e.g., noise, increased human activity in area) of active nests of raptors and other special-status bird species (as listed in Table IV.C-1) within or in the vicinity of the proposed footprint of a future development project shall be avoided in accordance with the following procedures for Pre-Construction Special-Status Avian Surveys and Subsequent Actions. No more than two weeks in advance of any tree or shrub removal or demolition or construction activity involving particularly noisy or intrusive activities (such as concrete breaking) that will commence during the breeding season (February 1 through July 31), a qualified wildlife biologist shall conduct pre-construction surveys of all potential special-status bird nesting habitat in the vicinity of the planned activity and, depending on the survey findings, the following actions shall be taken to avoid potential adverse effects on nesting special-status nesting birds: 1. Pre-construction surveys are not required for demolition or construction activities scheduled to occur during the non-breeding season (August 1 through January 31). 2. If pre-construction surveys indicate that no nests of special-status birds are present or that nests are inactive or potential habitat is unoccupied, no further mitigation is required. 3. If active nests of special-status birds are found during the surveys, a no-disturbance buffer zone will be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The size of the buffer zones and types of construction activities restricted within them will be determined through consultation with the CDFG, taking into account factors such as the following:	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Biological Resources (cont.)		
BIO-3 (cont.)	a. Noise and human disturbance levels at the project site and the nesting site at the time of the survey and the noise and disturbance expected during the construction activity; b. Distance and amount of vegetation or other screening between the project site and the nest; and c. Sensitivity of individual nesting species and behaviors of the nesting birds. 4. Noisy demolition or construction activities as described above (or activities producing similar substantial increases in noise and activity levels in the vicinity) commencing during the non-breeding season and continuing into the breeding season do not require surveys (as it is assumed that any breeding birds taking up nests would be acclimated to project-related activities already under way). However, if trees and shrubs are to be removed during the breeding season, the trees and shrubs will be surveyed for nests prior to their removal, according to the survey and protective action guidelines 3a through 3c, above. 5. Nests initiated during demolition or construction activities would be presumed to be unaffected by the activity, and a buffer zone around such nests would not be necessary. 6. Destruction of active nests of special-status birds and overt interference with nesting activities of special-status birds shall be prohibited. 7. The noise control procedures for maximum noise, equipment, and operations identified in Section IV.I, Noise, of this EIR shall be implemented.	
BIO-4: Removal of trees and other proposed construction activities during the breeding season could result in direct mortality of special-status bats. In addition, construction noise and human disturbance could cause maternity roost abandonment and subsequent death of young. (Significant; Less than Significant with Mitigation)	**BIO-4:** Project implementation under the 2006 LRDP shall avoid disturbance to the maternity roosts of special-status bats during the breeding season in accordance with the following procedures for Pre-Construction Special-Status Bat Surveys and Subsequent Actions. No more than two weeks in advance of any demolition or construction activity involving concrete breaking or similarly noisy or intrusive activities, that would commence during the breeding season (March 1 through August 31), a qualified bat biologist, acceptable to the CDFG, shall conduct pre-demolition surveys of all potential special-status bat	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Biological Resources (cont.)		
BIO-4: (cont.)	breeding habitat in the vicinity of the planned activity. Depending on the survey findings, the following actions shall be taken to avoid potential adverse effects on breeding special-status bats: 1. If active roosts are identified during pre-construction surveys, a no-disturbance buffer will be created by the qualified bat biologist, in consultation with the CDFG, around active roosts during the breeding season. The size of the buffer will take into account factors such as the following: a. Noise and human disturbance levels at the project site and the roost site at the time of the survey and the noise and disturbance expected during the construction activity; b. Distance and amount of vegetation or other screening between the project site and the roost; and c. Sensitivity of individual nesting species and the behaviors of the bats. 2. If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required. 3. Pre-construction surveys are not required for demolition or construction activities scheduled to occur during the non-breeding season (September 1 through February 28). 4. Noisy demolition or construction activities as described above (or activities producing similar substantial increases in noise and activity levels in the vicinity) commencing during the non-breeding season and continuing into the breeding season do not require surveys (as it is assumed that any bats taking up roosts would be acclimated to project-related activities already under way). However, if trees are to be removed during the breeding season, the trees would be surveyed for roosts prior to their removal, according to the survey and protective action guidelines 1a through 1c, above. 5. Bat roosts initiated during demolition or construction activities are presumed to be unaffected by the activity, and a buffer is not necessary.	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Biological Resources (cont.)		
BIO-4: (cont.)	6. Destruction of roosts of special-status bats and overt interference with roosting activities of special-status bats shall be prohibited. 7. The noise control procedures for maximum noise, equipment, and operations identified in Section IV.I, Noise, of this EIR shall be implemented.	
BIO-5: Implementation of the 2006 LRDP could result in take or harassment of Alameda whipsnakes. (Significant; Less than Significant with Mitigation)	**BIO-5a:** With the approval of the USFWS on a case-by-case basis, relocate any snake encountered during construction that is at risk of harassment; cease construction activity until the snake is moved to suitable refugium. Alternatively, submit a general protocol for relocation to the USFWS for approval prior to project implementation. **BIO-5b:** Conduct focused pre-construction surveys for the Alameda whipsnake at all project sites within or directly adjacent to areas mapped as having high potential for whipsnake occurrence. Project sites within high potential areas shall be fenced to exclude snakes prior to project implementation. This would not include ongoing and non-site specific activities such as fuel management. Methods for pre-construction surveys, burrow excavation, and site fencing shall be developed prior to implementation of any project located within or adjacent to areas mapped as having high potential for whipsnake occurrence. Such methods would be developed in consultation or with approval of USFWS for any development taking place in USFWS officially designated Alameda whipsnake critical habitat. Pre-construction surveys of such project sites shall be carried out by a permitted biologist familiar with whipsnake identification and ecology (Swaim, 2002). These are not intended to be protocol-level surveys but designed to clear an area so that individual whipsnakes are not present within a given area prior to initiation of construction. At sites where the project footprint would not be contained entirely within an existing developed area footprint and natural vegetated areas would be disturbed any existing animal burrows shall be carefully hand-excavated to ensure that there are no whipsnakes within the project footprint. Any whipsnakes found during these surveys shall be relocated according to the Alameda Whipsnake Relocation Plan. Snakes of any other species found during these surveys shall also be relocated out of the project area. Once the site is cleared it shall then be fenced in such a way as to exclude snakes for the duration of the project. Fencing shall be maintained intact throughout the duration of the project.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Biological Resources (cont.)		
BIO-5 (cont.)	**BIO-5c:** (1) A full-time designated monitor shall be employed at project sites that are within or directly adjacent to areas designated as having high potential for whipsnake occurrence, or (2) Daily site surveys for Alameda whipsnake shall be carried out by a designated monitor at construction sites within or adjacent to areas designated as having moderate potential for whipsnake occurrence. Each morning, prior to initiating excavation, construction, or vehicle operation at sites identified as having moderate potential for whipsnake occurrence, the project area of applicable construction sites shall be surveyed by a designated monitor trained in Alameda whipsnake identification to ensure that no Alameda whipsnakes are present. This survey is not intended to be a protocol-level survey. All laydown and deposition areas, as well as other areas that might conceal or shelter snakes or other animals, shall be inspected each morning by the designated monitor to ensure that Alameda whipsnakes are not present. At sites in high potential areas the monitor shall remain on-site during construction hours. At sites in moderate potential areas the monitor shall remain on-call during construction hours in the event that a snake is found on-site. The designated monitor shall have the authority to halt construction activities in the event that a whipsnake is found within the construction footprint until such time as threatening activities can be eliminated in the vicinity of the snake and it can be removed from the site by a biologist permitted to handle Alameda whipsnakes. The USFWS shall be notified within 24 hours of any such event. **BIO-5d:** Alameda whipsnake awareness and relevant environmental sensitivity training for each worker shall be conducted by the designated monitor prior to commencement of on-site activities. All on-site workers at applicable construction sites shall attend an Alameda whipsnake information session conducted by the designated monitor prior to beginning work. This session shall cover identification of the species and procedures to be followed if an individual is found on-site, as well as basic site rules meant to protect biological resources, such as speed limits and daily trash pickup. **BIO-5e:** Hours of operation and speed limits shall be instituted and posted.	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Biological Resources (cont.)		
BIO-5 (cont.)	All construction activities that take place on the ground (as opposed to within buildings) at applicable construction sites shall be performed during daylight hours, or with suitable lighting so that snakes can be seen. Vehicle speed on the construction site shall not exceed 5 miles per hour. **BIO-5f:** Site vegetation management shall take place prior to tree removal, grading, excavation, or other construction activities. Construction materials, soil, construction debris, or other material shall be deposited only on areas where vegetation has been mowed. Areas where development is proposed under the 2006 LRDP are subject to annual vegetation management involving the close-cropping of all grasses and ground covers; this management activity would be performed prior to initiating project-specific construction. Areas would be re-mowed if grass or other vegetation on the project site becomes high enough to conceal whipsnakes during the construction period. In areas not subject to annual vegetation management, dense vegetation would be removed prior to the onset of grading or the use of any heavy machinery, using goats, manual brush cutters, or a combination thereof.	
BIO-6: Project activities allowed under the LRDP, including facilities and road construction in areas designated for use as Research and Academic, Central Commons, and Support Services zones, as well as vegetation management activities in designated Perimeter Open Space, could result in the take of special-status plant species. Construction activities, as well as vegetation management activities, have the potential to disturb or result in mortality of these species or eliminate their habitat. (Significant; Less than Significant with Mitigation)	**BIO-6a:** Floristic surveys for special-status plants shall be conducted at specific project sites where suitable habitat is present. Floristic surveys shall also be conducted in designated Perimeter Open Space. All occurrences of special-status plant populations, if any, shall be mapped. Although no special-status plants have been observed at LBNL during past biological resource surveys, the distribution and size of plant populations often vary from year to year, depending on climatic conditions. Therefore, a baseline survey of all non-developed areas, including the designated Perimeter Open Space areas, where there is potential for future development or vegetation management activities, should be conducted in accordance with USFWS and CDFG guidelines by a qualified botanist during the period of identification for all special-status plants. During this initial survey, any special-status plant populations found, as well as areas with high potential for supporting special-status plants (i.e., less disturbed areas, rock outcrops and other areas of thin soils, areas supporting a relatively high proportion of native plant species) would be identified and mapped. Thereafter, surveys of Perimeter Open Space areas where ongoing vegetation management (i.e., active vegetation removal to minimize potential wildland fire	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Biological Resources (cont.)		
BIO-6 (cont.)	damage to facilities and personnel) activities would be undertaken, and that are mapped as supporting or having potential to support special-status plant species, would be conducted in April and June every five years. In those proposed LRDP development sites where suitable habitat is present for special-status species identified as having a moderate to high potential for occurrence (see Table IV.C-1, p. IV.C-10), protocol-level rare plant surveys would be conducted prior to construction. Surveys should be conducted during the periods of identification for all species under consideration at each applicable development site, the timing and scope to be directed by a qualified botanist. During the initial survey, any special-status plant populations found, as well as all areas with high potential for supporting special-status plants (i.e. less disturbed areas, rock outcrops and other areas of thin soils, areas supporting a relatively high proportion of native plant species), would be identified and mapped. **BIO-6b:** Seeds or cuttings shall be collected from sensitive plant species found within developable areas and open space and at risk of being any adversely affected, or sensitive plants found in these areas shall be transplanted. If special-status plants are found during floristic surveys and are at risk of being adversely affected, a qualified botanist working in conjunction with an expert in native plant horticulture, CNPS, and CDFG, would collect seeds, bulbs, and cuttings for propagation and planting in specific project revegetation efforts as well as restoration of native habitat within designated Open Space. Perennial species could be transplanted, if found in undeveloped locations that have a high likelihood for future development. Due to its unreliability, translocation alone should not be relied upon as a sole means of mitigation; however, healthy individuals of any special-status plant species should be transplanted to areas of suitable habitat that are protected in perpetuity. The relocation sites may be located either on or off the LBNL hill site. If the areas for transplanting are located off-site, they should be within a 20-mile radius of the project site. Plants should be relocated to areas with ecological conditions (slope, aspect, microclimate, soil moisture, etc.) as similar to those in which they were found as possible. Existing plants could also be held in containers for specific post-project revegetation efforts on-site.	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Biological Resources (cont.)		
BIO-7: Development pursuant to the 2006 LRDP, when combined with development under the UC Berkeley LRDP as well as surrounding (primarily residential) development in the Oakland-Berkeley hills, would contribute to a reduction of open space and, consequently, habitat for native plants and wildlife, including special-status species. (Less than Significant)	None required.	Less than Significant
Cultural Resources		
CUL-1: Implementation of the 2006 LRDP could cause a substantial adverse change in the significance of historical resources, as defined in CEQA Guidelines Section 15064.5, including historical resources that have not yet been identified. (Significant and Unavoidable)	**CUL-1:** Mitigation for the demolition or substantial physical alteration of Buildings 71 and 88, and other historical buildings and structures at LBNL found to be significant historical resources at the completion of the ongoing surveys and research, shall include the development of a Memorandum of Agreement (MOA) among the Department of Energy, the State Historic Preservation Officer, and the Advisory Council on Historic Preservation. Full implementation of the MOA's stipulations shall also be required as part of this mitigation measure.	Significant and Unavoidable
CUL-2: The proposed 2006 LRDP would allow demolition of buildings and structures at LBNL that have been found to be ineligible for listing in the National Register individually or as a district. (Less than Significant)	None required.	Less than Significant
CUL-3: Implementation of the proposed 2006 LRDP could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. (Significant; Less than Significant with Mitigation)	**CUL-3:** If an archaeological artifact is discovered on-site during construction under the proposed LRDP, all activities within a 50-foot radius shall be halted and a qualified archaeologist shall be summoned within 24 hours to inspect the site. If the find is determined to be significant and to merit formal recording or data collection, adequate time and funding shall be devoted to salvage the material. Any archaeologically important data recovered during monitoring shall be cleaned, catalogued, and analyzed, with the results presented in a report of finding that meets professional standards.	Less than Significant
CUL-4: Implementation of the proposed 2006 LRDP could disturb human remains, including those interred outside of formal cemeteries. (Significant; Less than Significant with Mitigation)	**CUL-4:** In the event that human skeletal remains are uncovered during construction or ground-breaking activities resulting from implementation of the 2006 LRDP at the LBNL site, CEQA Guidelines Section 15064.5(e)(1) shall be followed: • In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps should be taken:	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Cultural Resources		
CUL-4 (cont.)	(1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: (A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and (B) If the coroner determines the remains to be Native American: (1) The coroner shall contact the Native American Heritage Commission within 24 hours. (2) The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American. (3) The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or (2) Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance. (A) The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission; (B) The descendant identified fails to make a recommendation; or (C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.	
CUL-5: Implementation of the proposed 2006 LRDP would not combine with other cumulative projects to result in an adverse change to the significance of historical resources that share historic significance with resources that could be lost at Berkeley Lab. (Less than Significant)	None required.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Geology and Soils		
GEO-1: Future construction projects within the Alquist-Priolo Zone could expose people or structures to surface fault rupture. (Significant; Less than Significant with Mitigation)	**GEO-1:** Seismic emergency response and evacuation plans shall be prepared for each new project at LBNL that is developed pursuant to the 2006 LRDP. These plans shall incorporate potential inaccessibility of the Blackberry Canyon entrance and identify alternative ingress and egress routes for emergency vehicles and facility employees in the event of roadway failure from surface fault rupture.	Less than Significant
GEO-2: Implementation of the LRDP would expose people and structures to seismic hazards such as groundshaking and earthquake-induced landsliding. (Significant; Less than Significant with Mitigation)	**GEO-2:** A site-specific, design-level geotechnical investigation shall occur during the design phase of each LBNL building project, and prior to approval of new building construction within the LBNL hill site. This investigation shall be conducted by a licensed geotechnical engineer and include a seismic evaluation of potential maximum ground motion at the site. Geotechnical investigations for sites within either a Seismic Hazard Zone for landslides or an area of historic landslide activity at LBNL, as depicted on Figures IV.E-2 and IV.E-3, or newly recognized areas of slope instability at the inception of project planning, shall incorporate a landslide analysis in accordance with CGS Publication 117. Geotechnical recommendations shall subsequently be incorporated into building design. Earthquakes and groundshaking in the Bay Area are unavoidable and may occur at some time during the period covered by the LRDP. Although some structural damage is typically not avoidable, building codes and local construction requirements have been established to protect against building collapse and to minimize injury during a seismic event. Considering that the future individual buildings would be constructed in conformance with the California Building Code, LBNL requirements, federal regulations and guidelines, and Mitigation Measure GEO-2, the risks of injury and structural damage from groundshaking and earthquake-induced landsliding would be reduced and the impacts, therefore, would be considered less than significant. Furthermore, as described in the Project Description, some of the buildings constructed pursuant to the LRDP would be occupied by staff relocated from other, older LBNL facilities, some of which were constructed in accordance with less stringent building code requirements than those that would apply to future construction. As of 2003, 14 percent of LBNL buildings were over 60 years old. Many of these buildings were constructed as temporary structures that were never replaced. The LRDP specifically proposes the demolition of some30 outdated buildings that together include approximately 250,000 square feet. In this regard, implementation of the LRDP would result in a beneficial seismic safety impact.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Geology and Soils		
GEO-3: Implementation of the LRDP would result in construction on soils that could be subject to erosion and instability. (Significant; Less than Significant with Mitigation)	**GEO-3a:** Construction under the LRDP shall be required to use construction best management practices and standards to control and reduce erosion. These measures could include, but are not limited to, restricting grading to the dry season, protecting all finished graded slopes from erosion using such techniques as erosion control matting and hydroseeding or other suitable measures. **GEO-3b:** Revegetation of areas disturbed by construction activities, including slope stabilization sites, using native shrubs, trees, and grasses, shall be included as part of all new projects. Compliance with California Building Code standards and compliance with Mitigation Measures GEO-2, GEO-3a, and GEO-3b would reduce potential impacts associated with expansive soils and soil erosion to a less-than-significant level.	Less than Significant
GEO-4: The proposed 2006 LRDP, when combined with cumulative growth, would increase the population exposed to geologic and seismic hazards. (Less than Significant)	None required for cumulative impacts, although Mitigation Measures GEO-1, GEO-2, GEO-3a, and GEO-3b would be implemented, as identified above.	Less than Significant
Hazards and Hazardous Materials		
HAZ-1: Demolition or renovation of existing structures could expose construction workers, the public, or the environment to hazardous materials in building materials. (Less than Significant)	None required.	Less than Significant
HAZ-2: Future construction activities, including earth-moving activities such as excavation and grading, could expose construction workers or the environment to hazardous materials. (Less than Significant)	None required.	Less than Significant
HAZ-3: Operation of LBNL pursuant to the 2006 LRDP, including proposed increases in laboratory and facility space, would increase the use of hazardous materials in research, facility construction, and facility maintenance activities, consequently resulting in increased generation, storage, transportation, and disposal of hazardous wastes, including transport associated with off-site disposal of hazardous and radioactive wastes, from research and facility maintenance activities. (Significant; Less than Significant with Mitigation)	**HAZ-3a:** LBNL shall continue to prepare an annual self-assessment summary report and a Site Environmental Report that summarize environment, health, and safety program performance and identify any areas where LBNL is not in compliance with environmental laws and regulations governing hazardous materials, and worker safety, emergency response, and environmental protection. An EH&S assessment of LBNL activities is performed annually, and these results are reported annually in the LBNL Self-Assessment Report.	Less than Significant
Hazards and Hazardous Materials		
HAZ-3 (cont.)	In addition, LBNL prepares an annual Site Environmental Report that describes the environmental activities noted above. Implementation of	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	this measure would ensure that the information in the LBNL Self-Assessment and Site Environmental Reports continues to be collected, reviewed, and provided. **HAZ-3b:** Prior to shipping hazardous materials to a hazardous waste treatment, storage, or disposal facility, LBNL shall confirm that the facility is licensed to receive the type of waste LBNL is proposing to ship. LBNL is required by DOE Order 435.1 to verify that the receiving facility has all appropriate licenses and that the waste meets all waste acceptance criteria of the receiving facility. **HAZ-3c:** LBNL shall require hazardous waste haulers to provide evidence that they are appropriately licensed to transport the type of wastes being shipped from LBNL. Shipping procedures at LBNL require all transporters of hazardous, radioactive, and mixed waste to provide evidence that they are appropriately licensed. **HAZ-3d:** LBNL shall continue its waste minimization programs and strive to identify new and innovative methods to minimize hazardous waste generated by LBNL activities. Each LBNL Division is required to identify and implement new waste minimization activities each year. The waste minimization program at LBNL reduced hazardous waste by 72% during the period 1993-2004 **HAZ-3e:** In addition to implementing the numerous employee communication and training requirements included in regulatory programs, LBNL shall undertake the following additional measures as ongoing reminders to workers of health and safety requirements: • Continue to post phone numbers of LBNL EH&S subject matter experts on the EH&S website. • Continue to post Emergency Response and Evacuation Plans in all LBNL buildings. • Continue to post sinks, in areas where hazardous materials are handled, with signs reminding users that hazardous materials and wastes cannot be poured down the drain.	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Hazards and Hazardous Materials		
HAZ-3 (cont.)	• Continue to post dumpsters and central trash collection areas where hazardous materials are handled with signs reminding users that hazardous wastes cannot be disposed of as trash. **HAZ-3f:** LBNL shall update its emergency preparedness and response program on an annual basis and shall provide copies of this program to local emergency response agencies and to members of the public upon request.	
HAZ-4: Implementation of the LRDP would involve the handling of hazardous materials and wastes within one-quarter mile of an existing school. (Significant; Less than Significant with Mitigation)	See Mitigation Measures HAZ-3a through HAZ-3f, above.	Less than Significant
HAZ-5: Implementation of the LRDP could increase exposure of people or structures to hazards that could result from regional, compounded, or terrorist-related catastrophic events. (Less than Significant)	None required.	Less than Significant
HAZ-6: Implementation of the LRDP would expose people or structures to wildland fire hazards. (Less than Significant)	None required.	Less than Significant
HAZ-7: Implementation of the LRDP would contribute to cumulative increases in exposure to hazards and hazardous materials. (Less than Significant)	None required.	Less than Significant
Hydrology and Water Quality		
HYDRO-1: Construction pursuant to the LRDP, including earthmoving activities such as excavation and grading, could result in soil erosion and subsequent sedimentation of stormwater runoff or an increase in stormwater pollutants associated with construction-related hazardous materials. (Less than Significant)	None required.	Less than Significant
HYDRO-2: Implementation of the 2006 LRDP would adversely affect stormwater quality. (Less than Significant)	None required.	Less than Significant
HYDRO-3: Implementation of the LRDP would increase stormwater runoff rates and volumes, potentially resulting in erosion of creek channels or downstream flooding. (Less than Significant)	None required.	Less than Significant
HYDRO-4: Implementation of the LRDP, when combined with implementation of the UC Berkeley 2020 LRDP and other cumulative development, would not result in significantly adverse hydrologic or water quality impacts. (Less than Significant)	None required.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Land Use and Planning		
LU-1: Implementation of the proposed 2006 LRDP would increase building square footage and adjusted daily population (ADP) at LBNL. Because new construction would be within developed areas and would not introduce substantially new land uses, the 2006 LRDP would not physically divide an established community. (Less than Significant)	None required.	Less than Significant
LU-2: Implementation of the proposed 2006 LRDP would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect, nor would the project conflict with local land use regulations such that a significant incompatibility is created with adjacent land uses. (Less than Significant)	None required.	Less than Significant
LU-3: The proposed 2006 LRDP, when combined with cumulative growth in the project vicinity, would increase the intensity of existing land uses in the area but would not physically divide an established community, conflict with applicable land use regulations, or cause conflicts with existing uses. (Less than Significant)	None required.	Less than Significant
Noise		
NOISE-1: Development under the proposed LRDP would result in temporary noise impacts related to construction and demolition activities. (Significant and Unavoidable)	**NOISE-1a:** To reduce daytime noise impacts due to construction/demolition, LBNL shall require construction/demolition contractors to implement noise reduction measures appropriate for the project being undertaken. Measures that might be implemented could include, but not be limited to, the following: • Construction/demolition activities would be limited to a schedule that minimizes disruption to uses surrounding the project site as much as possible. Such activities would be limited to the hours designated in the Berkeley and/or Oakland noise ordinance(s), as applicable to the location of the project. This would eliminate or substantially reduce noise impacts during the more noise-sensitive nighttime hours and on days when construction noise might be more disturbing. • To the maximum extent feasible, equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible).	Significant and Unavoidable

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Noise		
NOISE-1 (cont.)	• Stationary noise sources shall be located as far from adjacent receptors as possible. • At locations where noise may affect neighboring residential uses, LBNL will develop a comprehensive construction noise control specification to implement construction/demolition noise controls, such as noise attenuation barriers, siting of construction laydown and vehicle staging areas, and community outreach, as appropriate to specific projects. The specification will 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. This document will be modified as appropriate for a particular construction project and included within the construction specification. **NOISE-1b:** For each subsequent project pursuant to the LRDP that would involve construction and/or demolition activities, LBNL shall engage a qualified noise consultant to determine whether, based on the location of the site and the activities proposed, construction/demolition noise levels could approach the property-line receiving noise standards of the cities of Berkeley or Oakland (as applicable). If the consultant determines that the standards would not be exceeded, no further mitigation is required. If the standards would be reached or exceeded absent further mitigation, one or more of the following additional measures would be required, as determined necessary by the noise consultant: • Stationary noise sources shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible. • Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Noise		
NOISE-1 (cont.)	• Noise from idling trucks shall be kept to a minimum. No trucks shall be permitted to idle for more than 10 minutes if waiting within 100 feet of a residential area. • If determined necessary by the noise consultant, a set of site-specific noise attenuation measures shall be developed before construction begins; possible measures might include erection of temporary noise barriers around the construction site, use of noise control blankets on structures being erected to reduce noise emission from the site, evaluation of the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings, and monitoring the effectiveness of noise attenuation measures by taking noise measurements. • If determined necessary by the noise consultant, at least two weeks prior to the start of excavation, LBNL or its contractor shall provide written notification to all neighbors within 500 feet of the construction site. The notification shall indicate the estimated duration and completion date of the construction, construction hours, and necessary contact information for potential complaints about construction noise (i.e., name, telephone number, and address of party responsible for construction). The notice shall indicate that noise complaints resulting from construction can be directed to the contact person identified in the notice. The name and phone number of the contact person also shall be posted outside the LBNL boundaries.	
NOISE-2: Development under the proposed LRDP would result in temporary vibration impacts related to construction activities. (Less than Significant)	None required.	
NOISE-3: Project-generated vehicle traffic associated with the proposed LRDP would result in an incremental, and likely imperceptible, long-term increase in ambient noise levels. (Less than Significant)	None required.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Noise		
NOISE-4: Continued operation of the LBNL hill site facility would result in a long-term increase in ambient noise levels. (Significant, Less than Significant with Mitigation)	**NOISE-4:** Mechanical equipment shall be selected and building designs prepared for all future development projects pursuant to the 2006 LRDP so that noise levels from future building and other facility operations would not exceed the Noise Ordinance limits of the cities of Berkeley or Oakland for commercial areas or residential zones as measured on any commercial or residential property in the area surrounding the future LRDP project. Controls that would typically be incorporated to attain adequate noise reduction would include selection of quiet equipment, sound attenuators on fans, sound attenuator packages for cooling towers and emergency generators, acoustical screen walls, and equipment enclosures.	Less than Significant
NOISE-5: Development under the proposed LRDP would result in temporary contributions to cumulative noise impacts related to construction and demolition activities. (Significant and Unavoidable)	Implementation of Mitigation Measures NOISE-1a and NOISE-1b would reduce the cumulative impact of construction noise to the maximum extent feasible. However, for purposes of a conservative analysis, the cumulative effect of construction noise is considered significant and unavoidable.	Significant and Unavoidable
NOISE-6: Development pursuant to the 2006 LRDP, together with anticipated future development at LBNL and in the surrounding area, including the UC Berkeley 2020 LRDP, would result in a cumulative increase in noise levels. (Less than Significant)	None required.	Less than Significant
Population and Housing		
POP-1: The proposed LRDP would produce an increase in the number of people working at LBNL but would not induce substantial population growth in the City of Berkeley or elsewhere in the region, either directly or indirectly. (Less than Significant)	None required.	Less than Significant
POP-2: The proposed LRDP, in conjunction with the proposed UC Berkeley 2020 LRDP and other projects that could be developed in Berkeley, would induce population growth in the City of Berkeley and the Bay Area, but the contribution of the 2006 LRDP to this impact would not be cumulatively considerable. (Less than Significant)	None required.	Less than Significant
Public Services and Recreation		
PUB-1: The proposed project would result in an increase in demand for fire protection services. However, this increased demand would not result in the need for additional facilities for fire protection services. (Less than Significant)	None required.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
PUB-2: The proposed project would result in an increase in calls for police services. However, this increased demand would not result in the need for additional facilities for police protection services. (Less than Significant)	None required.	Less than Significant
PUB-3: Implementation of the 2006 LRDP would not result in the need for new or physically altered public school facilities. (Less than Significant)	None required.	Less than Significant
PUB-4: Implementation of the proposed 2006 LRDP would not significantly adversely affect the provision of parks and recreation. (Less than Significant)	None required.	Less than Significant
PUB-5: Under cumulative conditions, implementation of the 2006 LRDP would contribute to an increase in demand for fire protection services and police services. However, this increased demand would not result in the need for new or physically altered facilities, the construction of which could cause significant environmental impacts. (Less than Significant)	None required.	Less than Significant
PUB-6: Under cumulative conditions, implementation of the proposed 2006 LRDP would not result in the need for new or physically altered public school facilities. (Less than Significant)	None required.	Less than Significant
PUB-7: Under cumulative conditions, implementation of the proposed 2006 LRDP would not substantially affect the provision of parks and recreation facilities. (Less than Significant)	None required.	Less than Significant
Transportation/Traffic		
TRANS-1: Implementation of the 2006 LRDP would degrade level of service at certain local intersections. (Significant and Unavoidable)	**TRANS-1a:** LBNL shall work with UC Berkeley and the City of Berkeley to design and install a signal at the Gayley Road/Stadium Rim Way intersection, when a signal warrant analysis shows that the signal is needed. The intersection would meet one-hour signal warrants for peak-hour volume and peak-hour delay under 2025 conditions with implementation of the LBNL 2006 LRDP. LBNL shall contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for a periodic (annual or biennial) signal warrant check to allow the City to determine when a signal is warranted, and for installation of the signal. Should the City determine that alternative mitigation strategies may reduce or avoid the significant impact, the Lab shall work with the City and UC Berkeley to identify and implement such alternative feasible measure(s). See also Mitigation Measure TRANS-1c, development and implementation of a new Transportation Demand Management Program.	Potentially mitigable to a less-than-significant level ~~Significant and unavoidable~~ at (1) Hearst Avenue/Gayley Road/La Loma Avenue intersection; ~~potentially mitigable to a less-than-significant level at~~ (2) Gayley Road/Stadium Rim Way and (3) Durant Avenue/ Piedmont Avenue intersections, but considered significant and unavoidable because there is not yet a plan in place for such improvements at these intersections, and as such, it cannot be determined at this time

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	With the implementation of this mitigation measure, the intersection of Gayley Road/Stadium Rim Way would operate at an acceptable level of service (LOS B or better under traffic signal control) during both the a.m. and p.m. peak hours. ~~Because LBNL could not implement this measure on its own, but would need the cooperation of UC Berkeley and/or the City of Berkeley, this impact would be considered significant and unavoidable.~~	that the impact will be mitigated to a less-than-significant level. ~~LBNL could not implement the mitigation measures (installation of traffic signals, with the Lab funding its fair share of the cost) on its own, as these improvements would be under the jurisdiction of the City of Berkeley.~~
	This mitigation measure is proposed to be adopted as part of the LRDP and will be monitored through the LRDP mitigation monitoring and reporting program. It will thus continue to be a binding mitigation commitment of LBNL. Under CEQA case law, however, when the lead agency contributes fair share funding to a mitigation measure that will be carried out by another entity, there must be some evidence of a reasonable plan in place in order for the lead agency to conclude that the adopted mitigation will reduce the impact to a less than significant level (*City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341). LBNL has discussed this with the City, and based on that consultation, LBNL understands there have been some discussions of improvements at Gayley Road/Stadium Rim Way. Also, the University has retained a consultant to perform studies related to these improvements, but there is not yet a plan in place for the improvements. As such, it cannot be determined at this time that this	
Transportation/Traffic		
TRANS-1 (cont.)	impact will be mitigated to a less than significant level. Accordingly, this impact would still be considered significant and unavoidable, but LBNL would contribute to fair share funding which, if a reasonable plan is implemented, would mitigate these impacts to a less than significant level.	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	TRANS-1b: LBNL shall work with the City of Berkeley to design and install a signal at the Durant Avenue/Piedmont Avenue intersection, when a signal warrant analysis shows that the signal is needed. LBNL shall contribute funding, on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for a periodic (annual or biennial) signal warrant check to allow the City to determine when a signal is warranted, and for installation of the signal. Should the City determine that alternative mitigation strategies may reduce or avoid the significant impact, the Lab shall work with the City and UC Berkeley to identify and implement such alternative feasible measure(s). See also Mitigation Measure TRANS-1c, development and implementation of a new Transportation Demand Management Program. With the implementation of this mitigation measure, the Durant Avenue/Piedmont Avenue intersection would operate at an acceptable level of service (LOS B or better under traffic signal control) during both the a.m. and p.m. peak hours. ~~Because LBNL could not implement this measure on its own, but would need the cooperation of the City of Berkeley, this impact would be considered significant and unavoidable.~~ This mitigation measure is proposed to be adopted as part of the LRDP and will be monitored through the LRDP mitigation monitoring and reporting program. It will thus continue to be a binding mitigation commitment of LBNL. Under CEQA case law, however, when the lead agency contributes fair share funding to a mitigation measure that will be carried out by another entity, there must be some evidence of a reasonable plan in place in order for the lead agency to conclude that the adopted mitigation will reduce the impact to a less than significant level (*City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341). LBNL has discussed this with the City, and based on that consultation, LBNL understands there have been some discussions of improvements at Gayley Road/Stadium Rim Way. Also, the University has retained a consultant to perform studies related to these improvements, but there is not yet a plan in place for the improvements. As such, it cannot be determined at this time that this impact will be mitigated to a less than significant level. Accordingly, this impact would still be considered significant and unavoidable, but LBNL would contribute to fair share funding which, if a reasonable plan is implemented, would mitigate these impacts to a less than significant level.	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Transportation/Traffic **TRANS-1** (cont.)	**Mitigation Measure TRANS-1c:** LBNL shall fund and conduct a study to evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at the intersection of Hearst Avenue at Gayley Road/La Loma Avenue. This intersection is currently signalized, and physical geometric limitations constrain improvements within its current right-of-way. All four corners of this intersection are occupied by existing UC Berkeley facilities, including Foothill Student Housing, Cory Hall, and outdoor tennis courts, as well as the Founders' Rock. The LOS analyses herein used conservative assumptions so as to not underestimate potential project impacts. For example, even though the approach widths at this intersection allow drivers to maneuver past other vehicles as they near the intersection, the absence of pavement striping to delineate separate lanes dictated that the analysis conservatively assume all vehicle movements on each approach are made on a single lane. Similarly, without the certainty that standard lane widths (and adequate storage lengths) could be provided, possible improvement measures were not relied on to judge that significant impacts would be mitigated to less-than-significant levels. Judging the success of possible mitigation measures with a conservative standard is reasonable, but in consultation with City of Berkeley staff, the Lab will conduct a further study to re evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at this intersection. That additional study will be conducted by the Lab as part of the TDM program set forth below as Mitigation Measure TRANS-1d. If such mitigation is determined by Berkeley Lab to be feasible, then Berkeley Lab shall contribute funding on a fair share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for the installation of the improvements. This mitigation measure will be monitored through the LRDP mitigation monitoring and reporting program. It will thus continue to be a binding mitigation commitment of LBNL. Under CEQA case law, however, when the lead agency contributes fair share funding to a mitigation measure that will be carried out by another entity, there must be some evidence of a reasonable plan in place in order for the lead agency to conclude that	

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Transportation/Traffic		
TRANS-1 (cont.)	the adopted mitigation will reduce the impact to a less than significant level (*City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341). LBNL will reevaluate its conclusion that there is not feasible mitigation for this intersection, and will retain and fund a consultant to perform that reevaluation. However, given that LBNL has evaluated all of the potential mitigation that has been suggested and concluded that mitigation is not feasible, and given the absence of a City plan for such improvements, it cannot be determined at this time that this impact will be mitigated to a less than significant level. Accordingly, this impact would still be considered significant and unavoidable, but LBNL shall fund the study pursuant to the TDM program, and would contribute to fair share funding which, if feasible mitigation is identified and a plan to proceed with that mitigation is implemented, would mitigate this impact to a less than significant level. **TRANS-1d~~c~~:** LBNL shall develop and implement a new Transportation Demand Management (TDM) Program to replace its existing TDM program. This enhanced TDM Program has been drafted in consultation with the City of Berkeley, and is proposed to be adopted by the Lab following The Regents' consideration of the 2006 LRDP. The new draft proposed TDM Program is attached to this EIR as Appendix G. The proposed TDM Program includes several implementation phases tied to the addition of parking to LBNL. The final provisions of the TDM Program may be revised as it is finally adopted but will include a TDM coordinator and transportation committee, an annual inventory of parking spaces and a gate count, a study of more aggressive TDM measures, investigation of a possible parking fee, investigation of sharing services with UC Berkeley and an alternative fuels program. The TDM program shall also include funding of a study to reevaluate the feasibility of mitigation at the Hearst and Gayley/LaLoma intersection. The new draft proposed TDM Program also includes a requirement that LBNL conduct an additional traffic study to reevaluate traffic impacts on the earliest to occur of 10 years following the certification of this EIR or the time at which the Lab formally proposes a project that will bring total development of parking spaces pursuant to the 2006 LRDP to or above 375 additional parking spaces.	
TRANS-2: Implementation of the 2006 LRDP would result in minor increases in transit ridership. (Less than Significant)	None required.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Transportation/Traffic		
TRANS-3: Implementation of the 2006 LRDP would result in an increase in ridership on LBNL shuttle buses, including additional demand for bicycle service on the inbound shuttles, potentially causing overcrowding on the shuttle buses or an inability by bicyclists to use the shuttle buses with their bicycles. (Significant; Less than Significant with Mitigation)	**TRANS-3:** LBNL shall develop and maintain a transportation plan designed to ensure that the current balance of transportation modes is maintained. This plan shall include 1) maintaining the same (or lesser) ratio of parking permits and parking spaces to average daily population (ADP), and 2) ensuring that levels of shuttle bus service and provision of bike racks on shuttle buses are sufficient to accommodate projected demand.	Less than Significant
TRANS-4: Implementation of the 2006 LRDP would increase parking demand but would provide additional parking that would be adequate to meet this demand. (Less than Significant)	None required.	Less than Significant
TRANS-5: Implementation of the 2006 LRDP would marginally increase potential traffic conflicts with pedestrians or bicyclists. (Less than Significant)	None required.	Less than Significant
TRANS-6: Construction of new facilities proposed under the 2006 LBNL LRDP would temporarily and intermittently increase traffic volumes and parking demand above current conditions. (Less than Significant)	None required.	Less than Significant
TRANS-7: Traffic associated with construction of new facilities proposed under the 2006 LBNL LRDP could contribute to the degradation of pavement on Berkeley streets. (Less than Significant)	None required.	Less than Significant
TRANS-8: Development pursuant to the 2006 LRDP, when combined with development under the UC Berkeley LRDP as well as surrounding development in Berkeley and nearby communities that could affect the study intersections, would contribute to a degradation of level of service at local intersections. (Significant and Unavoidable)	**TRANS-8:** LBNL shall implement Mitigation Measure TRANS-1a (work with UC Berkeley and the City of Berkeley to design and install a signal at the Gayley Road/Stadium Rim Way intersection; LBNL would contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, to install the signal) and Mitigation Measure TRANS-1b (work with the City of Berkeley to design and install a signal at the Durant Avenue/Piedmont Avenue intersection, when a signal warrant analysis shows that the signal is needed; LBNL would contribute funding on a fair-share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, to install the signal and for monitoring to determine when a signal is warranted). With the implementation of these mitigation measures, the intersections of Gayley Road/Stadium Rim Way and Durant Avenue/Piedmont Avenue would operate at LOS B or better during both the a.m. and p.m. peak hours. As explained earlier, the intersection of Hearst Avenue at Gayley Road/La Loma Avenue is currently signalized, and physical geometric limitations constrain improvements within its current right-of-way. Without	Traffic impacts were found to be ~~significant and unavoidable~~ potentially mitigable at (1) Hearst Avenue/Gayley Road/La Loma Avenue, ~~intersection. Traffic impacts were found to be potentially mitigable to less-than-significant levels at~~ (2) Gayley Road/Stadium Rim Way and (3) Durant Avenue/Piedmont Avenue intersections, but considered significant and unavoidable because there is not yet a reasonable plan for improvements at these intersections, and as such, it cannot be determined at this time whether the impact will be mitigated to a less than significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	the certainty that standard lane widths (and adequate storage lengths) could be provided, possible improvement measures were not relied on to judge that significant impacts would be mitigated to less-than-significant levels. Judging the success of possible mitigation measures with a conservative standard is reasonable, but in consultation with City of Berkeley staff, the Lab shall fund and conduct a study to evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at this intersection. That additional study will be conducted by the Lab as part of the TDM program set forth below as Mitigation Measure TRANS-1d. If such mitigation is determined by Berkeley Lab to be feasible, then Berkeley Lab shall contribute funding on a fair share basis, to be determined in consultation with UC Berkeley and the City of Berkeley, for the installation of the improvements. ~~Analyses indicate that little can be done to mitigate future LOS conditions without acquiring additional right-of-way or prohibiting certain turning movements, such as minor left-turn movements. Therefore, no mitigation is available for cumulative impacts on this intersection.~~	level. ~~LBNL could not implement mitigation measures on its own, as these improvements would be under the jurisdiction of the City of Berkeley.~~
Utilities, Service Systems, and Energy		
UTILS-1: Implementation of the proposed 2006 LRDP would increase the demand for water. (Less than Significant)	None required.	Less than Significant
UTILS-2: Implementation of the proposed 2006 LRDP would generate additional wastewater, requiring system improvements to ensure that additional wastewater flows from the Lab are directed into unconstrained sub-basins. (Significant; Less than Significant with Mitigation)	**UTILS-2:** LBNL shall implement programs to ensure that additional wastewater flows from the Lab are directed into unconstrained sub-basins, as necessary and appropriate. LBNL shall continue to direct the Lab's existing western effluent flows into sub-basin 17-013. In addition, new flows at the Lab shall be directed into either sub-basin 17-013, sub-basin 17-304, unconstrained portions of sub-basin 17-503, or another sub-basin that has adequate capacity. Final design and implementation of these improvements shall be negotiated between the appropriate parties and shall undergo appropriate environmental review and approval. LBNL shall closely coordinate the planning, approval, and implementation of this mitigation with the City of Berkeley and the UC Berkeley, as appropriate.	Less than Significant
UTILS-3: Development proposed under the 2006 LRDP would generate solid waste, but would not require new facilities. (Less than Significant)	None required.	
UTILS-4: On-site construction due to development proposed under the 2006 LDRP would generate construction waste and debris. (Significant; Less than Significant with Mitigation)	**UTILS-4:** LBNL shall develop a plan for maximizing diversion of construction and demolition materials associated with the construction of the proposed project from landfill disposal.	Less than Significant

TABLE II-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Utilities, Service Systems, and Energy		
UTILS-5: Development proposed under the 2006 LDRP would create additional demand for electricity and natural gas, but would not result in the construction of new or expansion of existing energy production and/or transmission facilities. (Less than Significant)	None required.	Less than Significant
UTILS-6: The proposed 2006 LRDP, in combination with other reasonably foreseeable development in the surrounding area, would contribute to cumulative demand for utilities, service systems, and energy. (Less than Significant)	None required.	Less than Significant