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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Lawrence Berkeley National Laboratory
Long-Range Development Plan
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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 LOS	AM Peak Delay (seconds)	PM Peak LOS	PM Peak 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 LOS	AM Peak Delay (seconds)	PM Peak LOS	PM Peak 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 LOS	AM Peak Delay (seconds)	PM Peak LOS	PM Peak 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~~e~~:** 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

CHAPTER III

Persons and Organizations Commenting on the Draft EIR

A. Organizations Commenting in Writing

A. Bay Area Air Quality Management District (BAAQMD), March 21, 2007
B. East Bay Municipal Utilities District (EBMUD), March 22, 2007
C. City of Berkeley, March 22, 2007
D. Berkeley Alliance of Neighborhood Associations (BANA), March 23, 2007
E. Berkeley Architectural Heritage Association (BAHA), March 23, 2007
F. Committee to Minimize Toxic Waste, March 22, 2007
G. Friends of Strawberry Creek Watershed, March 23, 2007
H. Preserve the Strawberry Creek Watershed Alliance
I. Sierra Club, North Alameda County Group, March 21, 2007
J. Urban Creeks Council (UCC), March 23, 2007

B. Individuals Commenting in Writing

K. Gene Bernardi, March 23, 2007
L. Robert Breuer, March 23, 2007
M. Ignacio Chapela, March 23, 2007
N. Maureen Daggett, February 26, 2007
O. Nancy Delaney, February 26, 2007
P. Hank Gehman, March 22, 2007
Q. Tom Kelly, February 26, 2007
R. Merrilie Mitchell, March 23, 2007
S. Phil Price, February 26, 2007
T. Matthew Taylor, February 26, 2007
U. Janice Thomas, March 23, 2007
V. Mike Vandeman, March 23, 2007
W. Jane White, February 26, 2007

C. Individuals Commenting at the Public Hearing

The following persons provided public comments at the formal Public Hearing on the Draft EIR, held at the North Berkeley Senior Center on February 26, 2007. The transcript of the hearing is contained in Chapter IV, Responses to Comments, and immediately precedes the responses to such comments.

- Tom Kelly
- Maureen Daggett
- L.A. Wood
- Mark McDonald
- Nancy Delaney
- Matthew Taylor
- Doug Buckwald
- Phil Price
- Lisa Thompson
- Jane White
- Janice Thomas
- Jim Sharp
- Pamela Sihvola
- Jim Cunningham

CHAPTER IV

Comments on the Draft EIR and Responses to Comments

This chapter presents comments received on the Draft EIR and responses to those comments. Each comment letter is included in this chapter preceding the responses to the comments in that letter. The public hearing transcript follows written comments, and responses to the substantive comments on the Draft EIR made at the public hearing follow the hearing transcript. Unless otherwise specified, all references to chapters and page numbers pertain to the Draft EIR.

Where responses have resulted in changes to the text of the Draft EIR, these changes also appear in Chapter II of this Final EIR.

Comment Letter A

BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT
SINCE 1955

ALAMEDA COUNTY
Tom Bates
Scott Haggerty
Janet Lockhart
Nate Miley

CONTRA COSTA COUNTY
John Gioia
Mark Ross
(Chair)
Michael Shimansky
Gayle B. Uilkema

MARIN COUNTY
Harold C. Brown, Jr.

NAPA COUNTY
Brad Wagenknecht

SAN FRANCISCO COUNTY
Chris Daly
Jake McGoldrick
Gavin Newsom

SAN MATEO COUNTY
Jerry Hill
(Vice-Chair)
Carol Klatt

SANTA CLARA COUNTY
Erin Garner
Yoriko Kishimoto
Liz Kniss
Patrick Kwok

SOLANO COUNTY
John F. Silva

SONOMA COUNTY
Tim Smith
Pamela Torliatt
(Secretary)

Jack P. Broadbent
EXECUTIVE OFFICER/APCO

March 21, 2007

Mr. Jeff Philliber
Lawrence Berkeley National Laboratory
One Cyclotron Road
Berkeley, CA 94720

Subject: Lawrence Berkeley National Laboratory 2006 Long Range Development Plan & Draft Environmental Impact Report

Dear Mr. Philliber:

Bay Area Air Quality Management District (District) staff have reviewed the Draft Environmental Impact Report (DEIR) for the Lawrence Berkeley National Laboratory (LBNL) 2006 Long Range Development Plan (Plan). We understand that adoption of the Plan will guide development to address scientific research needs for the next twenty years.

On November 14, 2003 we submitted a comment letter to your organization in response to a Notice of Preparation (NOP) for the Plan's DEIR. We are now providing comments on the DEIR for the Plan. We found that the DEIR addresses the comments and issues we raised in the NOP comment letter. We appreciate the DEIR's comprehensive discussion on air quality and that a new Transportation Demand Plan will be implemented to reduce future vehicle trips and vehicle miles traveled (VMT).

Impact AQ-2 states that proposed development under the Plan would generate long-term emissions of criteria air pollutants from increases in traffic and stationary sources. We agree with the DEIR's discussion on why this impact is less than significant. The DEIR explains that the Plan would not result in a VMT increase proportionally greater than the increase in LBNL employees and that the Plan would implement transportation control measures to reduce VMT. Since the Plan establishes a long-term framework, new opportunities to reduce VMT may arise in the future. We recommend that the Plan include a policy that requires future projects described in the Plan to include any new feasible air quality mitigation that becomes available. A-1

Impact AQ-2 also discusses the different transportation control measures LBNL would implement under the Plan. We realize that parking represents an ongoing challenge and we commend LBNL for including a strategy to "reduce the percentage of parking spaces relative to the adjusted daily population" in the Plan (p. IV.E-20). We recommend that LBNL also include a parking cash-out program for employees. In addition, the Metropolitan Transportation Commission (MTC) is currently developing programs to assist in designing parking policies to reduce VMT, which LBNL may find helpful. We recommend that LBNL commit to following MTC's progress and utilize the training toolbox in the future. Please refer to http://www.mtc.ca.gov/planning/smart_growth/parking_study.htm. A-2

Impact AQ-6 states that the Plan will contribute to cumulative toxic emissions that would result in an excess cancer risk exceeding 10 in a million, a significant and unavoidable impact. This section explains that the primary source of risk is diesel particulate matter (DPM). We recommend that LBNL add feasible mitigation measures to further reduce the cumulative impact of toxic emissions, including electrification of loading docks, prohibiting on-site diesel truck idling by installing signage and requiring enforcement by facility security personnel, requiring the use of alternative fuels in LBNL-owned diesel generators and trucks, and a green contracting program that requires deliveries be made by clean fuel vehicles. A-3

Subsequent to District comments on the NOP, the potential impact from climate change on the Bay Area has become a significant regional environmental issue. On June 1, 2005, the Air District Board of Directors adopted a resolution acknowledging the link between climate protection and programs to reduce air pollution in the Bay Area. The resolution established the District's Climate Protection Program and created a Committee on Climate Protection to guide the District on climate protection actions. A central element of the District's climate protection program is the integration of climate protection actions and principles into existing District programs. This includes recommending that lead agencies include a discussion on climate protection, with appropriate mitigation strategies, in their CEQA documents. As a leading research center, we recommend that LBNL play a leadership role in supporting climate protection in their Plan. The Project's increase in global warming pollutants should be included in the final EIR. These pollutants include carbon dioxide, methane, nitrous oxide and sulfur hexafluoride. While the significance of these emissions on climate change cannot be determined, CEQA requires that all potentially significant environmental impacts be discussed. A-4

If you have any questions regarding these comments, please contact Sigalle Michael, Environmental Planner, at (415) 749-4683.

Sincerely,

Jean Roggenkamp
Deputy Air Pollution Control Officer

JR:SM

CC: BAAQMD Director Tom Bates
BAAQMD Director Scott Haggerty
BAAQMD Director Janet Lockhart
BAAQMD Director Nate Miley

Bay Area Air Quality Management District (BAAQMD), March 21, 2007 (Comment Letter A)

Response A-1

The comment regarding the BAAQMD's agreement with the DEIR's conclusion that Impact AQ-2 being less than significant is noted. Concerning the recommendation that the LRDP "include a policy that requires future projects in the Plan to include any new feasible air quality mitigation that becomes available," it is noted that, among the LRDP Planning Strategies (included in DEIR Appendix B) are several strategies to reduce the use of single-occupant vehicles by Lab employees and visitors (see pp. B-3 – B-4). In addition, as described on p. IV.D-37 of the DEIR text, the Lab has developed a draft Transportation Demand Management (TDM) Program, aimed in substantial part at reducing pollutant emissions. The draft TDM Program includes a phased implementation of steps to reduce vehicle travel as Berkeley Lab grows in average daily population over the lifetime of the LRDP. The draft TDM Program also includes a provision whereby the Lab would undertake an additional traffic study either 10 years following certification of this EIR, or at the time that the Lab formally proposes a project that will result in the overall development of 375 or more parking spaces pursuant to the 2006 LRDP. The results of the new traffic study could result in additional enhancements to the TDM Program to further reduce air emissions, traffic impacts, and parking demand.

This draft TDM Program was included in its entirety in DEIR Appendix F. Since publication of the DEIR, the draft TDM Program has been refined, and the revised Program is presented in this document in Appendix B.

Response A-2

The comment recommending that Berkeley Lab include a parking cash-out program for employees[1] is noted. As stated on DEIR p. IV.B-37, "LBNL currently offers and would continue to offer, under the LRDP, financial incentives for alternatives to driving alone, both in the form of pre-tax payments, for either transit passes or for vanpool expenses. The Laboratory also participates in Alameda County's Guaranteed Ride Home program, under which employees who ride transit or carpool to work can obtain a ride home in the event of an emergency or if they miss their carpool. LBNL promotes the BAAQMD's Spare the Air program by annually notifying Laboratory employees of its program through the Laboratory's electronic daily newsletter, and by encouraging employees to sign up for Spare the Air alert messages. Finally, LBNL encourages carpooling by providing links on its website to the Metropolitan Transportation Commission carpool-matching program."

Additionally, the draft TDM Program referred to in the previous response includes a measure, under Implementation Phase 2, stating, "Parking Fee: Currently there is no fee for parking at the Laboratory, although permits are limited. Investigate charging a fee for parking to help discourage personal vehicle use and to pay for other TDM measures." It is noted that not all

[1] Under such a program, if employees are offered free parking, employees are also to be offered a cash payment to forego their parking space. In this way, employees who voluntarily elect not to drive to work are provided with a financial reward.

LBNL employees are provided with free parking. As stated in footnote 13 on p. IV.L-36 of the DEIR, the existing ratio of average daily population to parking spaces at the Lab's hill site is approximately 1.9, and this ratio would remain the same with implementation of the project.

Response A-3

As noted in the DEIR on p. IV.B-37, Berkeley Lab has already implemented some of the recommended measures, including having switched its shuttle fleet to "biodiesel" fuel and installed a new fueling station for an alternative fuel (E85, or 85 percent ethanol and 15 percent gasoline), becoming one of the first three E85 fueling stations in California. The Lab has also replaced a number of its own gasoline vehicles with alternative fuel vehicles (ethanol, electric, hybrid, etc.). Gas cards for vehicles capable of operating on E85 are programmed to restrict dispensing to E85 fuel only.

Concerning operation of diesel-powered auxiliary equipment on trucks parked at loading docks, the California Air Resources Board has adopted a regulation that requires so-called diesel Transport Refrigeration Units ("TRUs," which cool refrigerated trailers) to equip those units with approved exhaust filters, beginning in 2008. This regulation is anticipated to reduce diesel exhaust from each TRU by 50 percent or more. Additionally, most of the Lab's loading docks are equipped with electrical power hook-ups.

Response A-4

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly associated with "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by reflecting heat (i.e., long wave radiation) back toward the earth's surface in much the same way as glass in a greenhouse. Thus, this condition is often referred to as the "greenhouse effect." In its "natural" condition, the greenhouse effect is responsible for maintaining a habitable climate on earth, but human activity has caused increased concentrations of these gases in the atmosphere, thereby contributing to an increase in global temperatures and resulting variability in weather.

The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Of these gases, carbon dioxide and methane are emitted in the greatest quantities from human activities. Emissions of carbon dioxide are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHGs – with much greater heat-absorption potential than carbon dioxide – include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. There is international scientific consensus that human-caused increases in GHGs have contributed to and will continue to contribute to global warming, although there is much uncertainty concerning the magnitude and rate of the warming.

Some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and

more drought years.[2] Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects, according to the Intergovernmental Panel on Climate Change:[3]

- Snow cover is projected to contract, with permafrost areas sustaining thawing.
- Sea ice is projected to shrink in both the Arctic and Antarctic.
- Hot extremes, heat waves, and heavy precipitation events are likely to increase in frequency.
- Future tropical cyclones (typhoons and hurricanes) will likely become more intense.
- Non-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns. Increases in the amount of precipitation are very likely in high-latitudes, while decreases are likely in most subtropical regions.
- Warming is expected to be greatest over land and at most high northern latitudes, and least over the Southern Ocean and parts of the North Atlantic ocean.

There are also many secondary impacts that are projected to result from global warming, including global rise in sea level, effects on agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

The California Energy Commission estimated that in 2004 California produced 500 million gross metric tons (about 550 million U.S. tons) of carbon dioxide-equivalent GHG emissions.[4] The CEC found that transportation is the source of 38 percent of the State's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 23 percent and industrial sources at 13 percent.[5]

In the Bay Area, fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of the Bay Area's GHG emissions, accounting for just over half of the Bay Area's 85 million tons of GHG emissions in 2002. Industrial and commercial sources were the second largest contributors of GHG emissions with about one-fourth of total emissions. Domestic sources (e.g., home water heaters, furnaces,

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2 California Air Resources Board (ARB), 2006a. Climate Change website (http://www.arb.ca.gov/cc/120106workshop/intropres12106.pdf) accessed March 24, 2007.

3 Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis; Summary for Policymakers*, February 5, 2007. Available on the internet at: http://www.ipcc.ch/SPM2feb07.pdf. The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to assess scientific, technical and socio- economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation.

4 Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

5 California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004 - Final Staff Report*, publication # CEC-600-2006-013-SF, December 22, 2006; and January 23, 2007 update to that report. Available on the internet at: http://www.arb.ca.gov/cc/ccei/emsinv/emsinv.htm.

etc.) account for about 11 percent of the Bay Area's GHG emissions, followed by power plants at 7 percent. Oil refining currently accounts for approximately 6 percent of the total Bay Area GHG emissions. In the Bay Area as a whole, carbon dioxide makes up 90 percent of GHG emissions, measured in terms of carbon dioxide equivalency.[6]

California has taken a leadership role in addressing the trend of increasing GHG emissions, with the passage in 2006 of California Assembly Bill 32 (AB 32), the Global Warming Solutions Act. AB 32 requires the California Air Resources Board (ARB) to establish a statewide GHG emission cap for 2020 based on 1990 emission levels. AB 32 requires ARB to adopt regulations by January 1, 2008, that will identify and require selected sectors or categories of emitters of GHGs to report and verify their statewide GHG emissions, and ARB is authorized to enforce compliance with the program that will be developed. Under AB 32, ARB also is required to adopt, by January 1, 2008, a statewide GHG emissions limit equivalent to the statewide greenhouse gas emissions levels in 1990, which must be achieved by 2020. By January 1, 2011, ARB is required to adopt rules and regulations (which shall become operative January 1, 2012), to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions. AB 32 permits the use of market-based compliance mechanisms to achieve those reductions. AB 32 also requires ARB to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism that it adopts. Although ARB has not yet adopted the target-year (1990) GHG emissions level, the California Energy Commission estimates GHG emissions for 1990 at approximately 433 million gross metric tons (477 million U.S. tons), meaning that to reach the AB 32 goals, California would have to reduce GHG emissions by approximately 13 percent from 2004 levels, by 2020.

Implementation of the 2006 LRDP would contribute to long-term cumulative increases in GHGs as a result of traffic increases (mobile sources) and building heating (area sources), as well as indirectly, through electricity generation. These sources would represent the great majority of GHGs that would be produced in association with the proposed project, because the Lab does not, and would not, emit industrial or agricultural gases, and thus would generate little in the way of GHGs other than carbon dioxide. While certain research activities may incorporate other GHGs, their use typically results in minimal emissions. Moreover, while some refrigeration units at LBNL use a hydrofluorocarbon chemical, such as HFC-134a, this class of chemical is a U.S. EPA-acceptable alternative to the more harmful ozone depleting substances (chlorofluorocarbons) that were banned in the 1990s. The Lab's refrigeration units are closed-loop systems that do not emit during normal operation. When work is performed on these systems, EPA-certified refrigerant recovery equipment is used, which effectively eliminates emissions.

On-road transportation sources (i.e., automobiles, trucks, and buses), would represent the largest source of GHG emissions, consistent with existing Bay Area and statewide patterns of GHG emissions, as described in the setting. Electricity generation (both from in-state and out-of-state

6 BAAQMD, *Source Inventory of Bay Area Greenhouse Gas Emissions: Base Year 2002*, November 2006. Available on the internet at: http://www.baaqmd.gov/pln/ghg_emission_inventory.pdf.

power plants) would be the second largest source of GHG emissions under the proposed 2006 LRDP (although, as noted, some of this would occur outside the Bay Area).

The project's incremental increases in GHG emissions associated with traffic increases, increased energy demand, and space heating would contribute to regional and global increases in GHG emissions and associated climate change effects. The project would not have a project-specific impact, but will make some contributions to cumulative emissions of greenhouse gasses. Neither the BAAQMD nor any other agency has adopted significance criteria or methodologies for estimating a project's contribution of GHGs or evaluating its significance. Further, technical reports on climate change conclude that climate models do not yet reflect local land use changes, so in addition to the lack of regulatory guidance or methodology, there is not yet a scientific basis for quantitatively determining the significance of emissions pursuant to a plan such as an LRDP.[7] Thus, no quantitative significance determination can be made at this time. Nevertheless, it is clear that GHGs and their contribution to global climate change pose a serious worldwide challenge.

Qualitatively, however, the proposed LRDP includes numerous provisions that will substantially lessen the LBNL's contribution to global climate change. The proposed LRDP would encourage use of transit and alternative transportation modes (such as through implementation of the Lab's Transportation Demand Management Program), which could help reduce transportation-related GHG emissions, relative to what would otherwise occur. New construction at the Lab would also be required to meet California Energy Efficiency Standards in the state Building Code, helping to reduce future energy demand as well as reduce the project's contribution to regional GHG emissions.

Moreover, subsequent individual projects under the 2006 LRDP would implement GHG emission reduction strategies through compliance with the UC Policy on Sustainable Practices and the Guidelines for implementation of this policy. Emission reduction strategies instituted under this policy include practices related to green building design, clean energy, climate protection, transportation, operations, recycling and waste management, and environmentally preferable procurement.[8] The Lab would also expect reductions in GHG emissions from any regulatory requirements affecting existing sources as well. Because projects would implement emissions reduction, implementation of the LRDP would not interfere with implementation of AB 32 and Berkeley Lab's emission reduction strategies may assist in meeting AB 32 goals, once ARB adopts regulations for achieving those goals.

In summary, implementation of the 2006 LRDP would result in increased GHG emissions associated with construction and operation, particularly from the operation of vehicles. However, the Lab would institute emission reduction strategies through continuation of existing programs

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7 e.g., National Research Council, Radiative Forcing of Climate Change: Expanding the Concept and Addressing Uncertainties (Washington, D.C., 2005) p. 125; Intergovernmental Panel on Climate Change, IPCC Meeting on Current Understanding of the Processes Affecting Terrestrial Carbon Stocks and Human Influences Upon Them (Geneva 2003) pp. 2-3; see also, Pacific Institute, Climate Change and California Water Resources: A Survey and Summary of the Literature (California Energy Commission, Sacramento 2003) p. 5.

8 The UC Policy on Sustainable Practices is periodically updated and expanded. The current full text can be viewed on-line at http://www.ucop.cdu/ucophomc/coordrev/policy/PP032207ltr.pdf or obtained through the Universitywide Policy Office, Office of the President, 1111 Franklin Street, 12th Floor, Oakland, CA 94607.

that reduce GHG emissions, compliance with the UC Policy on Sustainable Practices, and compliance with existing and future emission reduction strategies set forth by the State of California. Together, these emission reduction practices would substantially lessen LBNL's contribution to global climate change. Thus, the Lab's contribution to GHG emissions from buildout under the 2006 LRDP would not be cumulatively considerable, and the cumulative impact of the project would therefore be less than significant.

Comment Letter B

EAST BAY
MUNICIPAL UTILITY DISTRICT

March 22, 2007

Jeff Philliber, Coordinator
Lawrence Berkeley National Laboratory
Environmental Planning Group
One Cyclotron Road, MS 90J0120
Berkeley, CA 94720

Re: Draft Environmental Impact Report and 2006 Long Range Development Plan - Lawrence Berkeley National Laboratory

Dear Mr. Philliber:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Draft Environmental Impact Report (EIR) and 2006 Long Range Development Plan for Lawrence Berkeley National Laboratory located in the Oakland/Berkeley Hills. EBMUD has the following comments.

WATER SERVICE

As stated in the Draft EIR, EBMUD's Shasta and Berkeley View Pressure Zones currently serve the existing project site. If additional water service is needed, the project sponsor should contact EBMUD's New Business Office and request a water service estimate to determine costs and conditions for providing additional water service to the existing parcels. Engineering and installation of water services requires substantial lead-time, which should be provided for in the project sponsor's development schedule. B-1

The Draft EIR indicates the potential for contaminated soils and/or groundwater to be present within the project site boundaries. The project sponsor should be aware that EBMUD will not inspect, install or maintain pipeline in contaminated soil or groundwater (if groundwater is present at any time during the year at the depth piping is to be installed) that must be handled as a hazardous waste or that may pose a health and safety risk to construction or maintenance personnel wearing Level D personal protective equipment. Nor will EBMUD install piping in areas where groundwater contaminant concentrations exceed specified limits for discharge to sanitary sewer systems or sewage treatment plants. B-2

375 ELEVENTH STREET . OAKLAND . CA 94607-4240 . TOLL FREE 1-866-40-EBMUD

Recycled Paper

Applicants for EBMUD services requiring excavation in contaminated areas must submit copies of existing information regarding soil and groundwater quality within or adjacent to the project boundary. In addition, the applicant must provide a legally sufficient, complete and specific written remedial plan establishing the methodology, planning and design of all necessary systems for the removal, treatment, and disposal of all identified contaminated soil and/or groundwater.

EBMUD will not design the installation of pipelines until such time as soil and groundwater quality data and remediation plans are received and reviewed and will not install pipelines until remediation has been carried out and documentation of the effectiveness of the remediation has been received and reviewed. If no soil or groundwater quality data exists or the information supplied by the applicant is insufficient EBMUD may require the applicant to perform sampling and analysis to characterize the soil being excavated and groundwater that may be encountered during excavation or perform such sampling and analysis itself at the applicant's expense. B-2

WATER RECYCLING

On page IV.M-11, Policy EM-26 Water Conservation in the Water Supply and Distribution Section, add the following discussions after Actions: B) "Consider participation . . . non-potable uses":

In 2004, EBMUD completed a study to determine the feasibility of supplying recycled water for irrigation purposes at the University of California at Berkeley (UC) through a Satellite Recycled Water Treatment Plant (WTP). Based on results of this study, EBMUD determined that it is not feasible to provide recycled water to UC Berkeley, including the Lawrence Berkeley National Laboratory area, through either a Satellite Recycled WTP or the East Bayshore Recycled Water Project in the foreseeable future. B-3

CUMULATIVE IMPACTS

EBMUD is in the process of planning a new storage tank located at the LBNL/UC Campus border. We have annotated the Draft EIR Figure III-3 with the tank location alternatives. The final decision and associated environmental documentation (likely a Mitigated Negative Declaration) will be completed by mid 2008. Construction of the tank and the inlet/outlet pipeline is currently scheduled for 2010 through 2011. Please include reference to this important EBMUD water system improvement in your EIR process. B-4

Comment Letter B

If you have any questions concerning this response, please contact David J. Rehnstrom, Senior Civil Engineer, at (510) 287-1365.

Sincerely,

William R. Kirkpatrick
Manager of Water Distribution Planning Division

WRK:JAJ:sb
sb07_053.doc

Enclosure

cc Rich McClure
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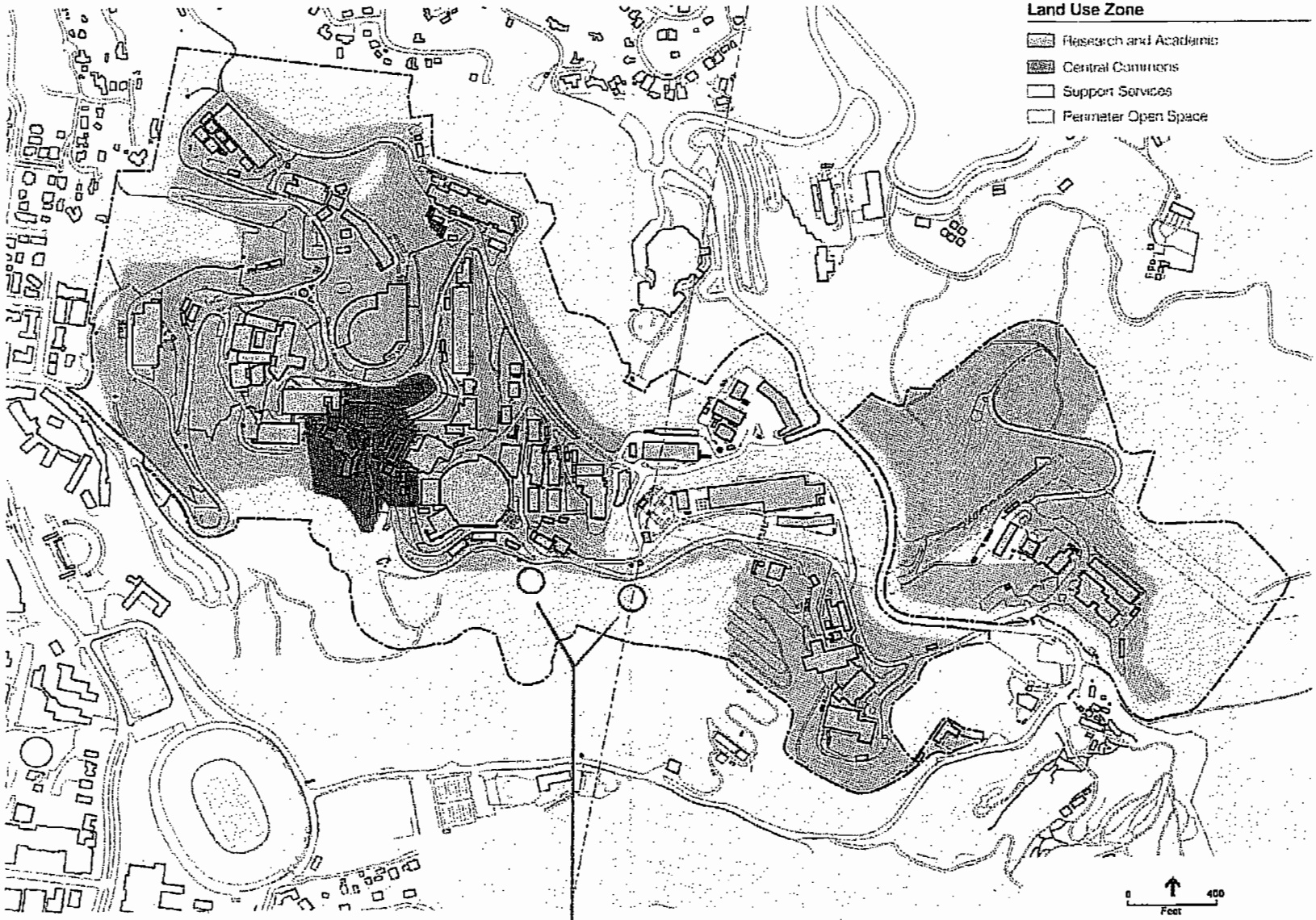

SOURCE: LBNL, 2006

LBNL 2006 Long Range Development Plan . 201074

Figure III-3
LRDP Land Use Map

TWO ALTERNATIVE SITES
FOR PROPOSED EBMUD LAWRENCE
RESERVOIR
Source: EBMUD, (3/2007)

Comment Letter B

East Bay Municipal Utility District (EBMUD), March 22, 2007 (Comment Letter B)

Response B-1

The comment concerning scheduling of any necessary system upgrades with EBMUD is noted. Berkeley Lab would be responsible for any on-site system upgrades required to accommodate the project. The Lab would coordinate with EBMUD regarding any necessary off-site facilities upgrades.

Response B-2

Section IV.F, Hazards and Hazardous Materials, of the Draft EIR describes various contaminants identified in soil and groundwater beneath the project site. As stated in the DEIR on page IV.F-5, "LBNL identified areas of soil and groundwater contamination that existed as a result of historical releases of hazardous materials into the environment. The primary chemical constituents of concern are volatile organic compounds, mostly degreasing solvents used to clean equipment. Other detected constituents include PCBs, petroleum hydrocarbons, and very small amounts of polynuclear aromatic hydrocarbons, semivolatile organic compounds, and metals. The principal radioactive contaminant is tritium. These areas of soil and groundwater contamination are all confined within the boundary of LBNL's main hill site. The geographic extent of groundwater contaminant plumes at LBNL and primary constituents of concern are shown on Figure IV.F-1 of the DEIR (see page IV.F-6). The locations and extent of these plumes have been determined using more than 300 wells over a period of more than 14 years."

As stated on page IV.F-27, "Potential exposure of workers, the public, and the environment to hazardous materials would be minimized through development of Construction Site Health and Safety Plans and proper handling, storage, and disposal of contaminated soil and groundwater." As such, the project would not result in any significant effects with regard to site contamination that could not be reduced to a less-than-significant level through mitigation identified in the DEIR.

Response B-3

Policy EM-26 of the City of Berkeley General Plan is to promote water conservation through City programs and requirements. An action under Policy EM-26 is to *consider* participation in EBMUD's East Bayshore Recycled Water Project to make recycled water available for irrigation and other non-potable uses (emphasis added). This policy is noted in the compilation of Berkeley General Plan policies that are relevant to the proposed project. Based upon the comment, this policy could not be implemented in the context of the Berkeley Lab hill site. However, the policy remains applicable to water consumption in Berkeley in general, in areas subject to the Berkeley General Plan, and no change to the EIR is necessary.

Response B-4

This proposal is conceptually incorporated into the Final EIR by virtue of its inclusion in the comment letter. No textual revision to the DEIR is necessary. The specific CEQA analysis related to a forthcoming proposal for this project will need to follow when that information becomes available, including size, location, and timing of such a project. LBNL looks forward to working with EBMUD as planning for this proposed project develops. It is not expected at this time, however, given what is available about this proposal, that addition of a single storage tank would result in any substantially greater impacts related to construction. Berkeley Lab understands that this proposed tank would serve areas downslope of the Lab's hill site, and that it may require some discretionary approval from the University of California.

Comment Letter C

Office of the City Manager

March 22, 2007

Mr. Jeff Philliber
Environmental Planning Group Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90K
Berkeley, CA 94720

Re: Draft Environmental Impact Report: LBNL 2006 Long Range Development Plan

Dear Mr. Philliber:

This letter is the City of Berkeley's response to the Lawrence Berkeley Laboratory's Draft Environmental Impact Report for the LBNL 2006 Long Range Development Plan.

The City appreciated having an opportunity to meet with Berkeley Lab staff over the past year while the Long Range Development Plan (LRDP) and the environmental impact report (EIR) were in production. We participated in those meetings and submitted comments in response to the Revised Notice of Preparation (NOP) in the hope that this would promote formulation of an LRDP that addressed the City's concerns about the impact of LBNL activities on the City. We appreciate LBNL's decision to reduce the scope of the project and commit to a stronger transportation demand management program in response to those concerns.

As promised in our response to the NOP, in proposing mitigation measures we have been careful to limit ourselves to measures the City would actually be likely to undertake; for instance, we have not suggested significantly widening existing roads serving the Laboratory and its adjoining neighborhoods. Although the DEIR does not fully respond to the issues we identified in our letter on the NOP, the City remains willing to work closely with the Berkeley Lab to devise programs to minimize the impacts of implementing the proposed LRDP.

We had hoped that LBNL would undertake an environmental review process that identified all relevant significant impacts, identified and considered a full range of effective mitigation measures and a reasonable range of appropriate alternatives, and ensured that all mitigations would be implemented and carefully monitored over the life of the LRDP. Although the DEIR shows that there has been some effort to react to the City's concerns, we believe there is still work to be done to adequately respond to a number of the critical overarching and specific issues that we identified in the City's response to the NOP.

General Comments

1. The City does not believe LBNL has sufficiently justified the need for the amount and location of space it is proposing. The lab is located in an extraordinarily difficult place for development: steep hillsides adjacent to a major fault hazard, in a wildland fire hazard area with very limited access. While the City recognizes the value the Lab places in its being in close proximity to the University, and in the importance of synergy and collaboration to achieving the Lab's mission, it has previously located some facilities off the hill campus. There is some discussion of off-site locations in the Alternatives Analysis, but given the significant impacts of continuing to expand in the hillside location, the City does not believe that there is sufficient explanation as to why, for example, a two-campus option with regular shuttles would be so detrimental to the mission of LBNL as to make this option infeasible. Moreover, a project variant is to bring back to the hill campus some of the functions that have been decanted to other locations. Again, while there may be advantages to bringing all of LBNL into the same general location, those must be weighed against the impacts and risks associated with increasing the number of people and the amount of built space at the hill campus location. The City does not believe that these tradeoffs have been sufficiently considered in the EIR. C-1

   The EIR also needs to explain how and why the identified project objectives translate into proposals to increase the average daily population and provide more space per employees/guests, in a steep and inaccessible part of Berkeley. According to Table III-1 (p. III-21), the ratio of on-hill built space (GSF) to ADP is projected to increase from 482 square feet per ADP to 520 by 2025. While ADP is projected to increase by less than 28 percent, on-hill space is projected to increase by almost 38 percent. Because some of the significant impacts of the proposed project relate to the number and size of buildings, and because limits on development are, in effect, a means to regulate the maximum population on the site, the proposed increase in floor area per person is a major concern to the City. There is nothing in the DEIR that indicates that the Berkeley Lab is currently overcrowded. The current ratio of 482 square feet per person on the Hill site seems particularly generous especially in light of a statement in the Building 49 DEIR that the LBNL target goal was 135 net square feet per person. (Building 49 Project DEIR, p. III-5).

2. By preparing two LRDPs for property in Berkeley that is physically connected and owned by the University of California, the University masks its cumulative impacts on the City and avoids the need to fully mitigate its impacts on the City. We believe the decision to prepare two documents is questionable given the Board of Regents' role and responsibilities as Lead Agency for both projects. The DEIR states that LBNL is "a federal facility operated by the University of California and conducting work within the University's mission on land owned or controlled by the University" but concedes that approval by the Board of Regents is the "only agency approval -- federal, state, or local -- required for adoption" of the 2006 LRDP and the DEIR (pp. III-48-49).

   The DEIR acknowledges, there may be "changes in operational and jurisdictional control" that result in changes to the boundary between the campus and LBNL. According to the DEIR, LBNL occupies about 100,000 square feet on the Campus. UC Berkeley and LBNL are also contemplating joint operation of the much-heralded Energy Biosciences Institute and the Helios Research Facility. Recent announcements of the creation of the Energy Biosciences Institute and descriptions of the Helios Building on the LBNL's own website illustrate how difficult it is to distinguish the impacts of the respective UC facilities (http://foundry.lbl.gov/facilities/Helios/helios_building.htm). The UC Berkeley News website reported, in fact, that the research building planned to house Helios and the EBI is "tentatively planned on the border between LBNL and the campus". (http://www.berkeley.edu/news/media/releases/2007/02/01_ebi.shtml). C-2

   One of the most serious implications of preparing separate EIRs is that it obscures the cumulative impact of the Regents' approval of two obviously interrelated projects and subsequent actions to implement the two LRDPs. Through this bifurcated process the University avoids fully assessing the overall impacts on the City, thereby violating the intent of the LRDP process and CEQA. Under which LRDP and which set of build-out projections will these and future joint projects be evaluated?

3. Recent court action seems to obligate the University to mitigate its impacts on its host cities. Under the recent decision in City of Marina v. CSU Board of Trustees, the University has an obligation to negotiate with the City regarding the mitigation of its fair share of off-campus environmental impacts. Nevertheless, as the State's Legislative Analyst observed in its January, 2007 analysis of UC's Long Range Development Planning Process, not one UC campus or facility has reached a fair share agreement, which means that no UC campus or facility has paid its fair share for identified off-campus mitigation measures. Given the cumulative nature of its impacts on Berkeley with two different LRDPs indicating they will separately "pay their fair share" of mitigations to reduce impacts, the University makes true mitigation very difficult by requiring negotiation and assessment of impacts from two different bodies based on two different assessments of impact. Which LRDP governs the determination of "fair share?" Is the Campus responsible for mitigating those impacts that are identified only in the LBNL LRDP, or vice-versa? An additional C-3

obstacle to ensuring that LBNL pays its fair share may be the Federal government's refusal to fund such mitigations, such as addressing impacts on streets. C-3

4. LBNL should adopt a formal process for community review of development projects. In order to provide opportunities for meaningful City and public input as LBNL builds out under the LRDP, it is essential to clearly explain how LBNL will make project level decisions. The Campus LRDP requires presentations to the City's Design Review Committee and Landmarks Preservation Commission (when appropriate) at the schematic design phase. The Campus has also formally committed to having City staff sit on its Design Review Committee. Although City staff has recently been invited to participate in the LBNL design review process, no process has been formally set forth in the LRDP. We believe it is essential. The City also requested that the Campus begin public review earlier in its design development process by publicly previewing conceptual plans prior to going into schematic design. Although the Campus declined to do this, we are requesting the same of LBNL. We also believe a monitoring process is needed to ensure that LBNL stays within the limits set by the LRDP. C-4

   The DEIR includes Appendix B: LRDP Principles, Strategies and LBNL Design Guidelines. It also indicates that these Design Guidelines are "proposed to be adopted by the Lab following The Regents approval of the 2006 LRDP" (page III-20). However, because the Guidelines are neither an integral part of the LRDP nor identified as a specific mitigation in various sections, their actual status is unclear in the EIR process. These Guidelines are a critical part of the design development and review process and the City strongly recommends that the Lab either indicate that they will be adopted as a mitigation or that they become an appendix to the LRDP itself, and that they be clearly referenced and supported by the LRDP. Further, as noted above, the City urges that the LRDP clearly set forth how the Design Guidelines will be used in the development review process.

5. The EIR should describe how the LRDP will be used in the future. We believe an LRDP should be similar to a city's General Plan: where the University must make a finding of conformance as an essential component of the process, or fully explain any deviations from the document. LBNL proposes that any development in excess of 980,000 gross square feet of new research or support space or 320,000 gross square feet of demolition will require amendment of the LRDP and CEQA review (p. III-38). LBNL has also made a commitment to the City to reevaluate traffic impacts 10 years following certification of this EIR or at such time the Lab proposes a project that will result in the development of 375 or more parking spaces. These triggers or thresholds should be identified as mitigation measures. Moreover, LBNL needs to establish a process that will allow the City and the public to monitor development to ensure that it does not exceed these levels without subsequent review. This process needs to C-5

track actual increases in the Average Daily Population as well as development. This is particularly important in light of the prospect for joint LBNL-UCB ventures.

It is understandable that LBNL cannot fully anticipate future facility requirements or funding availability for programs that would be developed to address emerging scientific missions (p. III-25). At the same time, it is precisely because the LRDP does not make specific facility siting and design decisions, that it is essential for this plan to set forth a process that states how and when those decisions will be made. C-5

Our specific section-by-section comments follow.

Aesthetics and Visual Quality

As noted above, the LRDP and DEIR make a number of references to "design guidelines" that are "separate from this LRDP, support the objectives of the Laboratory and address the specific design of outdoor spaces and buildings." (LRDP, p. 60) The Berkeley Lab Design Guidelines are included in Appendix B of the DEIR but are not listed among the references at the end of Chapter IV even though the DEIR identifies their implementation as mitigation to aesthetic impacts (IV.A-21). Because, as noted above, neither the LRDP itself nor the DEIR includes a description of the LBNL's development review process, it is not clear how the guidelines will be used as LBNL implements the LRDP. C-6 C-7

The DEIR finds that several aesthetic impacts of the proposed development under the LRDP would be significant and unavoidable, including impacts on scenic vistas (Impact VIS 2), and impacts on the existing character of the Lab site itself, one of the most visually prominent sites in the Bay Area (Impact VIS-3). The EIR provides several simulations, based on the illustrative development scenario.

The DEIR tends to be somewhat equivocal about the extent of the impacts, indicating that

> *Even though the changes to the site would occur in the context of existing development and not affect pristine views, some of the visual impacts of some buildings would appear substantial to at least some viewers . . (page IVA-27).*

C-8

Despite this tone, the DEIR errs on the side of caution and finds significant impacts, as noted above. The City fully agrees with this conclusion and believes that it would be difficult to come to any other conclusion given the amount of proposed development, the visibility of this site and its importance as the visual backdrop to the campus and to the City.

While the City fully appreciates that the aesthetic impact assessment was of an illustrative development scenario and that the actual design and siting of buildings could be significantly different and therefore have significantly different impacts than those C-9

illustrated, we believe that the illustrative plan demonstrates some key findings that the EIR fails to fully acknowledge. Those findings include the following:

1. Taller buildings are more visible and have a greater visual impact than shorter buildings. This is not only because a taller building is more imposing, but because taller buildings are more difficult to screen. The vision articulated in the LRDP Design Guidelines (page B-5) seems to be that when the new native landscaping and trees are planted and a construction site is somewhat restored, the buildings will fade into the background and be largely screened. However, it is much harder to screen an eight-story building with landscape and trees than a three or four story building. This is especially true when taking into account the character of California's native hillside trees (such as oak and madrone) that grow slowly and do not attain significant height. C-9

   The City understands that there may be a tradeoff between shorter, squatter buildings with larger footprints that have more significant grading and other impacts, and taller buildings with perhaps different visual impacts. It is very difficult to know or understand these tradeoffs in the context of this DEIR. The current height diagram on page III-24 allows for significant areas with 6 or 8 story buildings, but provides little justification for allowing this height, given the differential in visual impact. The design guidelines mention that these taller buildings are permitted in areas with a "natural backdrop" (page B-4). Perhaps some further explanation of this guideline would better explain why this backdrop would diminish the visual impacts of tall structures, especially considering that such buildings cannot be effectively screened. C-10

   The City believes that an alternative should be considered and simulated that reduces maximum heights in order to better address aesthetic impacts and allow for better screening of buildings. Simulations should fully consider the effects of landscape screening. C-11

2. Bulky buildings also tend to have significant aesthetic impacts. One of the larger impact buildings illustrated (see, for example, Simulation IV-A-9 on page IV-A-25) is the proposed parking garage that is both tall (7 decks) and bulky (large foot print). Tall, bulky buildings are especially imposing and have perhaps the most significant visual impact. The footprint for the office computer research facility is noted at 65,000 square feet – about 1-½ acres - and anticipated to be 6 stories high. The visual impact of such an imposing structure is illustrated in IV-A-5 (page IVA-18). The Design Guidelines acknowledge this issue (page B-8) and indicate that building design should seek to reduce perceived scale and bulk. But the guidelines only refer to horizontal dimensions of 200 feet and over four stories. The City believes that the Design Guidelines should generally seek to break up large floor plate buildings into what are perceived to be smaller, less imposing buildings, and that the dimensions suggested in the guidelines (200 feet and four stories) for such "humanizing" features should be required at significantly smaller dimensions. The City believes that large floor plate buildings over three to four stories may be generally inappropriate except under extraordinary circumstances related to the specific scientific programmatic C-12

needs of the structure (e.g., the Advance Light Source is a tall bulky building – but is required to accommodate the particular science), in order to minimize the perceived visual impacts of development. C-12

As noted above, given the significant aesthetic/visual impacts identified in the DEIR, an alternative should be evaluated that considers reduced heights, and also consider the degree to which landscape screens can effectively buffer the aesthetic impacts of projects. C-13

3. Stepping buildings so that they conform better to the terrain can also minimize the amount of grading and the visual impacts of large buildings. The Design Guidelines should encourage this as a strategy whenever appropriate, as opposed to the design solution adopted for the Molecular Foundry which cantilevers the building over the hillside, making it particularly imposing and visible. The Molecular Foundry building may be interesting architecture, but in the setting of the Berkeley Hills, the City believes the primary goal should be for new buildings to fade into the background (as stated in the Guidelines). C-14

Air Quality

The DEIR needs to augment its analysis of the potential impact of toxic emissions, especially diesel emissions. Diesel emissions are not only an acute health impact but have a potential carcinogenic effect.

1. Mobile Source Emissions. Diesel engines account for 40 percent of the total nitrogen oxide emissions and two-thirds of the total particulate matter from mobile sources. The State of California has already implemented an improvement in diesel fuel formulations but the benefit to the community can only be realized when the second half of the intended strategy is implemented. This involves the retrofit of all diesel internal combustion engines to reduce emissions. The Air Resources Board has outlined a program on "In-Use Diesel Retrofit Plan" which will vastly improve the emissions of LBNL's heavy-duty vehicles. In addition to its own vehicles, LBNL should specify, when contracting with haulers, the use of only vehicles that meet the low emissions standards. C-15

2. Equipment Exhaust Emissions. The DEIR indicates that a significant amount of work will involve heavy equipment at LBNL. The on-site air quality will be adversely impacted for several years during the demolition and construction phases. The plan proposes pollution control equipment on equipment within 100 feet of a sensitive receptor but does not define this term, which should probably apply to any living organism. The emissions do not go away in 100 feet; dispersion models predict that emissions disperse (or dilute) into the atmosphere within 100 feet of source. The guiding principle should therefore be that dilution is not the solution to pollution. A more appropriate approach to mitigating the impact of the additional carcinogens that C-16

will be emitted during the prolonged development phase is to put control devices on all equipment. This solution should also apply to the significant human health risk from operating power generators. Given the likelihood of future rolling blackouts and the huge power consumption required by LBNL projects, these generators can generate a significant amount of carcinogens. C-16

Cultural Resources

1. In Section IV.D.2.4 Local Plans and Policies (p. IV.D-8), the discussion under the heading "Berkeley General Plan", states "None of the facilities at LBNL are listed by the City of Berkeley as a historical resource (City of Berkeley, 2002)." This and other references to the General Plan should include sufficient information to allow the reader to check the source. The DEIR is correct that the Urban Design and Preservation Element of the 2001 Berkeley General Plan did not identify any LBNL facilities as City of Berkeley historical resources (Figure 25). The reference on Page IV.D, 8-9 regarding designation of the Bevatron machine and site, should, however, be updated/corrected to include the following current information: C-17

   The Landmarks Preservation Commission designated the site of the Bevatron/building 51 a City of Berkeley Historical Landmark, without indicating any "features to be preserved," on August 3, 2006. On appeal, the City Council upheld the Landmarks Preservation Commission's decision (January 30, 2007).

2. Impact CUL-1 states "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." (p. VI-2) The DEIR states that demolition of Building 51, including the Bevatron, is an activity that would occur during the lifetime of the LRDP, and because this EIR considers Building 51 as part of the existing setting, demolition of Building 51 would be a significant and unavoidable impact of the 2006 LRDP, as well.

   The text in the DEIR (Page VI-2) states LBNL "would prepare a Historic American Building Survey (HABS) addendum to the HAER and also would create a monument and/or display regarding the history of the Bevatron." It goes on to say "These mitigation measures would reduce the effects of demolition of Building 51, but not to a less-than-significant level. Concerning other potential historical resources, preliminary research findings suggest that Building 71 and Building 88 may be eligible for listing in the National Register. There are no current plans to demolish Buildings 71 and 88. However, should the buildings prove to be eligible for National Register listing, their demolition under the 2006 LRDP would result in a significant and unavoidable impact, even with mitigation identified in the DEIR. Should SHPO identify other buildings at LBNL as eligible for listing on the National Register, their demolition under the 2006 LRDP would also result in a significant and unavoidable impact, even with mitigation identified in the DEIR." The DEIR needs to explain C-18

why this section indicates "There are no current plans to demolish Buildings 71 and 88", and at the same time, "their demolition under the 2006 LRDP would result in a significant and unavoidable impact." The 2006 LRDP project description inadequately defines the activities to be performed under the 2006 LRDP if both of these statements are equally true. C-18

In addition to a contradictory project description, the DEIR comes to the unsupported conclusion that possible demolition of these potential historic resources would be a significant and unavoidable impact of the project. When a significant impact is identified, an EIR is obligated to consider potential mitigations and alternatives. Rather then concluding that demolition is significant and unavoidable, it must first provide some evaluation of the buildings and identify what is historically significant about them, then consider alternatives to demolition such as adaptive reuse, and finally consider other mitigations (such as moving the historic buildings, etc.). It cannot simply conclude that the impacts are significant and unavoidable without first doing appropriate analysis. Exactly how a "Memorandum of Agreement" as described in the DEIR (MM CUL-1, page IV D-14) would address the impacts on the historic resources is unclear. C-19

This EIR does not provide enough information or analysis to be found sufficient to allow for demolition of historic resources without further CEQA review. The alternative of preserving historic resources and making them available to public access described in Alternative V.F. seems like a "straw man" alternative that carries preservation beyond the requirements of CEQA; rather, the DEIR should consider more feasible preservation and adaptive reuse alternatives.

3. The summary of cultural resources impacts in Significant Irreversible Changes, states: "As described in Section IV.D, Cultural Resources, implementation of the 2006 LRDP would cause a substantial adverse change in the significance of historical resources, including historical resources that have not yet been identified. At a minimum, demolition of the Building 51 complex, including the Bevatron accelerator, is anticipated during the lifetime of the 2006 LRDP. This is identified as a significant, unavoidable impact in Section IV.D. , page IV.D-13." The statement addresses the impact "at a minimum". The EIR should assess the maximum foreseeable impacts that will occur as a result of the 2006 LRDP activities, if the actual projects are not known in detail. C-20

4. The Berkeley Landmarks Preservation Commission has noted that the Strawberry Canyon area may be significant as a cultural landscape. While portions of the Canyon are highly disturbed, the experience of the canyon as a wildland adjacent to a highly urbanized and densely populated city continues to make it a special area within the City. This special character deserves consideration in siting and planning for development near this sensitive area. C-21

Geology and Soils

1. The DEIR identifies significant slope failures and risks (pages IV.E-7 – 10). This is to be expected in an area of steep slopes adjacent to the Hayward fault. The DEIR also states that "ancillary features" such as roads, sidewalks and parking lots, would not be subject to the same requirements as buildings, and that potential impacts from fault rupture could "hinder or prevent emergency access to LBNL through the Blackberry Canyon entrance". The DEIR fails to address whether potential fault rupture *combined* with slope failure could potentially eliminate vehicular access not only at the Blackberry gate but to all of LBNL. In fact, a major fault rupture along the Hayward fault could eliminate access to Centennial Drive and the other gates from the City, leaving access available only through the hills. Meanwhile, potential slope instability (or as described under Hazards, below, a potential fire that could easily result from an earthquake) could eliminate access through the hills. As described in more detail under Hazards, the exposure of a 1000 more people to the seismic and other risks in this location is clearly a significant and unavoidable impact of this project. C-22

2. The DEIR includes a very large-scale map of fault lines in the Bay area (Figure IV.E-1) and a Seismic Hazard Zone Map with an overlay showing site boundaries (Fig. IV.E-2). These maps do not provide sufficient information to evaluate the risks posed by the site's seismic and geologic conditions. The DEIR indicates that a fault rupture hazard study was conducted for Building 49, which confirmed the presence of active traces of the Hayward fault on the LBNL site. The DEIR also mentions geologic studies that identified sections of the Wildcat and East Canyon faults. (p. IV.E-11) Even though these studies did not include evidence to classify either of these faults as active, the Northridge Quake demonstrated that supposedly inactive faults must be considered a potential hazard. The DEIR is deficient because it fails to show all active and inactive faults within LBNL boundary and all landslide areas within LBNL boundary and vicinity. At a minimum, the map should clearly identify known landslide sites (including those that may affect on-site and off-site access roads) and should show the locations of active and inactive faults and fault traces based on geologic and fault rupture studies conducted for LBNL construction projects. Without more specific information about these features and their potential impact on proposed LBNL development, it is difficult to determine whether the DEIR has adequately and correctly assessed the potential impact of the site's proximity to these faults and whether the proposed mitigation measures are adequate. C-23

3. The DEIR consistently minimizes the potential impacts of locating development on unstable slopes adjacent to an earthquake fault. While following the standards described in Mitigation Measure GEO-2 should reduce impacts, significantly increasing the population in a high-geologic hazard area cannot be mitigated to a less than significant level solely through engineering. The SCIP DEIR for a project near the Hayward fault came to the opposite conclusion and stated, appropriately, that exposure of people or structures to risks associated with fault rupture and ground C-24

shaking were significant and unavoidable. As noted elsewhere in this section, LBNL has recently discovered new information regarding ancient landslides (Page IV.E-7) that may put a building at risk. As more development occurs in this highly unstable area, it is very likely that more "new information" about unstable slopes and hazards will arise. Additionally, other structures such as parking lots and equipment, roads and walkways, are not subject to the same standards (page IV.E-22) and some existing buildings do not meet current engineering standards. Additional people at LBNL means more people exposed to the significant unavoidable hazards of this location. The CEQA Guidelines indicate that a significant impact results from exposing people or structures to potential substantial adverse effects. The City believes the conclusion that the impacts of the growth in population and structures at LBNL is less than significant cannot be supported given this standard. C-24

Hazards and Hazardous Materials

1. The DEIR fails to assess the potentially significant environmental and health effects of LBNL's nano-science research activities. The City's comments in response to the Notice of Preparation (NOP) specifically discussed this concern and recommended adoption of a mitigation measure based on the precautionary principle. Such a measure would require LBNL to demonstrate that any research activity it undertakes would not have a detrimental effect on human health or the natural environment.

2. The LRDP states there is no regulatory standard for nanomaterials management. The report references the Department of Energy Policy on nanomaterials on twenty occasions, and states "DOE organizations working with nanomaterials will stay abreast of current research and guidance relating to the potential hazards and impacts of nanomaterials, and will ensure that this best current knowledge is reflected in the identification and control of these potential hazards and impacts at their facilities". The City of Berkeley has adopted an ordinance that addresses the storage, use, monitoring, response and disposal of nanomaterials. This policy should be included in the discussion of Local Plans and Policies (pp. IV.F-19). In the absence of any other statute that covers all such aspects of nanoscale material uses, LBNL and the Berkeley community would be best served by full adherence to the Berkeley nanoscale material disclosure ordinance. C-25

3. The DEIR does not include any information about procedures or policies regarding the use or handling of pesticides and herbicides. C-26

4. Section IV.F-3.5 (page IV.F-28) indicates that there will be a significant increase in the use and handling of hazardous material at the Lab. The City believes this is already a significant environmental issue, especially for those responding to a fire or other emergency at the Lab, as described later under impacts to Public Services. As the City has indicated repeatedly in this document, in our view increased incremental impacts to a poor environmental condition may be significant, even if, in the view of the preparers of the DEIR, the existing situation is not made significantly worse by C-27

the project. What the DEIR fails to fully assess is the impacts of what may occur in regard to hazardous materials in the event of a wildland fire or earthquake when the Lab site is largely inaccessible to the City. The existing fire suppression capacity and the ability to manage a significant hazardous materials release may not be sufficient to address this situation, and the risks to the public and to the environment (e.g., a hazardous materials spill that enters the watershed) may be significant. C-27

5. Earthquake and Fire is addressed in this section (beginning on page IVF-35) as well as in other sections related to public services (Fire) and Geology (earthquake hazard). Despite all the language in the EIR related to these significant issues, the DEIR – without substantial evidence– comes to the conclusion that

   . . . the impacts associated with potential catastrophic events to the incrementally increased population and facilities of LBNL would not be significant or substantially more severe than under current conditions. (page IV.F-37)

   It is common under CEQA that when an already unacceptable situation exists, incremental additions to that unacceptable condition are significant impacts, even when the incremental changes are small, which is not the case in regard to the proposed project. It is hard to understand how placing an additional 1000+ people and 600,000 square feet of net new development in a high hazard area with very poor access is insignificant in regards to increased risk. As discussed in the following section on evacuation impacts, it is entirely possible that this area could be entirely cut off, with a fault rupture along one side preventing vehicular – and perhaps even pedestrian - access and egress, and the threat or reality of a wildland fire coming from the east (fires related to earthquakes are common) C-28

   Even without the fire risk, there is a good chance that landslides and debris could close all or most access from the east. Under these circumstances, several thousand people could either be "sheltering" indefinitely in place, or seeking to leave the site despite the best efforts of LBNL, thereby adding to the overall demand on City emergency services as it seeks to address a major earthquake. There may be no way for the City to assist with joint aid to the one fire station seeking to address a large number of structures, many with hazardous materials. As will no doubt be noted in response to this comment, this scenario is a common problem throughout the Bay Area when the next major earthquake hits. However, the LBNL site is particularly poorly suited for the level of development proposed, given the steep slopes, proximity to the fault, potential wildland fire hazard and poor access/egress. While the University may choose to make findings of "overriding consideration" in regard to significantly increasing the number of people and structures at risk, we firmly believe it must find that the risk would be a "significant and unavoidable" impact of this project as proposed.

6. The discussion of evacuation impacts does not adequately address the potential impacts associated with the proposed project. The DEIR discusses "many roadways

in the region" but fails to fully evaluate the more localized access and egress issues associated with evacuating – or serving – LBNL in the event of a disaster. A significant fault rupture along the Hayward fault at the base of LBNL could effectively cut off all vehicular access from the City. As noted above, evacuation through the hills could be equally difficult. Water and sewer ruptures are likely. The DEIR states that LBNL is "self-sustaining" in emergencies, but does not indicate for how long and with what assumptions regarding water and sanitary conditions. The DEIR indicates that mitigation is not required, but fails to undertake sufficient analysis to arrive at its conclusion. C-28

Hydrology

1. This DEIR's analysis of hydrologic impacts is inadequate because the document does not contain sufficient data about existing or projected conditions or provide sufficient detail about the proposed project to allow adequate assessment of potential impacts. The description of the hypothetical "Illustrative Development Scenario" is simply an inadequate basis for evaluating potential Hydrology and Water Quality impacts. There are two major drainages in the EIR subject area: the north and south forks of Strawberry Creek. General areas (square footage added and demolished) are discussed, but the DEIR does not include any results of modeling or provide any other method of quantifying impacts of the development within these two drainage areas. C-29

2. The discussion of Strawberry Creek's status with respect to the list of impaired water bodies as defined in Section 303(d) of the Clean Water Act is misleading and minimizes the need to take actions to maintain water quality and reduce the potential of continued degradation of the Creek's water quality. (Page IV.G-11) Although Strawberry Creek is not listed by name in the 303(d) list, the Regional Water Quality Control Board's Resolution R2-2005-0063 (Nov 16, 2005) states that ALL urban creeks (including Strawberry) are impaired due to Diazinon and Pesticide-Related Toxicity. This action was taken by the Water Board to capture all urban creeks and to not limit impairment to conditions caused by Diazinon. C-30

3. Section IV.G.2.6 describes local plans and policies in relation to hydrology, watershed and creek protection for Oakland and Berkeley. The CEQA Guidelines indicate that an EIR should evaluate the conformance of a project with relevant plans and policies. Although LBNL is exempt from local policies, the City believes it is still subject to the requirements of CEQA and that some evaluation of the conformance of the project with local plans and policies is needed. C-31

4. The first full paragraph on page IV.G-23 concludes that the potential for additional contaminants from parking lots entering stormwater runoff would be reduced compared to existing conditions. There is insufficient information to support this conclusion. The second full paragraph states that 10 acres of impervious surfaces would be added to the site. In fact, Tables III-6 and III-7 (page III-41) indicate that C-32

16.5 acres (718,800 sq ft, computed as 445,000 plus 59,500 plus 214,300 sq feet) of "new" buildings or parking will be added. It is unclear how much of the 16.5 acres is redevelopment. In any event, the entire 16.5 acres should be treated for stormwater quality purposes, not just the 10 acres. C-32

5. As stated above, the assertion in HYDRO-2 that the project's impacts should be based on the addition of 10 acres of impervious surface is questionable. Moreover, the DEIR further splits the 10 acres between the north fork and south fork of Strawberry Creek (IV.G.3.5, Impact Hydro-3). The text refers to Table IV.G-1 as the source of information regarding current flows but we were unable to find this table. There are open channel sections of Strawberry Creek downstream of the LBNL site. The City is required to not allow any increase in peak flow from new and significant redevelopment (Hydromodification Management in the City's NPDES permit). The City believes that LBNL should be held to the same standard which will make it necessary to better manage flows on its property. The text indicates that increase in flows in the south fork will be routed through the mid-canyon retention basin; however, no information is provided to support this statement. The text indicates that the increase in flows in the north fork will be held to the capacity of the municipal storm drainage system. This is not the correct criterion. The correct criterion is zero increase in runoff and not creating a condition that encourages erosion in the downstream open channel sections of Strawberry Creek. (pp. IV.G-25 and G-26) C-33

6. In relation to parking lots (Section IV.G.3.5), four bulleted "Objectives and Design Guidelines" included in the 2006 LRDP (page IV.6-24) are expected to address the potential impacts from 16.5 acres of parking facilities. The City is unable to find the four bulleted points in the LRDP. The objectives and policies in Appendix B – LRDP Principles, Strategies and LBNL Design Guidelines – suggest several other guidelines in relation to water quality and parking areas. As noted in our previous general comments, the status and applicability of these guidelines as mitigations are unclear. Moreover, the Guidelines in relation to parking and hydrology do not appear to be the same as on DEIR page IV.G-24. The DEIR should clarify which policies or mitigations are being adopted as part of the EIR or LRDP. Under either circumstance, the City believes that parking should be engineered to treat runoff and then to allow as much as possible of the treated water to infiltrate into the subsurface soils. This process should use best available technologies such as the use of filters (for solids and for organics) and cisterns and conveyance systems to reintroduce the water into the subsurface. C-34

7. Hydraugers (drain pipes inserted into the hillside to draw off groundwater) are identified as an existing means of slope stability, but these can also increase surface runoff and can spread groundwater contamination (page IV.G-8). It is unclear whether new hyrdraugers are proposed as part of new projects under the LRDP, but to the degree that hydraugers are an integral part of the Lab's strategy to address slope instability in the future, their effectiveness and ability to achieve slope stability is relevant to an impact assessment. It is the City's understanding that slope C-35

stabilization by hydraugers was not a very well understood process when the hydraugers were installed. The City believes that if the Lab intends to rely on this system in the future, it is necessary to analyze the existing hydraugers that are determined to be unnecessary, badly constructed or ineffective for their designed purpose, should be removed. C-35

8. The DEIR fails to fully acknowledge that the LBNL site and UC areas to the east contain the headwaters of Berkeley's watershed and that this represents a major ecological responsibility. Groundwater recharge, creek flow, springs and the ecology are highly sensitive to the land uses that the Lab proposes in its LRDP. An essential element of the LRDP must be control of water quality and ensuring that Lab development areas are engineered to allow for recharge in lieu of impervious areas. To fully protect this important resource, the City believes that a watershed plan is necessary and the City Council has recently authorized a staff position to prepare such a plan. The City requests that LBNL and the Campus join in this process, and help finance development of such a plan. C-36

9. IV.G-13 states that oversight and enforcement of the NPDES General Industrial Permit is by the San Francisco Bay RWQCB and the City. However, LBNL has not yet agreed to the City's role and has discouraged the City from carrying out its associated duties and responsibilities. LBNL needs to formalize an arrangement to ensure that permit requirements are not subject to an override because of LBNL objections. C-37

10. The City notes that LBNL and the Campus continue to expect to rely on engineering solutions within the creek banks to address flooding and erosion and the increase in peak flows due to the project (note that the City believes such an increase is not appropriate). The existing system is partially composed of pipes and culverts, retention basins and gates. It is the City's policy to restore creeks to their natural functions as much as possible. While opportunities for daylighting and addressing creek riparian functions within the lower reaches of the creek are limited, the upper reaches of the creek under the jurisdiction of the University and LBNL are potential opportunities for meeting the goal of restoring creek functions and eliminating artificial modifications to the creek and its riparian environment. As noted earlier in these comments, small increases to unacceptable environmental conditions are a significant impact. In the City's view, the existing artificial hydrologic regime for the upper reaches of Strawberry Creek is an existing unacceptable condition and increases in flow into that system should be found to be a significant impact. Mitigations should include undertaking more natural "reengineering" of the system, including removal of existing artificial modifications to the creek to the extent feasible. C-38

11. In light of the issues and inadequacies we identified in the previous comments, we believe that the DEIR does not provide a sufficient factual basis for concluding that implementation of the LBNL LRDP, when combined with implementation of the UC C-39

Berkeley 2020 LRDP and other cumulative development, would have a less than significant impact that does not require mitigation. The City also took issue with UC's failure to adequately analyze the affects on groundwater and water quality in the SCIP DEIR. That DEIR failed to analyze the significant potential impact of constructing the Maxwell Family Field parking structure with four underground levels of parking on the historic alignment of Strawberry Creek and as a potential source of significant contamination and spills. Both that DEIR and this one also erroneously assumed that existing culverts are sufficient because of lack of any recent flooding caused by inadequate capacity. However, when these culverts were sized, the work was based on information that is now about 90 years old. Since then, there are many years of records of rainfall and the amount of up-stream impervious surfaces and other factors used to determine needed capacity have changed. Rather than assume that it is adequate, the DEIR needs to provide a hydrologic analysis based on current data to substantiate its conclusions. If the existing system is fundamentally inadequate, it is highly unlikely that any feasible amount of detention or decrease in flow from the project will reduce the problem to below that capacity. C-39

Land Use and Planning

As noted in earlier comments, while LBNL is exempt from local land use plans and regulations, it does not necessarily follow that the Berkeley Lab is also excused from analyzing its conformance or lack thereof with local policies under CEQA that have been adopted to mitigate environmental impacts. Given the potential impacts the LRDP may have on the City's ability to implement its General Plan and other relevant local land use policies, it is essential that the Berkeley Lab consider these impacts in its deliberations on the LRDP, regardless of whether it is subject to local land use plans and regulations. Local plans and regulations are in place for the health, safety and welfare of the community and for its orderly and rational development. They reflect the community's articulation of its perception of the general welfare. Moreover, Berkeley's General Plan and land use regulations will determine the type and intensity of development that surrounds the Lab. In order to adequately assess the impacts of the LRDP it is essential to understand the setting within which the LRDP will be carried out. For these reasons the Berkeley Lab's development plans must be analyzed in terms of the City's plans in order to accomplish the basic purposes of CEQA. To neglect this analysis would be to neglect significant environmental issues that are appropriately addressed in a program-level EIR.[1] C-40

Population and Housing

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[1] Moreover, if development under the LRDP will not conform to the City's land use regulations, the Berkeley Lab's reliance on the City's General Plan EIR is suspect, since that EIR assumes development consistent with the General Plan.

In section IV.J.3.3, the DEIR concludes that the proposed LRDP would increase the number of people working at LBNL, "but would not induce substantial population growth in the City of Berkeley or elsewhere in the region." Because the growth in the number of employees at the Lab would be only a small percentage of the expected growth in households in Berkeley and the Bay Area, the DEIR concludes the impact of the lab is insignificant on the City of Berkeley. This is one of the areas where the impacts of the University on the City of Berkeley are masked by the preparation of two documents and two EIR's. While the LBNL LRDP DEIR's cumulative assessment addresses this issue to some degree, the Campus and LBNL growth combined will contribute about 4000 new employees over the next 20 years in the City of Berkeley and this has a significant impact on Berkeley, as described below.

1. The draft Regional Housing Needs Assessment that was recently completed by the Association of Bay Area Governments (ABAG) requires cities to address their fair share of housing needs. The proposed methodology adopted by ABAG emphasizes existing and projected employment as a key element in that fair share assessment. The methodology strongly encourages that housing be located near jobs and requires cities with existing and projected imbalances between jobs and housing – such as Berkeley – to significantly increase their housing production. Accordingly, under the draft assignment methodology, the City of Berkeley's share of housing need will more than double for the next 7 year RHNA cycle (2007 – 2014). The City must plan to accommodate a level of growth far in excess of the levels that have occurred in the past, and this level of development has cumulative impacts on the character and quality of life in the City. While there are benefits from new housing development, there are invariably also negative impacts, and the higher the expected level of growth, the greater the impacts. C-41

2. In addition to overall growth, RHNA also requires that cities seek to address assigned proportions of affordability for that housing. The DEIR fails to assess the housing affordability needs of future employees that will result both from LBNL and the overall cumulative impacts from the University. If the University were a local jurisdiction, it would be forced to address the housing needs it generates. If it were a local employer, the City could seek to require some mitigation of the impacts it has in regard to housing needs. Because the University can add thousands of employees and not address housing needs (except for students), the EIR is the only tool available to address the housing needs that arise from the University on its host community. The City believes the impacts of University growth on the supply of affordable housing are significant and that mitigations can include construction of housing and/or subsidizing housing within the community for its workers, students and faculty.

Public Services

Even though the Berkeley Lab provides some facilities and services to accommodate the demand generated by its activities in Berkeley, any increase in development and associated growth in LBNL population will have an impact on City facilities and services. The Lab should be mitigating these impacts by making direct financial payments to the City. For example, while it has its own fire station, the City is first responder to a major emergency and must address increased population on the hill, as well as the other development in the hill area that could be cut off by fire or a major earthquake along the Hayward fault.

Because of the uncertainty regarding the extent to which the LBNL may continue to occupy off-Hill leased space, it is particularly difficult to quantify its impacts. The loss of tax revenues associated with off-campus and off-Hill activities combined with an increased need to provide police and fire protection and maintain the infrastructure that provides access, drainage, water, and wastewater services to the Hill site is a losing proposition for the City and its residents and businessowners who may experience a deterioration of public services. One of the 2006 LRDP's stated goals is to "Provide flexibility to return staff from [LBNL] off-site facilities leased in Berkeley and Oakland to the main site". At the same time, the DEIR assumes that LBNL will continue to lease 338,000 square feet off-campus in addition to 100,000 square feet on the UCB campus. Nowhere in the DEIR is there any consideration of the impact of the "off-site" facilities, which do not generate taxes to pay for the public facilities and services they require. C-42

The following comments regarding fire protection and other sections of this letter include more specific information regarding impacts on City facilities and services.

1. The LRDP proposes a significant amount of new development, which will require fire protection services from the City. LBNL contracts with Alameda County Fire Department for fire suppression and hazardous material response. LBNL also has its own Fire Marshal. However, LBNL's location in an area that is particularly susceptible to wildland fires requires close cooperation with the City's public safety departments to ensure that services are coordinated when a serious seismic event or wildland fire occurs. The City has an automatic aid agreement with LBNL that provides significant support to the LBNL station when needed (and, it should be noted, that it provides services to the City). Those services are going to be especially needed in the case of a wildland fire or any major structure fire at the lab, and for other emergencies. In the comments in response to the NOP, the City requested that LBNL formalize a requirement for Berkeley Fire Department review and input as part of its standard development review process. LBNL has not proposed such a requirement. The DEIR concludes that the proposed 27 percent increase in ADP and the 37 percent increase in building floor area would have a less than significant impact on the demand for fire services based on the current patterns of demand for fire protection services but offers little substantive information to support this conclusion. (p. IV.K-17) The DEIR asserts that the cumulative impact of the LRDP C-43

and UC Berkeley's proposals for development on the adjacent southeast areas of the campus will have a less than significant impact. The DEIR bases this conclusion on the fact that the EIR for the Southeast Campus Integrated Projects (SCIP) concluded that the SCIP Projects would not adversely affect either emergency response or evacuation plans or emergency access. The City challenged this conclusion in its comments on the SCIP EIR and was forced to ultimately challenge the adequacy of the EIR in court, partially because of such assertions. It is inappropriate for LBNL to rely on the SCIP EIR when the Alameda County Superior Court has enjoined UCB's implementation of the SCIP based on challenges to the document's legal adequacy. C-43

2. LBNL has "considerable on-site fire suppression capabilities" and will have three 200,000-gallon emergency water tanks on-site. The EIR must, however, also address the need for services that will have to be provided by the City of Berkeley Fire Department (BFD) as a result of additional development at the Hill site. The City suggests that the party responsible for preparing this section of the EIR obtain information from the BFD regarding additional measures that are recommended to improve capacity to deal with the additional risk posed by increasing development in this part of the City and the resulting increase in population at a site that is particularly susceptible to wildland fires and also has a significant amount of hazardous materials stored on site, including many above and underground tanks with flammable materials (IV F-3 – F-4).

   Without more specific information regarding the type and location of future development, it will be difficult to determine how implementation of the LRDP will affect the City's ability to provide fire services. The increased building sizes, complex building systems (fire protection and detection equipment) and building uses will lead to an increased volume of fire incidents. Additional factors resulting from proposed designs may require specialized equipment for the Fire Department in order to maintain the current level of fire protection. Such factors include, but are not limited to: building height, underground and below grade construction; new processes and operations; the conversion of private property to University property; and modifications of access to and on the campus. C-44

3. Especially in light of the Hill site terrain, the Fire Department will be challenged by even mid-rise structures due to equipment restrictions. A number of the projects include new underground or subterranean levels. Below grade construction, such as the proposed Building 49, creates special problems for firefighters and requires specialized equipment and training. Building uses and operations associated with unfamiliar and potentially hazardous technologies will require constant training and equipment upgrades for the Fire Department. Without these upgrades the Fire Department will not be able to provide the desired level of fire protection safely.

4. BFD access to the Hill site is a challenge when it receives calls for service or for mutual aid. Additional development on this steep and remote site makes the maintenance of required fire access a major concern for the City. It is essential that

the fire department be involved in the planning process for all construction projects to ensure that emergency access is maintained on the Hill site. Additionally, any road design changes or modifications that would affect emergency or fire vehicle access, (i.e. additions of traffic calming devices, barricades, detours, etc.) must include the Fire Department to ensure timely access and response onto the campus. The City's normal development review process includes an opportunity for the City's Fire Department to review and approve plans, to ensure that adequate provision is made for fire safety. The development review process used by LBNL does not provide such an opportunity. As a result, the City's ability to provide adequate fire protection services can be compromised.

5. LBNL needs to set forth a development review procedure that includes a process for Fire Department review and comment on the following issues:

   - Fire Department access (i.e. road width, entry points to buildings, knox box locations and keys, etc.);
   - Water supply: We appreciate the current positive working relation between the Fire Department, the University, and the Berkeley Lab on fire access and water supply issues for existing and new facilities. This cooperation should continue.
   - The Lab should continue to provide fire protection systems in all facilities. Specifically, the Fire Department requests the installation of fire sprinkler systems in all new facilities, as well as a program to retrofit all existing campus facilities with fire sprinkler systems; C-44
   - Location of Fire Department connections (to include 5" stortz fittings);
   - Provision of site plans for inclusion in the UC Map Books carried on all apparatus;
   - Prior to occupancy of the building, provide a detailed list of the building use and location of hazardous materials;
   - Location and design of Fire Control rooms;
   - The Lab should provide pre-planning, training, and tours for Fire Department personnel, to familiarize them with the campus and off campus buildings. This should include fire protection equipment, chemical processes, storage and other life safety hazards;
   - The University invested in improvements of equipment and training for the Fire Department under the last Long Range Development Plan. The Fire Department would like to develop a new investment plan with the University and the Berkeley Lab that will allow the Department to meet the level of service the University and Lab wish to maintain. Only a fully funded investment program in equipment, special services and training for the Fire Department will maintain the desired level of service to the university.

6. Because the types of buildings and uses at the Hill site will likely demand different or additional services and equipment than most other development in the City, there should be a process for determining future impacts of development under the LRDP

on fire protection and disaster response services and a means to mitigate those impacts. C-44

Traffic and Transportation

This is the fourth major EIR document prepared for projects being carried out by UC in Berkeley and adjoining communities. The previous three documents were for University Village, the 2020 UC Berkeley LRDP, and the UC Berkeley SCIP projects. These documents, together with the current LBNL DEIR, have uniformly used the same format, assumptions and methodologies. City staff has provided traffic engineering comments on the three previous documents that were taken into consideration and resulted in the preparation of revised text, tables, and figures in the three previous Final EIRs. In reviewing this DEIR, City staff found many of the same flaws that seriously limited the City's ability to efficiently and effectively review substantive issues regarding traffic and transportation. Because this DEIR relies on much of the analysis conducted for the other environmental documents, this letter includes many of the same comments that we made on those documents.

The City issued guidelines over two years ago that established thresholds for significance at signalized and unsignalized intersections. The three previous UC EIRs, and this one, continue to incorrectly use the thresholds in the 2001 General Plan. Consultants who prepare EIRs in the City are aware of these new guidelines, and UC used the updated thresholds of significance in responding to City comments on the Draft EIR for the SCIP projects. LBNL should take these thresholds into account when evaluating the significance of impacts. C-45

The City appreciates the development and presentation of the Draft Transportation Demand Management Plan, dated 12/12/2006, as Appendix F of the LBNL LRDP DEIR. This Draft Plan contains valuable transportation data, brief descriptions of existing transportation programs, and a proposed 3-phase implementation plan for additional Transportation Demand Management measures.

The City agrees with the basic premise of the Draft Plan; that expanded TDM measures shall be implemented prior to expanding parking supply beyond what is currently allowed in the 1987 LRDP. The City further recognizes and agrees with Lab's pledge that the Lab "will undertake a number of the most basic TDM measures" before the full 110 new parking spaces allowed in the 1987 LRDP are added. (Appendix F, p. 5) C-46

Despite these significant agreements, the City has a number of questions and comments, and suggested changes to the Draft Transportation Demand Management Plan. These comments can be generally grouped into: Major comments; Requests for additional information; Requests for additional accountability; Suggested text edits; and Timeline/Phasing. The City's detailed comments on the Draft Transportation Demand Management Plan are included as Attachment I to this letter.

Our other comments on the analysis follow:

1. p. IV.L-6. Overall traffic volume data are provided for traffic volumes into and out of the facility. The EIR must provide a breakdown between gates on a daily basis and for weekday AM and PM peak periods. This is basic data that should be available to anyone trying to assess the existing and future traffic impacts of the LRDP. C-47

2. p. IV.L-10. No figures are provided showing the existing turning movements at study area intersections. Such information is included in virtually every traffic impact study and is a serious omission in the body of the EIR for a major expansion of facilities. It is not enough to include such information in appendices, especially in this case when appendices are in a separate document. Such information is particularly important for unsignalized intersections, since the level of service for two-way stop intersections is based on the delay for only one approach. C-48

3. Table IV.L-2. Within the past year, the intersection at Channing/Piedmont has been changed to traffic control consistent with a roundabout, i.e. yield signs on all approaches. This change likely will increase the capacity of the overall intersection and certainly the capacity of what are now minor approaches. SIDRA software should be utilized to establish levels of service for all traffic scenarios. C-49

4. p. IV.L-12. Table IV.L-3 does not indicate which intersections are two-way, all-ways, or signal controlled. Even though this information is provided in another table, it is very difficult to understand this table without this basic information about traffic control. As a basic consideration, the thresholds for Level of Service F are different for signalized and unsignalized intersections. Also, the actual vehicle delay should be provided if a threshold is exceeded, unless an unrealistic figure results. For example, at Bancroft/Gayley, the delay listed is ">50", which could be 50.1, 100, or even 200 seconds. All numbers should be provided that are less than 180 seconds, so that the degree of congestion can be better assessed, especially when comparisons between existing and project conditions are compared. Also, in this table, the intersection at Bancroft/Piedmont is shown at Level of Service F in both the AM and PM peak hours, even though the appendix printouts show different results. Apparently, the DEIR has adopted the field observation from the UC's SCIP DEIR that the intersection operates at LOS F in both peak hours. The discrepancy arises primarily because the level of service software for unsignalized intersections does not take into account the frequent delays that result from pedestrian crossings at this intersection. Considering the importance of this intersection, it is the only intersection that is shown to be at LOS F in both the AM and PM peak hours, the EIR should show the actual delay as measured in the field, which is a simple field study at a two-approach intersection. C-50

5. p. IV.L-26. Table IV.L-5. This table, at least, presents the traffic control for intersections that is missing in Table IV.L-3. However, the need for providing actual C-51

delays, even if a LOS F threshold is exceeded, becomes readily apparent in this table. For the three unsignalized intersections that are at LOS F, it is impossible to assess the degree of congestion since none of the actual delay values for LOS F is presented. C-51

6. p. IV.L-27. No major issues exist with the forecasting methodology; however, the EIR should include a figure showing project turning movements at all of the intersections in the study area. Without them, reviewers are unable to assess in either a qualitative or quantitative manner the impact of the proposed development on individual intersections. C-52

7. p. IV-L-29. Table IV.L-6. Comments for Table IV.L-5 apply. Also, in this table, three intersections are shown as having significant impacts. However, no calculations of traffic increase are provided, so it is impossible to establish how close the Bancroft/Gayley/Piedmont intersection came to meeting the 5% threshold. Percent increases should be provided for all intersections that are at LOS E or F in the 2025 with Project scenario. We suspect that LOS F will not exist for Channing/Piedmont when it is analyzed as a roundabout. C-53

8. p. IV.L-30. Table IV.L-7. We appreciate the comparison table, but comments for other tables showing level of service also apply here. C-54

9. p. IV.L-31-32. Discussion of Mitigation Measures. The LRDP has identified three intersections that have significant impacts in 2025. The proposed mitigations are discussed separately below:

   Gayley Road/Stadium Rim Way. The mitigation does not reflect the fact that UC has agreed to fund and construct a traffic signal at this location on its property as part of the proposed SCIP developments. It is likely that the City will operate the signal and participate in the design but the signal will be owned by UC. It is possible that UC might solicit "fair share" funding from LBNL at the time that it constructs the signal.

   Hearst Avenue at Gayley Road/La Loma. The statement is made that the impacts at this intersection are unavoidable since no mitigation measures are possible. The evidence does not support this statement, and the City is confident that mitigation measures are possible. Attached (Attachment II) are level of service worksheets (AM and PM peak hours) for the installation of a protected-permitted northbound left turn lane. The north approach is 36 ft. wide for a full 80 ft. south of the intersection, and a left turn lane could easily be installed. If necessary, it may be feasible to widen Gayley south of the intersection. In DEIRs, there is an obligation to explore in detail alternative mitigation measures before a statement can be made that any significant impacts are "unavoidable". C-55

   Durant Avenue/Piedmont Avenue. For this intersection, the DEIR concludes that a traffic signal is warranted. It should present an analysis of the mitigation

measures, including the anticipated improvements in delay and the proposed geometry. It is noted that at this intersection both this DEIR and UC's LRDP have identified this intersection as having significant impacts. However, as also noted in comments on previous EIRs, provision of a signal here would in itself have potentially significant impacts on the historic character of this National Register historic street. An EIR is obligated to consider not only the impacts of the project but of potential mitigations. Other options that may partially mitigate the impacts at this intersection other than a signal should be explored in cooperation with the City.

In addition to the three intersections for which the DEIR concludes that significant impacts will result from LBNL development, it is clear that significant impacts also will result at the Bancroft/Piedmont unsignalized intersection. At this intersection, LOS F is shown for this intersection during both the AM and PM peak hours for all scenarios. For the AM peak hour, the increase in delay for the critical approach increases from 74 to 95 seconds with project volumes in 2025. The 95-second delay figure is the highest delay at any intersection in any time period. The percent increase in volume is not presented for this intersection but by any other standard of increased congestion, a significant impact occurs. The concern with the impacts on historic character of a signal at this intersection is the same as for Durant and Piedmont. However, the City has identified a potential modification to this intersection as part of its analysis of the Southside Plan that may partially or wholly mitigate the significant impacts of existing and even some increased traffic. The City suggests that LBNL and the Campus work with the City to implement this revised intersection plan, should the City Council approve it. C-55

10. Fair Share Payments to Implement Mitigations. Standard procedures in the development of EIRs for proposed major development projects require that the applicant be responsible for implementing mitigation measures adjacent to the project. Where projects include additions to already existing facilities, it makes sense that the total traffic volume generated by the facilities be considered when establishing "fair share" payments. For example, funding for operating improvements at the Bancroft/Piedmont intersection or the Gayley/Hearst intersection should take into account total traffic generated by UC and LBNL not just the increase that would be generated by new facilities. The three major entities with a vested interest in resolving congestion -- the City of Berkeley, UC, and LBNL -- should agree on a methodology for measuring the vehicle, pedestrian, and bicycle movements at an intersection and how they can be grouped by origin and destination. Various techniques exist for accomplishing this task. C-56

11. Significance after Mitigation. This paragraph on IV.L-32 needs to be revised significantly, for several reasons. First, as described above, mitigations are possible at the Hearst/Gayley/LaLoma intersection. Second, installation of a signal at Gayley Road/Stadium is not under the jurisdiction of the City of Berkeley and should not be considered unavoidable, as UC has plans to install a signal at this location as part of its SCIP developments. Third, the assumption that significant impacts can be C-57

considered unavoidable because they occur at intersections not under its control is invalid from an EIR perspective. It is common for new private developments to pay the full cost of adjacent signal improvements; the City does not see the difference between these projects and those proposed by UC and LBNL. C-57

12. p. IV.L-39. Best practices TRANS-6a and 6b. These statements are well-meaning but missing is a commitment to work with City of Berkeley Transportation and Public Works staff to review and approve the truck routes and the Construction Traffic Management Plans. Actually, the City and UC have co-operated well in this regard recently, but this level of cooperation should be included in Best Practice statements. The City has the right to regulate all activities within its right of way, including truck movements and construction activities. The statements as presented here do not reflect this fact. C-58

13. LBNL has had experience dealing with on-site construction impacts. The primary concern of the City related to on-site construction is the ability of its Fire Department and Police to respond in a timely manner to major incidents. For off-site impacts, the City is most interested in establishing truck routes for projects. At the present time, the City's only involvement occurs with oversize truck permits, but it should be standard operating procedure for LBNL to request that the City provide approved truck routes for all major construction activities. The truck route map given by LBNL to its contractors must provide clear guidance on how trucks should undertake trips to and from the various LBNL gates. C-59

14. p. IV.L-43-45. Since the analysis for the project and cumulative conditions has the same results, comments made for the project mitigations should also be reflected in the section describing cumulative impacts.

    In their EIRs, both LBNL and UC Berkeley have made commitments as part of mitigation measures for intersections to help fund a periodic (annual or biennial) monitoring of intersections where significant impacts have been identified. The City is in the process of developing a joint traffic-monitoring plan with UC for intersections identified in its LRDP and SCIP EIRs, including Bancroft at Piedmont, Durant at Piedmont, and Derby at Warring. The initial data collection and analysis is likely to occur during Spring 2007 and will be updated on an annual basis. LBNL should agree to participate in this monitoring effort and, at a minimum, should monitor and analyze the Hearst/Gayley and Gayley at Stadium Rim Road intersections. The City will focus on intersections farther from the campus boundaries. C-60

15. In addition to the main LBNL Campus, the Lab leases office space in several buildings in Berkeley. The proposed TDM Plan does not specifically mention these satellite locations, but there are some TDM programs that may apply to these employee populations. For example, if LBNL employees working in Downtown Berkeley are receiving free parking, the Lab may be required by State law to offer a C-61

Parking Cash-Out program. (CA Health & Safety Code 43845). A "Parking cash-out program" means an employer-funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to provide the employee with a parking space. The Lab should state how many employees are currently receiving parking spaces that are being leased by the agency. The Lab should further investigate and report on its compliance with the State's Parking Cash-out law. In addition, LBNL employees in parts of West Berkeley may also benefit from use of the West Berkeley Shuttle, a peak-hour shuttle between the Ashby BART station and 7th Street, between Ashby and Dwight. The West Berkeley Shuttle is largely funded by employer contributions through the Berkeley Gateway Transportation Management Agency. Expanded West Berkeley Shuttle service could assist LBNL employees in West Berkeley who use transit for their work commute. C-61

16. The DEIR proposes to mitigate the impact of construction on traffic and circulation by continuing the "Best Practice" of managing project schedules to minimize activities such as excavation that would have the greatest potential for adverse impacts. The DEIR inexplicably ignores the obvious remedy of coordinating construction schedules with UCB. As the City stated in its response to previous LBNL and UCB environmental assessment documents, it is essential to address the cumulative impact of construction projects at LBNL and on the eastern side of Campus Park, especially along the Gayley-Piedmont corridor. C-62

Utilities

1. The DEIR states that implementation of the proposed LRDP would increase the annual generation of wastewater by as much as 36 percent based on the more conservative "Illustrative Development Scenario". Sewage from LBNL's eastern portion now flows into the same sub-basin that serves Panoramic Hill, which is severely constrained during peak wet weather conditions. Rehabilitation of this line would be extremely difficult because it would obstruct access to Panoramic Hill. The proposed mitigation is to make system improvements to ensure that the additional flows would be directed into unconstrained sub-basins. The DEIR identifies three alternatives and states that LBNL will move forward with one of the options "independent of the new LRDP" and will "closely coordinate the planning, approval, and implementation of this mitigation" with the City and UCB. There is no information about how the cost of such a project would be allocated, how the option will be selected, or when the project would have to be completed. C-63

2. All engineered improvements to the storm system should be subject to City review and approval to maintain consistency with the City's Creeks Task force requirements. C-64

3. Policy EM-24 Sewers and Storm Sewers - Item E. LBNL should consider its fair share wholistically, as its current and future impacts on the entire storm and sanitary C-65

sewer systems from the head of the watershed to the San Francisco Bay. The LRDP should specify how the Lab perceives its current and future fair-share of sewer costs. C-65

4. The DEIR recognizes that stormwater discharge from Berkeley and 16 other Alameda County agencies and cities is regulated under an NPDES permit issued to the Alameda Countywide Clean Water Program (ACCWP) by the San Francisco Bay Regional Water Quality Control Board. (p. IV.G-12) Nevertheless, despite the fact that the LBNL site is within the cities of Berkeley and Oakland, stormwater within the site is managed under the Statewide NPDES General Permit for Stormwater Discharges Associated with Industrial Activity rather than the NPDES permit applicable to Berkeley, Oakland, and other ACCWP agencies. While the City appreciates LBNL's willingness to "cooperate with local jurisdictions to reduce any physical consequences of potential land use conflicts," it is troubling that their commitment is conditional. As a result, the DEIR fails to acknowledge that LBNL activities could undermine the City's efforts to comply with the requirements of the NPDES permit. The City will, therefore, continue to press for a mitigation measure that would commit LBNL to comply with the ACCWP NPDES permit. This is particularly important in light of the acknowledged capacity problems in the sub-basin that now serves the eastern part of the site. C-66

5. Section IV.M (Utilities, Service Systems, and Energy) includes several errors and omissions:

   - Page IV.M-6 (Sewer System Conditions and Upgrade) The year at the end of the 2nd sentence should be <u>2017,</u> not 2007.
   - Correct the 4th sentence of the same section regarding the length of the interceptor line along Adeline Street, which is approximately <u>3</u> miles in length, not 22 miles as stated.
   - Revise the description in the last sentence of the 2nd paragraph on page IV-M-4 (On-Site Wastewater Collection System) to include the underlined text: "The City of Berkeley's sewer system transports the effluent from both monitoring stations to EBMUD's north interceptor sewer and <u>the EBMUD Adeline Interceptor originating at Woolsey St/Adeline St in Berkeley</u> and then to the treatment facility in Oakland."

C-67

<u>Cumulative Impacts</u>

The City's position has been that UC should employ a common list of past, present, and probable future projects that will be used as a basis for the respective analyses of cumulative impacts of all of the EIRs it prepares for sites in and adjacent to Berkeley. These projects should include the LBNL 2006 LRDP in combination with the UC Berkeley LRDP, the SCIP projects, and the growth and development that the City anticipates under the 2001 General Plan. This is essential to ensure that analyses of impacts and mitigation measures are directly comparable. In addition, both EIRs should use the same terminology and methodology for the same kinds of impacts. C-68

Since both projects are under the jurisdiction of the Regents, we would expect that the analysis in each EIR include ways to mitigate cumulative impacts resulting from the other projects. Moreover, given that both the UC Berkeley and LBNL LRDPs are projects being undertaken by the Regents, we expect that mitigation of all impacts that result from the cumulative impact of the two LRDPs will be considered feasible because they are within the jurisdiction of the same agency.

We have discussed key points relevant to the EIR's analysis of cumulative impacts in a number of contexts in the preceding parts of this letter. We will add only that, in addition to its use of projections, the EIR should be as specific as possible about individual projects that will contribute to cumulative impacts, if they are known or reasonably foreseeable. Because both the LBNL and the UC Berkeley NOPs are extremely vague regarding the nature and location of projects that may be undertaken under these plans, we will continue to pay close attention to the adequacy of this section of any associated UC EIR. C-68

Alternatives Analysis

Alternative V-G considers the impacts of a "two-campus" approach to growth at LBNL by evaluating the impacts of establishing an off-hill Richmond Field Station location to accommodate growth at the Lab. For unclear reasons, the DEIR concludes that development at the Richmond Field Station would have significant adverse aesthetic impacts equivalent to development on one of the most visible locations in the Bay Area with aesthetic and visual impacts affecting hundreds of thousands of people. The DEIR also asserts that cultural resource impacts from this alternative would be equivalent to that resulting from the proposed project, although it would seem that preservation of hill-site historic resources would be much more feasible if pressure were not present to redevelop existing developed sites in order to minimize other environmental impacts of Hill development. It is quite astonishing that the DEIR concludes that development at the off-site location would have similar impacts on geology and soils and on hazards and hazardous materials as development on the Hill. This may be due to the gross underestimation of the impacts of Hill site development as discussed earlier in these comments. In fact, it seems as if because the DEIR consistently underestimates the impacts of development at the Hill site that the DEIR can find that development at an off-site location would have similar impacts to those on the Hill site. There may be other issues associated with development near the Bay, but the analysis fails to adequately assess them because it failed in the first instance to fully evaluate the true impacts of development at the Hill location. While, as we said at the introduction to this comment letter, the City can understand why LBNL may wish to grow at its Hill campus location despite the impacts of doing so, it seems obvious to the City that an objective analysis would find that an off-site location would have considerably less impact on the environment than development in a steep hill area overlooking the Bay in a wildland fire hazard area immediately adjacent to an earthquake fault with very limited access. C-69

One of the key goals of CEQA is to allow decision makers to balance the environmental costs against potential over-riding considerations. That balancing cannot occur when a DEIR fails to provide adequate analysis of key impacts and alternatives. C-69

In conclusion, we believe that the DEIR contains a number of critical flaws that prevent an accurate evaluation of the potential impacts of the proposed 2006 LRDP. We are particularly concerned by the lack of an adequate evaluation of an off-site alternative. We stand ready to assist LBNL by providing information to help revise the LRDP and its DEIR to integrate the substantial concerns that we have voiced to ensure that the Regents certify an EIR that will fully assess the impacts of the LRDP. C-70

Sincerely,

Phil Kamlarz
City Manager

Attachments

cc: Mayor and Council
Senior Leadership Collaborative
Manuela Albuquerque, City Attorney
City Clerk
City of Berkeley Board and Commission Secretaries

Comment Letter C
ATTACHMENT I

Public Works
Transportation Division

February 13, 2007

To: Peter Hillier, Assistant City Manager for Transportation

From: Matt Nichols, Principal Planner, Public Works Transportation Division

Subject: Comments re: Draft TDM Plan; LBNL LRDP DEIR

The City appreciates the development and presentation of the Draft Transportation Demand Management Plan, dated 12/12/2006, as Appendix F of the LBNL LRDP DEIR. This Draft Plan contains valuable transportation data, brief descriptions of existing transportation programs, and a proposed 3-phase implementation plan for additional Transportation Demand Management measures.

The City agrees with the basic premise of the Draft Plan; that expanded TDM measures shall be implemented prior to expanding parking supply beyond what is currently allowed in the 1987 LRDP. The City further recognizes and agrees with Lab's pledge that the Lab "will undertake a number of the most basic TDM measures" before the full 110 new parking spaces allowed in the 1987 LRDP are added. (Appendix F, p. 5)

Despite these significant agreements, the City has a number of questions and comments, and suggested changes to the Draft Transportation Demand Management Plan. These comments can be generally grouped into: Major comments; Requests for additional information; Requests for additional accountability; Suggested text edits; and Timeline/Phasing.

1. Major Comments

A. The City does not agree with the Limited Parking section on Page 3, which states that "parking is limited and difficult at the Laboratory"...which "limits personal vehicle use."

The data provided does not support this statement. Providing 3,442 parking permits at no cost to the average daily population of 4,515 (76%) is not a discouragement to personal vehicle use. Rather, it is a major encouragement of personal vehicle use.

The Lab should explain why so many parking permits are issued currently (3,442) as compared to existing parking spaces (1,932). The Lab should also evaluate the relationship between the current parking supply (1,932) and demand (2,226 + carpool spaces).

The City believes that parking demand is a function of physical capacity, prices and other factors (availability/convenience of alternatives). Therefore, the Draft Plans' statement that the "Berkeley Lab has experienced an increase in demand of 25 to 30 parking spaces a year for the last 15 years" is an incomplete consideration of the management of parking demand via price.

The City requests that the Lab commit to the establishment of a Parking Fee in Phase 1 or Phase 2 of the Plan, rather than the weak "investigation" of a fee in Phase 2. The Lab should state that it will "Impose a parking fee to pay for cost of administering and maintaining parking operations, and to offset costs of TDM measures."

In addition to establishing parking fees, the City requests that the Lab provide more detailed commitments to providing financial incentives for those employees choosing transportation alternatives. In particular, the City requests that the Lab launch the proposed Discount Group Pass Program at the same time as the parking fees are established. The City further requests that the Discount Group Pass program is provided at no cost to permanent, benefited employees. At a minimum, the employee-borne costs should be well below the cost of a parking permit.

The City requests that the Lab specify the level of the enhanced, employer-provided Pretax Transit Program. The current Draft Plan states that "some subsidy" be provided by the Lab. As a point of reference, the City currently provides a $20 monthly subsidy for its permanent, benefited employees.

The City requests that the Lab provide additional detailed commitments to the incentives to be offered within the "Enhanced Carpool/Vanpool" program. Are the incentives proposed to be financial, based on preferred parking location, or both?

B. Phase 3 of the Implementation Plan should be edited to clearly state the share funding formula related to Critical Intersection Shared Funding. Specifically, the TDM Plan should state that LBNL funding of critical intersection improvements should be equal to the percent of LBNL traffic passing through the intersection.

2. Requests for Additional Information:
Although the Draft TDM Plan provides a list of current and proposed TDM activities, there are important gaps in data and detail. The City requests that LBNL provide additional detail, in response to the following questions:

<u>A. Current TDM Measures</u>

Laboratory Shuttle Service: What is the current daily ridership of the shuttle, the current vehicle size and service headways? The City cannot properly gauge the current shuttle's performance or the potential for service expansions without additional data.

Guaranteed Ride Home: What is the current level of participation in Alameda County's Guaranteed Ride Home Program?

Pretax Transportation Program Incentive: What is the current level of participation in the Lab's pretax transportation benefits program?

Carpooling/Vanpooling: How many Lab employees are currently registered with the regional 511 Ridematch program? Is it known how many of the estimated 336 employees who report carpooling more than two times per week (Table 1) found their carpool via the online regional Ridematch program?

Bicycle Infrastructure: What is the bicycle capacity of the Berkeley Lab Shuttle? What is the utilization rate of the shuttle bicycle racks? What is the impact, if any, of full bicycle racks, and the resulting uncertainty related to bicycle capacity, on employee bicycling rates? How many employee showers are provided around the Laboratory? Does the Lab provide support to the LBNL Bicycle Coalition? Has the LBNL Bicycle Coalition requested and/or received any service or infrastructure improvements to better support bicycling?

Information and Marketing: How frequent are the Transportation Fairs and Promotional events? What is the scope and mission of the employee advisory committee? Does LBNL support the employee advisory committee? If so, how?

B. Phased Implementation of Expanded TDM Measures

TDM Coordinator: The Draft Plan calls for the creation of a "TDM Coordinator" or "TDM Manager" position. Is this position proposed as a full time, benefited position? Please present at least the minimum scope, duties, reporting structure, and percent FTE of this position.

LBNL Transportation Committee: Please state how this Transportation Committee is intended to function. Please provide detail regarding who the Committee is supported by, who the Committee reports to, and what authority the proposed Committee has?

3. Requests for Additional Accountability

The Lab proposed a number of commendable activities within the Phase 1 of the TDM Implementation Plan. However, the concrete timelines and outcomes related to these proposals are not sufficiently detailed. The City requests that the Lab provide specific timelines and deliverables, as proposed below:

TDM Coordinator: The Lab should commit to creating and filling this position within **six months** of adoption of the LRDP FEIR.

TDM/Traffic Studies: The Lab should revise the last sentence of this section to provide additional critical detail, to read "In conjunction with City of Berkeley, on an equal share basis, monitor key intersections at least every two years for traffic and pedestrian activity". Within the Traffic Engineering comments on the LBNL LRDP DEIR, the city is requesting that LBNL commit to monitoring and analyzing traffic at two intersections (Gayley at Hearst; Gayley at Stadium Rim Road) on an annual basis.

Additional Mass Transit: The Lab should publish a memo to City of Berkeley and UCB within 18 months of hiring TDM Coordinator.

TDM vs. Structured Parking Studies: The Lab should commit up to $25,000 to fund studies and publish a memo to City of Berkeley and UCB within 12 months of hiring TDM Coordinator.

Enhanced Information Campaign: Target every publication of employee newspaper and quarterly e-news, once the new TDM Coordinator is hired.

Contractor Delivery Hours: The Lab should develop and begin to improve contract specifications related discouraging and prohibiting delivery hours within six months of TDM Coordinator hiring. **The Lab should also seek to reduce deliveries from contractors with existing contracts.**

Shuttle Coordination Plan: The Lab should produce a report within 12 months of hiring the TDM Coordinator.

UCB Shared Services: The Lab should produce a report within 12 months of TDM Coordinator hiring.

Car Share: The Lab should produce a report within 12 months.

BART Bicycle Storage: The Lab should report within 12 months of new TDM Coordinator

4. Text Edits

The following phrase should be added to the final sentence of Page 1, Paragraph 1, to read: "Besides reduced traffic, emissions, and parking demands, other benefits include avoidance of large investments in potentially unnecessary parking garage construction, improved air and environmental quality, and improved relations between the Laboratory and the City of Berkeley and UC Berkeley due to reduced impacts.

The word 'traffic' should be inserted into the Page 1, Paragraph Two, Line 8, to read "The Lab is projected to experience moderate growth over the next twenty years, the traffic impacts of which will be partially offset by the implementation of additional TDM practices."

The section on Pretax Transportation Program Incentive on Page Three should be updated to state "up to $110 per month" to reflect the maximum allowable monthly pretax deduction as of January 2007.

5. Timeline/Phasing

The City appreciates the attempt to sketch a phased implementation approach to the TDM Plan. However, we disagree with the content of the phases and proposed triggers.

It would be far better to commit to the enhancement of existing programs and the establishment of additional programs now. Once the programs are established, it will be relatively easy to adjust the levels of disincentives (fees) or incentives (subsidies) to influence driver behavior and balance supply with demand.

For instance, it is contrary to professional practice and an ill-considered use of U.S. taxpayer funds to construct any portion of the additional 375 parking spaces before implementing the parking fees and some of the other incentives included in Phase 2 of this Draft.

As proposed in Section 3 above, the City requests that the Lab agree to implement the TDM Plan in modified Phases, summarized as follows:

Phase 1:

Infrastructure Development and Data Collection

1. Hire TDM Coordinator
2. Establish LBNL Transportation Committee
3. Conduct TDM, Traffic & Parking Studies
4. Conduct TDM vs. Structured Parking Studies
5. Investigate and Report on Additional Measures
   - Car Share
   - Bicycle Infrastructure
   - Shuttle Coordination Plan
   - UC Berkeley Shared Services
   - BART Bicycle Storage
   - Discount Group Pass Program
   - Alternative Fuels Program
   - Remote Parking
   - Contractor Delivery Hours

Phase II:

Provide Enhanced TDM Program

1. Enhanced Information Campaign
2. Establish Parking Fee
3. Enhanced Pretax Transportation Program
4. Enhanced Carpool/Vanpool

Phase III:
Continue to expand informational programs and increase incentives and disincentives to provide the most cost-effective results.

HCM Signalized Intersection Capacity Analysis
3: Hearst & LaLoma

Baseline
3/22/2007

Movement												
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt		1.00	0.85	1.00	0.99		1.00	0.93			0.99	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1855	1583	1770	1846		1770	1741			1849	
Flt Permitted		0.97	1.00	0.24	1.00		0.30	1.00			0.99	
Satd. Flow (perm)		1811	1583	453	1846		562	1741			1829	
Volume (vph)	28	307	342	46	71	5	384	228	174	12	444	21
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	334	372	50	77	5	417	248	189	13	483	23
RTOR Reduction (vph)	0	0	282	0	3	0	0	38	0	0	2	0
Lane Group Flow (vph)	0	364	90	50	79	0	417	397	0	0	517	0
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		16.6	16.6	16.6	16.6		44.0	44.0			28.1	
Effective Green, g (s)		16.6	16.6	16.6	16.6		44.0	44.0			28.1	
Actuated g/C Ratio		0.24	0.24	0.24	0.24		0.64	0.64			0.41	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		438	383	110	447		570	1117			749	
v/s Ratio Prot					0.04		c0.13	0.23				
v/s Ratio Perm		c0.20	0.06	0.11			c0.34				0.28	
v/c Ratio		0.83	0.24	0.45	0.18		0.73	0.36			0.69	
Uniform Delay, d1		24.7	20.9	22.1	20.6		8.9	5.7			16.7	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		12.6	0.3	3.0	0.2		4.8	0.9			5.2	
Delay (s)		37.3	21.2	25.1	20.8		13.8	6.6			21.9	
Level of Service		D	C	C	C		B	A			C	
Approach Delay (s)		29.2			22.4			10.0			21.8	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		
c: Critical Lane Group			

Hearst at Gayley: Feasible Mitigation Measure for AM Peak Hour Future Conditions

HCM Signalized Intersection Capacity Analysis
3: Hearst & LaLoma

Baseline
3/22/2007

Movement												
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt		1.00	0.85	1.00	0.98		1.00	0.98			0.97	
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1831	1583	1770	1828		1770	1833			1900	
Flt Permitted		0.47	1.00	0.63	1.00		0.38	1.00			1.00	
Satd. Flow (perm)		884	1583	1177	1828		666	1833			1792	
Volume (vph)	50	96	375	94	353	51	463	349	41	4	215	71
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	104	408	102	384	55	503	379	45	4	234	77
RTOR Reduction (vph)	0	0	295	0	8	0	0	6	0	0	15	0
Lane Group Flow (vph)	0	158	113	102	431	0	503	418	0	0	300	0
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		18.9	18.9	18.9	18.9		41.1	41.1			21.1	
Effective Green, g (s)		18.9	18.9	18.9	18.9		41.1	41.1			21.1	
Actuated g/C Ratio		0.28	0.28	0.28	0.28		0.60	0.60			0.31	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		246	440	327	508		662	1108			556	
v/s Ratio Prot					c0.24		c0.18	0.23				
v/s Ratio Perm		0.18	0.07	0.09			c0.28				0.17	
v/c Ratio		0.64	0.26	0.31	0.85		0.76	0.38			0.54	
Uniform Delay, d1		21.6	19.1	19.4	23.2		9.4	6.9			19.4	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		5.6	0.3	0.5	12.5		5.0	1.0			3.7	
Delay (s)		27.2	19.4	20.0	35.7		14.4	7.9			23.1	
Level of Service		C	B	B	D		B	A			C	
Approach Delay (s)		21.6			32.7			11.4			23.1	
Approach LOS		C			C			B			C	

HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Hearst at Gayley: Feasible Mitigation Measure for PM Peak Hour Future Conditions

City of Berkeley, March 22, 2007 (Comment Letter C)

Response C-1

The project objectives are written in the form of "The Scientific Vision for Berkeley Lab" as taken from the draft LRDP, pages 30-33. The replacement of existing facilities and construction of additional facilities will be required to meet the demands of the next generations of scientific endeavors. Technical challenges presented by the problems to be addressed and the scale of systems that must be understood—from sustainable sources of carbon-neutral fuels to understanding dark energy—exceed Berkeley Lab's current capabilities. New facilities, specifically designed to address major challenges of our time, will be required for Berkeley Lab to achieve its scientific vision. The LRDP is neither a mandate nor a driver for growth at LBNL. Rather, it is a planning tool that would be used to reasonably and responsibly project and accommodate potential growth that may occur over an approximately 20-year period.

The wide variety of facility types at Berkeley Lab makes comparisons of sitewide square-footage-per-person problematic. However, space occupied per person cannot be reduced to a single formula for all types of building space at Berkeley Lab. For example, office space may be 135 sf/person, biology space 350-450 sf/person, accelerator space 1,000-1,500 sf/person, and high performance computing space 2,000-2,500 sf/person. As our scientific mission drives changes in space types, the sitewide nsf/person is no longer comparable to prior-year values.

Response C-2

The commenter correctly notes that the UC Regents are the approving body for both the 2020 LRDP and the proposed Lawrence Berkeley National Laboratory (LBNL) 2006 LRDP. LBNL and UC Berkeley also share some research appointments; two LBNL buildings (Donner and Calvin Laboratories) are located on the UC Berkeley "Campus Park." In addition, some of the research interests of UC Berkeley and LBNL are complementary and interlinked.

The two institutions are, however, separate and independent. UC Berkeley is one of the University's campuses engaged in teaching, research, and public service. LBNL is a Department of Energy (DOE) national laboratory – a federally funded research center **-** managed by the University of California, with distinct institutional objectives, and therefore is subject to its own LRDP, which is a separate and distinct project under CEQA from the LRDP for UC Berkeley.

That UC Berkeley and LBNL have the same lead agency (UC Regents) for their respective LRDPs under CEQA does not make the UC Berkeley and LBNL LRDPs one project. The Regents act as the lead agency under CEQA and under Public Resources Code Section 21080.09 for all University campuses and medical centers.

LBNL has the responsibility for formulating and preparing the plan for properties under its jurisdiction, as UC Berkeley has had the responsibility for formulating and preparing the plan for properties under its jurisdiction. Nothing in CEQA or the CEQA Guidelines would require that a single EIR be prepared for these different projects.

Public Resources Code section 21080.09 specifies that a long range development plan means a physical development and land use plan for a "particular" campus. The approval of projects "on a particular campus" is subject to CEQA and may be addressed in an environmental analysis basis upon a long range development plan EIR.

Moreover, the UC Berkeley 2020 LRDP has already undergone public review and been approved by The Regents, and projects under the 2020 LRDP are under way. Finally, LBNL disagrees with the comment that the cumulative impacts of the UCB LRDP and the LBNL LRDP are obscured. Both UCB's 2020 LRDP EIR and LBNL's 2006 LRDP EIR include cumulative impact analyses, which fully evaluate possible combined effects of both LRDPs.

The comment mentions two particular proposed actions, the Energy Biosciences Institute and the Helios Research Facility. The EBI project is one of three programs currently planned to be housed in the Helios Energy Research Facility (represented in the Draft EIR Illustrative Development Scenario for analytical purposes as Building S-9 and/or S 12). As stated in the LRDP DEIR, Helios is included as part of the reasonable foreseeable future development under the Lab's 2006 LRDP, and its impacts are evaluated in the EIR. It would be implemented under LBNL's LRDP and build-out projections.

Response C-3

If the EIR is certified and the 2006 LRDP is approved by the Regents, implementation of the LRDP would include implementation of DEIR Mitigation Measures TRANS-1a, TRANS-1b, TRANS-1c, and TRANS-8. These mitigation measures would commit the Berkeley Lab to 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 and for design and installation of a signal at the Gayley Road/Stadium Rim Way and Durant/Piedmont intersections when a signal warrant analysis shows that a signal is needed, regardless of whether federal funding is allowed. In addition, if the City determines that alternative mitigation measures may reduce or avoid the significant impact these mitigation measures address, Berkeley Lab would work with the City and UCB to identify and implement these measures.

LBNL acknowledges the City's concern about negotiating with two parties with separate funding mechanisms and would work to ensure that any obstacles to negotiating and working with the City to assess impacts and mitigate them through fair-share arrangements are avoided. LBNL's effort in consulting with the City on the 2006 LRDP and LRDP EIR is evidence of its good faith. This effort included more than 15 meetings with various City of Berkeley officials in the past year (2006-2007) that addressed, among various areas of discussion, the Lab's science-driven growth, its facilities, space, population, transportation, parking, hazards, air quality and cumulative issues. These discussions have included a workshop between City planning and engineering staff and LBNL staff on March 15, 2006 to review utilities and stormwater issues; a September 26, 2006 meeting between City, LBNL, and UCOP legal staffs to discuss LRDP and EIR issues; several meetings from September 2006 through January 2007 between LBNL planning and community relations staff and City planning and transportation department staff to discuss transportation and parking issues; and a LBNL staff presentation of a Draft EIR preview

to City of Berkeley staff on January 19, 2007 (in advance of formal publication). Moreover, these interactions with the City of Berkeley spurred the Laboratory's reduction of the long range development plan project by 140,000 gsf of net new occupiable space as described in the DEIR pp. I-5 through I-7. To date, the City has not presented the Laboratory with any request relating to a specific signalization project or any other specific traffic-related project. The inclusion of a fair share contribution by the Laboratory to periodic signal warrant checks as part of the mitigation measures described above is reflective of the Laboratory's commitment to work with the City to ensure that impacts on traffic are tracked and mitigated.

Finally, the comment asks which LRDP governs determination of "fair share." The provisions of the 2006 LBNL LRDP will govern development at LBNL and the LBNL LRDP EIR identifies impacts and mitigation measures for development proposed under the LBNL LRDP, including the LBNL LRDP EIR traffic mitigation measures described above.

Response C-4

The Berkeley Lab Design Guidelines are not "mitigation measures," but are instead an integral part of the proposed project. As stated in Chapter III, Project Description, of the DEIR, on page III-2, "The 2006 LRDP contains descriptions of Berkeley Lab science and technology goals and development principles for site and facilities development. In addition, a separate, companion document, the Berkeley Lab Design Guidelines, will provide direction for physical development under the 2006 LRDP. These proposed Design Guidelines are proposed to be adopted by the Lab following The Regents approval of the LRDP. These principles, strategies, and design guidelines are listed in Appendix B and are referred to in the Project Description and the various technical sections of this EIR, as appropriate."

As the LBNL Design Guidelines is a reference document for the LRDP and the EIR, it is anticipated to be refined over time to address on-going site planning, architectural and environmental issues.

LBNL instituted an Architectural Design Review Board two years ago. The Board reviews all building projects at LBNL and provides advice to the project team. Within the last year, LBNL has instituted the practice of inviting UCB and City of Berkeley planning staff to attend these architectural design reviews

LBNL has found the collaborative participation by UCB and the City to be mutually beneficial and is committed to continuing it in the future. While Berkeley Lab will consider the City of Berkeley's request for early public review (prior to schematic design) as an independent effort, at this time, there are no formal plans to institute the City's suggestion.

Response C-5

All future proposed development projects would be evaluated for consistency with the 2006 LRDP. A proposed project's scope of development, location, population, and objectives would be reviewed for consistency with the LRDP and a finding of conformance would be an essential first

component to any proposed project. Any deviations from the LRDP would be fully explained and analyzed, as appropriate, under CEQA.

Should future development beyond that described in the 2006 LRDP be proposed (i.e., development beyond a net 980,000 gsf of new research or support space, or population above 1,000 net new Adjusted Daily Population, or net new parking spaces above 500) the future project would require an amendment of the LRDP and analysis as required by CEQA. In addition, as described in the DEIR page IV.L-32, the Lab is committed through its new Transportation Demand Management program to reevaluate traffic impacts 10 years from the certification of the EIR, or at the time the Lab proposes a project that will result in the development of 375 parking spaces or more. To meet this commitment, the Lab will arrange annual or biennial tracking of the parking spaces and Adjusted Daily Population and notify the City of the results. As stated on page I-13 of the DEIR, "If this [subsequent] traffic study indicates that the traffic analysis and mitigation in this EIR are still appropriate for the review of future projects, then the Lab will continue to rely upon the traffic analysis in this EIR." If this traffic study indicates that further mitigation is appropriate, then the addition of that recommended mitigation will be considered by the Lab in consultation with the City of Berkeley.

Response C-6

The Berkeley Lab Design Guidelines were not included in the list of references or the bibliography of the Draft EIR because the Design Guidelines were reproduced in their entirety in Appendix B of the DEIR. (The inclusion of the design guidelines in Appendix B is noted throughout the DEIR, including the Aesthetics section, p. IV.A-8. The design objectives contained within the Berkeley Lab Design Guidelines were also reproduced in the Aesthetics section, on pp. IV.A-10 – 11.) Neither the Berkeley Lab Design Guidelines nor the 2006 LRDP itself is included among the references cited in the DEIR, because these two documents compose the project that is analyzed in the DEIR, along with the height map (DEIR Figure III-6, p. III-24). Please see also the response to Comment C-4.

Response C-7

Please see Response C-4.

Response C-8

Comment noted. Despite explaining that "the Lab's hill site would continue to appear as a vegetated hillside with buildings among trees and shrubs, that the natural and manmade topography of the site limits views from any one vantage point to a relatively small portion of the hill site, and that development under the LRDP would be guided by the LRDP principles and strategies and LBNL Design Guidelines" (DEIR p. IV.A-19), and that "future buildings would be generally in scale with buildings they would surround and within already developed portions of the site to allow for more efficient site planning" (DEIR p. IV.A-22), the DEIR does not equivocate in its conclusions with respect to Impacts VIS-2 and VIS-3, both of which were found to be significant and unavoidable, because the 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" (VIS-2) and "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" (VIS-3).

Response C-9

Draft EIR p. III-23, III.D.2 Height Zones, provides an explanation that "a "combination of (existing) geomorphic features, screening trees and terrain, built and natural elements, and availability to off-site viewpoints" are key considerations in the design guidelines and building height map. "Chief among these opportunities and constraints are aesthetic considerations involving how different building heights and scales might affect the visual character of the Lab as viewed from important off-site locations." The LRDP EIR analysis does not rely on a presumption that building height shall be addressed simply by post-project landscaping, but rather acknowledges that the building height map and other siting and design considerations consider the variety of potential building sites at Berkeley Lab in context with existing screening features and availability of off-site viewpoints.

As stated on DEIR page IV.A-10, "The design guidelines would be applied to all new applicable projects constructed at the LBNL main site under the 2006 LRDP program. As part of the design review and approval process, new projects would be evaluated for adherence to the LRDP Land Use Map, the design guidelines, the Building Heights Map, and any other relevant plans and policies. Approvals would be subject to satisfactory compliance with these provisions." Moreover, "many individual projects or buildings that could be constructed pursuant to the LRDP would not result in a substantial change," and therefore would not result in a project-specific significant impact (DEIR, page IV.A-19). Application of the LBNL Design Guidelines would thus serve to minimize, and in some instances avoid, any project-specific contribution to the cumulative impact identified for the LRDP as a whole. In addition, aesthetic issues for specific buildings will be considered at a project level to determine if impacts could be minimized or avoided.

Response C-10

A "natural backdrop" to a proposed building on the LBNL site would be an object(s) or geomorphic feature(s) (a hillside, trees and vegetation, other buildings, etc.) that would provide a visual background to that proposed building as apparent from a given viewpoint. The concept is that a building that is constructed against an existing backdrop would be much less visually noticeable and prominent than a building that is silhouetted against the sky, as one on the top of a naked ridge would be from lower elevations. This is evident from viewpoints in downtown Berkeley, where development (antenna towers, for example) is much more noticeable on the skyline ridge of the Berkeley hills than are similar structures below the skyline where the hills and vegetation serve as a backdrop, and thus reduce the visual distinction of such structures.

Response C-11

Please refer to Reduced Growth Alternative 1 and Reduced Growth Alternative 2, as well as the No Project and Off-Site Alternatives, in the Draft EIR Alternatives chapter (Chapter V).

Accompanying visual simulations conceptually illustrate the potential differences between aesthetic effects of the proposed project and these alternatives on selected viewpoints. Visual simulations shown in Draft EIR Chapter IV.A, Aesthetics and Visual Quality, do incorporate some visual screening (i.e., screening that could reasonably grow during the lifetime of the LRDP).

Response C-12

Comment noted. As the City noted, the Design Guidelines do include an objective to minimize and break up the mass of larger buildings. As noted above, LBNL invites City of Berkeley planning staff to provide input for its design reviews for all new building projects at the Lab and attend associated design review meetings. The Lab has found UC Berkeley's and the City's involvement beneficial and is committed to continuing it in the future. As noted in Response C-4, while Berkeley Lab will consider the City of Berkeley's request for early public review as an independent effort, at this time, there are no formal plans to institute the City's suggestion.

Response C-13

Comment noted. Also see response to C-11, above.

Response C-14

Comment noted. The Berkeley Lab Design Guidelines include objectives to minimize cut and fill slopes and other impacts to existing hill terrain; these objectives would include the strategy of "stepping back" buildings when practicable.

Response C-15

Although such a provision (requiring outside vendors to meet low emissions standards) is not currently part of the 2006 LRDP, Berkeley Lab will consider as part of its sustainability efforts a requirement that requiring air quality performance standards on vendors, haulers, and delivery trucks meet low emissions standards and other similar "green contracting" provisions in the future.

Response C-16

As stated on page IV.B-32, construction activities would result in the emission of criteria air pollutants from equipment exhaust, construction-related vehicular activity, and construction worker automobile trips. "Emission levels for construction activities would vary depending on the number and type of equipment, duration of use, operation schedules, and the number of construction workers. Criteria pollutant emissions of ROG and NOx from these emission sources would incrementally add to the regional atmospheric loading of ozone precursors during project construction. The *BAAQMD CEQA Guidelines* recognize that construction equipment emits ozone precursors, but indicate that such emissions are included in the emission inventory that is the basis for regional air quality plans. Therefore construction emissions are not expected to impede attainment or maintenance of ozone standards in the Bay Area [reference omitted]. The impact would therefore be less than significant."

LBNL shall also require its construction contractors to comply with specific measures to mitigate equipment exhaust emissions (see page IV.B-34). As part of these measures, construction equipment will 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. In addition, construction-worker trips shall be reduced by ride-sharing or alternative modes of transportation.

Sensitive receptors are discussed on p. IV.B-23 of the DEIR, where it is noted that such receptors include "residences, open space areas, student dormitories, and day care centers." The provision in Mitigation Measure AQ-1b requiring additional exhaust controls for stationary construction equipment within 100 feet of sensitive receptors is based on the concept that emissions from any particular piece of motorized stationary construction equipment will be substantially less concentrated at 100 feet from the source than within a 100-foot zone around the source. Thus, this aspect of the mitigation measure would reduce exposure for sensitive receptors closest to these emissions sources.

The DEIR analysis of construction emissions notes, on p. IV.B-32, that emissions of toxic air contaminants associated with construction activity are addressed separately under Impact AQ-4. Impact AQ-4 addresses emissions of toxic air contaminants, including diesel particulate emissions from construction equipment, which was factored into the human health risk assessment conducted for the LRDP and summarized in the DEIR. The DEIR concluded, on p. IV.B-45, that diesel particulate emissions from construction equipment would not exceed significance criteria either for cancer risk or for the chronic non-cancer hazard index (except for an area near the Lab's boundary, where no receptors are present), and that the impact of construction equipment emissions would therefore be less than significant.

Nevertheless, in recognition of the risks attributed to diesel particulate emissions, Berkeley Lab would include in its future construction specifications that construction contractors take the maximum feasible steps towards incorporating the cleanest available engines in construction equipment. Specifically, Berkeley Lab shall request that construction diesel engines rated at 100 horsepower or more meet the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines (as specified in California Code of Regulations, Title 13, Section 2423(b)(1)), and that if a Tier 2 engine is not available, that equipment shall be outfitted with a Tier 1 engine or with a catalyzed diesel particulate filter (soot filter). LBNL would investigate the possibility of offering incentives in the contract-awarding process to construction contractors who comply with these requirements.

The Lab would require that contractors limit idling time of diesel-powered construction equipment to three minutes and that all diesel engines used by LBNL construction contractor(s) at the site, or for on-road hauling of construction material, be post-1996 models.

Response C-17

Comment noted. The references provided in the DEIR are provided in a consistent format and are sufficiently detailed to allow the reader to check the source. In the case of the reference noted in this comment, the References portion of DEIR Section IV.D, Cultural Resources, provides the following: "City of Berkeley, City of Berkeley General Plan, *Urban Design and Preservation Element, Figure 25: City-Designated Landmarks, Structures of Merit and Districts as of November 2001*, adopted April 23, 2002."

Concerning Building 51, the last two sentences of the final paragraph on DEIR page IV.D-8 (continuing to page IV.D-9) have been revised to provide updated information about the Bevatron/Building 51 landmark designation (new text underlined; deleted text indicated in ~~strikethrough~~):

> ~~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.

Response C-18

The text concerning Buildings 71 and 88 was incorrectly stated due to an editorial error. The last two sentences of the first full paragraph on page IV.D-14 of the DEIR have been revised to clarify potential impacts to Buildings 71 and 88 (new text underlined):

> There are no current plans to demolish Buildings 71 and 88. 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.)

Response C-19

As there are no current plans under the 2006 LRDP to demolish Buildings 71 and 88, there are no requirements under CEQA to provide additional evaluations beyond that which was provided in the DEIR, including identification of additional mitigation measures, or consideration of additional alternatives.

As described on DEIR pages IV.D-14 – 15, Mitigation Measure CUL-1 is included in the EIR for the proposed demolition of Building 51/Bevatron, and that this mitigation measure is applicable to the LRDP as well. As stated in the DEIR, "removal of buildings determined eligible for listing on the National Register would result in a substantial adverse change that cannot be fully mitigated; thus, the impact after mitigation would remain significant and unavoidable."

The DEIR provides sufficient information regarding the future disposition of historic resources without requiring additional CEQA review. With regard to the comment about Alternative V.F, *Preservation Alternative with Non-LBNL Use of Historic Resources*, is one way of avoiding potential impacts to historic resources, and is not intended to be an exhaustive list of all possible preservation alternatives.

As stated on page IV.D-13 of the DEIR, a Memorandum of Agreement (MOA) was reached among Department of Energy, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation in connection with the proposed demolition of the Building 51 complex, including the Bevatron. Such an MOA typically allows a federal agency to proceed with an action in compliance with both the National Historic Preservation Act and the National Environmental Policy Act. However, under CEQA, as stated on DEIR page IV.D-15, "Based on the CEQA Guidelines, removal of buildings determined eligible for listing on the National Register would result in a substantial adverse change that cannot be fully mitigated; thus, the impact after mitigation would remain significant and unavoidable." Accordingly, demolition of determined National Register-eligible buildings would result in a significant and unavoidable impact. If proposals were brought forward in the future to demolish buildings that are found to be historic resources, appropriate project-specific CEQA review and processes under the National Historic Preservation Act would be undertaken at that time.

Response C-20

The Building 51 complex, including the Bevatron, is the only known historical resource proposed for demolition at the present time. The wording of the statement on DEIR page VI-8 is deliberately expansive because it cannot be stated with certainty that other historical resources, including those yet to be identified as such, would not be demolished of during the time frame covered by the 2006 LRDP. However, there is no "maximum" number of resources proposed for demolition; only demolition of the Building 51 complex is now proposed or reasonably foreseeable, and this is identified as a significant, unavoidable impact in Section IV.D, Cultural Resources, and in Section VI.A, Significant Unavoidable Impacts.

Response C-21

A cultural landscape is defined by the National Park Service as "a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes."[9]

Although not necessarily required for CEQA evaluation purposes, cultural landscape information in the standard National Park Service format would typically include a history of the use and development of an important landscape, including a cultural landscape chronology, identification of its potential boundaries, and a description of the character defining features of the landscape.

[9] U.S. Department of the Inter80ior-National Park Service. *Preservation Brief 36, Protecting Cultural Landscapes Planning, Treatment and Management of Historic Landscapes*, Charles A. Birnbaum, ASLA.

Strawberry Canyon has not been designated a cultural landscape. The canyon forms a geographic area that extends far beyond the boundaries of LBNL; from the Ecological Study area to the east of the Lab site, to the UC Berkeley Main Campus to the west of the Lab; it is defined by a variety of environments and ecological zones that are both natural, human-made, and a combination of the two, including such designed landscapes as the Berkeley Botanical Gardens, semi-natural landscapes such as the Stephen Mather Redwood Grove, and older residential neighborhoods such as the Panoramic Hill Historic District.

While additional research facilities would be added to the Lab in coming years, those areas within the south-facing slope of Strawberry Canyon are anticipated to retain a strong sense of open space and landscaping. The 2006 LRDP includes plans to reinforce this natural appearance, both from outside views as well as from views within the site. The Land Use Plan identifies areas of Berkeley Lab's hill site that would remain undeveloped, and the proposed Landscape Framework further defines the ways in which these various open spaces would be planted and otherwise improved. These are summarized below as applicable to the Strawberry Canyon area.

In the vicinity of Strawberry Canyon, the LRDP Land Use Plan identifies the Perimeter Open Space land use zone. As described on page III-26 of the DEIR, "the Perimeter Open Space land use zone would encompass the remaining areas of the Lab's hill site and indicate areas of the Lab where future development would be primarily reserved for minor maintenance or support structures or paths and where the open, wooded, or grassland character of the hillside site would be retained to the extent feasible. Much of the Perimeter Open Space zone would comprise parts of the site where development potential is restricted due to constraints such as habitat quality and vegetation, seismic risk, utility easements, adjacent uses, and similar limitations. Throughout these areas various maintenance activities would continue to preserve and enhance appropriate vegetation characteristics.

The LRDP Landscape Framework Plan identifies two categories of landscape treatments in the vicinity of Strawberry Canyon; *Rustic*, and *Screening*. As described on page III-32 of the DEIR, "the vast majority of the Lab site is characterized by the rustic, diverse landscape mosaic of oak and mixed hardwood forests, native and non-native grasslands, chaparral, coastal scrub, marsh and wetland communities, and riparian scrubs and forests that would be retained in their naturalistic state. Maintenance activities would be undertaken to maintain the health of these areas. Pedestrian paths would be carefully aligned through these areas, but in general most Lab activities would not occur in these rustic zones."

In terms of *Screening* landscape, the DEIR states that "important stands of trees that currently screen Lab buildings from view from the surrounding community would be maintained, and additional screening would be added where it can help maintain the distinctive character of the site. Screening trees would also be added within the main site along Centennial Drive, which passes alongside and, on one overpass, over a portion of the Lab (though fencing restricts Lab access to Centennial Drive users). Screening this area would provide a visual buffer for those passing the Lab site on Centennial Drive on the way to areas higher up in the hills, such as the Lawrence Hall of Science or the University's Space Sciences area."

As those portions of Lab within or adjacent to the south-facing slopes of Strawberry Canyon would be managed in accordance with the Perimeter Open Space land use zone and the Landscape Framework Plan's *Rustic* and *Screening* categories, the 2006 LRDP would have no significant adverse effects on a potential Strawberry Canyon cultural landscape, were this portion of the canyon to be identified as a contributor to the landscape as a result of future evaluations. Similarly, the 2006 LRDP would have no potential to degrade or otherwise affect the Berkeley Botanical Garden as a potential contributor to a potential Strawberry Canyon cultural landscape. As no significant effects to this area as a potential cultural landscape are anticipated as a result of the LRDP, no alternative sites for the proposed development(s) would need to be analyzed.

Response C-22

The DEIR adequately addresses surface fault rupture, ground shaking hazards, earthquake induced slope failure, and ingress and egress in the event of a catastrophic event involving earthquakes. The Setting section describes slope instability under static conditions (DEIR, page IV.E-7) and under earthquake (dynamic) conditions (DEIR, page IV.V-13) and describes the existing fault rupture hazards (DEIR, page IV.E-10). The Impacts and Mitigations section discusses how earthquake fault rupture would impact the project (DEIR, page IV.E-21, Impact Geo-1) as well as the effects of earthquake-induced slope failure (DEIR, page IV.E-23, Impact GEO-2). The Hazards section discusses the LBNL hill site evacuation plans and procedures in the event of a catastrophic event on the LBNL hill site (DEIR, page IV.F-32, Impact HAZ-5).

The DEIR did consider the combined effects of both fault rupture and slope failure and the effects of those occurrences on the ingress and egress at LBNL. As stated in the DEIR (page IV.F-37*)*, "Under a catastrophic earthquake scenario, many roadways in the region could be rendered unusable for reasons including earthquake damage, landslides, loss of more remote area roads and bridges, heightened congestion from other evacuating motorists, and increased emergency vehicle use on the roadways." The ground disturbance caused by an earthquake, such as fault rupture or slope failure, cannot be predicted but there is a potential for these two failure mechanisms to occur in a particular locale. Whether the combined effect of fault rupture and slope failure could affect vehicular access is also uncertain but it is possible.
LBNL has in place policies and procedures to ensure heath and welfare of LBNL staff and visitors and manage vehicular traffic through the hill site in the event of a catastrophic event such as an earthquake. These are discussed in detail in the DEIR (pages IV.F-32 through IV.F-37). If there was a major earthquake that caused ground rupture and slope failure, it is very possible that LBNL safety officials would limit access to the hill site. The DEIR states on page IV.F-37:

> Under the 2006 LRDP, EOC measures would not allow uncontrolled vehicle evacuation of the site if conditions did not warrant this. During or after a catastrophic event, the Lab's perimeter gates would be controlled. For example, gates may be closed to all vehicles except for emergency services, as warranted by the EOC. Any decision to evacuate would be coordinated through EOC command, including with the UC Berkeley Police Department, City of Berkeley Police Department, Alameda County Sheriff's Department, and the California Highway Patrol to ensure an informed and coordinated response. Uncontrolled evacuation by vehicle, particularly during a wildland fire and on

roads that would affect constricted areas such as the Panoramic Hill neighborhood, would not be permitted.

Contrary to what is suggested in the comment, the DEIR does not describe the exposure of 1,000 more people to the seismic and other risks in this location as a significant and unavoidable impact. Rather, the DEIR analysis concluded that the impact of attracting an additional population would be less than significant because, because, among other measures, LBNL would ensure that:

- Construction under the 2006 LRDP would comply with requirements of the latest California Building Code, University of California seismic design safety policies, federal standards, and LBNL's lateral force design criteria. Such construction would help to minimize the potential injuries, damage, and subsequent fire that could result from a seismic event. (DEIR, page IV.F-36)

- 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 some 30 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 (DEIR, page IV.V-24)

LBNL would continue to maintain and update its Master Emergency Program Plan (MEPP), which establishes policies, procedures, and an organizational structure for responding to and recovering from a major disaster at LBNL (DEIR, page IV.F-36).

Please see also the Response C-28.

Response C-23

The DEIR provides ample information and data to clearly evaluate the seismic risks at the LBNL hill site and surrounding environs. The DEIR (pages IV.E-3 through 7) provides a detailed description of the regional seismic setting with an in-depth discussion of the nearby active faults (the Hayward and San Andreas); these faults are capable of generating significant events. The DEIR (pages IV.E-10 through 11) provides a detailed discussion of the earthquake faults on the LBNL hill site and the previous studies that have further defined their potential for surface rupture.

In general, the analysis of earthquake risk for the proposed LRDP is controlled by the proximity to the adjacent Hayward fault, one of the most active faults in the Bay Area. The other potentially active faults, which can be considered part of the Hayward fault system, are less likely to individually generate an earthquake of considerable magnitude due to their length and age. Previous fault studies on the LBNL hill site "confirmed the absence of evidence needed to classify either the Wildcat fault or east Canyon fault as active" and therefore it was concluded that there is a low potential for fault rupture from these potentially active faults (DEIR,

page IV.E-11). The lack of a detailed fault map does not render the DEIR deficient, especially in light of the detailed narrative describing the current regional and site-specific seismic setting. It should be noted that the comment incorrectly states that it was the Northridge Earthquake that "demonstrated that supposedly inactive faults must be considered a potential hazard". One of the primary lessons of the Northridge earthquake was that active "blind thrust" faults are present underlying areas of Los Angeles area and that earthquakes generated from these "blind thrust" faults can generate considerable ground shaking. The Hayward fault system is not a "blind thrust" fault. There have been many studies that conclude that ancient, inactive faults and shear zones in the San Andreas Fault System are not considered a potential hazard.

The comment incorrectly states that the EIR only includes two large-scale maps to identify faults and landslide hazards. The EIR provides four maps that, in conjunction with the narrative in the setting and impact analysis of the Geology and Seismicity (DEIR, Section IV-E), presents sufficient specific information to assess the geologic and seismic impacts at the LBNL site. Figure IV.E-1 is a regional fault map that is necessary to determine seismic risk not just from the Hayward Fault but from the other regional faults capable of causing a damaging earthquake at the LBNL site. Figure IV.E-2 is a Seismic Hazard Zone Map, which is based on the California Geological Surveys assessment of seismic shaking and earthquake-induced landslide hazards. The state of California is required to produce these maps under the California Seismic mapping Act of 1990. This map shows the LBNL site and its relationship to areas considered as high risk for earthquake-induced landslides. Figure IV.E-3 is a detailed site-specific Slope Stability Map, which shows low, medium, and high risk landslide areas including repaired landslides within the LBNL facility. This map is more detailed than Figure IV.E-2 and depicts landslide risk relative to LBNL facilities. Figure IV.E-4 (DEIR page IV.E-12) provides a map that shows the LBNL site relative the active Hayward fault and the Alquist-Priolo Fault Zone. This map, however, does not show the potentially active faults because, as stated above, these faults are not considered a seismic threat to the LBNL facility. The maps provided in the DEIR provide adequate information to assess the seismic risk in the EIR.

Response C-24

The comment incorrectly states that "significantly increasing the population in a high-geologic hazard area cannot be mitigated to a less than significant level solely through engineering." In the case of the proposed LRDP projects, modern geotechnical and structural engineering analysis and design allows for construction in hilly areas adjacent to active faults with assurances that the structures can withstand excessive ground shaking. When compared to older buildings, new structures designed using modern earthquake design criteria can withstand earthquake ground shaking without collapse and with less incidents of injury. Modern engineering and construction methods are being employed at many development sites in the Bay Area where hillside slopes and nearby faults present unique engineering challenges. The comment mentions the UC Berkeley's Southeast Campus Integrated Projects (SCIP) EIR and states that "exposure of people or structures to risks associated with fault rupture and ground shaking were significant and unavoidable." Considering that the SCIP EIR analyzed a project that will lie across the active trace of the Hayward Fault underlain by alluvium, and that the SCIP project involves upgrades to

the California Memorial Stadium with a future anticipated capacity in excess of 60,000 attendees and a proposed increase in the number of events at the stadium, it is reasonable that fault rupture hazard and ground shaking hazards would be significant and unavoidable in the case of the SCIP project. The LBNL project site is in a different setting than the projects proposed under SCIP, namely, the buildings proposed under the LRDP would not be constructed on active fault traces and the underlying material is a more competent bedrock.

As stated above in the response to Comment C-22, the DEIR analysis concluded that the impact of attracting an additional site population would be less than significant because, among other measures, LBNL would ensure that 1) construction under the 2006 LRDP would comply with requirements of the latest California Building Code, University of California seismic design safety policies, federal standards, and LBNL's lateral force design criteria. Such construction would help to minimize the potential injuries, damage, and subsequent fire that could result from a seismic event (DEIR, page IV.F-36), and 2) 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 DEIR, page IV.F-24).

Design of new building and other facilities under the LRDP would undergo site specific, design-level geotechnical investigations within the LBNL hill site. These investigations are intended to determine geologic and seismic constraints, including landslide hazards and location of faults to inform the structural design of the new facilities. The new facilities, including roads and walkways, would be designed in accordance with current building code standards. It is important to note that most, if not all, of the 1,000 or so people the 2006 LRDP project would add to the hill site, would occupy newly constructed buildings meeting current building codes, or buildings that have been seismically upgraded or are slated for seismic upgrade. No new occupants would be placed in buildings rated "very poor," because Lab policy is to move occupants out of "very poor" buildings.

Current building design and construction in the Bay Area does benefit from years of research and an extensive body of data on the performance of the underlying geology during a characteristic Bay Area earthquake, especially in the areas of fill and Bay mud along the Bay margin. California's building codes, some of the most stringent in the U.S., are based on a vast body of earthquake engineering research and the codes are consistently updated as new findings on earthquake response are revealed. The building design process; from the geotechnical engineer analyzing the soil and earthquake risk, to the structural engineer incorporating that data into the foundation design, analyzes the geologic conditions and how those conditions will impact a building during an earthquake.

Response C-25

The City urges the adoption of the precautionary principle to avoid adverse impacts to human health and the environment. The impact of LBNL operations and resulting hazards was evaluated in the EIR as part of Impact HAZ-3, and with the imposition of mitigation measures, those impacts are reduced to a less than significant level. Those mitigation measures include the

continued preparation of assessment reports evaluating compliance with laws and regulations governing hazardous materials, worker safety, and environmental protection.

In response to the comment regarding the City's Nanoparticle Ordinance, 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 (all text is newly added):

> *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."

Although the City's Nanoparticle Ordinance does not apply to LBNL as a federal facility, LBNL intends to provide on-going information of interest to the City in regard to the Lab's work in the nanoscience and nanotechnology areas. However, the commenter does not provide any evidence for the assertion that nano-science research activities could result in a potentially significant impact. For further information regarding nanotechnology, please see response to Comment F-7.

Response C-26

When needed, qualified, licensed contractors are hired to administer pesticides and herbicides in compliance with all applicable regulations, and as follows:

- Only one type of herbicide is used at LBNL; an herbicide which is directly applied to eucalyptus tree trunks after cutting to prevent re-sprouting. No broadcast spraying is allowed.

- Pesticide use is limited to termites, roaches, ants, and other non-flying insects that infest buildings. No pesticides are administered for flying insects at LBNL, and no broadcast spraying is allowed. Rodents and other larger pests are controlled by non-pesticide means (e.g., trapping).

Berkeley Lab's Environment, Health & Safety Division reviews these practices on an annual basis.

Response C-27

The Draft EIR does identify and address a conservatively large estimated increase in hazardous materials generation, storage, transportation, and disposal at Berkeley Lab under the proposed project. However, based on recent performance, coupled with adherence to federal, state, and

local procedures, and accounting for the practice of identified mitigation measures, this is not found to be a significant impact.

Berkeley Lab's current practices of using, storing, and disposing of hazardous materials do not create a significant impact on the surrounding environment and community, as shown in the Sitewide Air Quality Human Health Risk Assessment prepared for this project and the Lab's safety record; therefore, the potentially increased risks posed by incremental increases in hazardous materials and waste are not significant.

Please refer to response to the response to Comment C-28, below, for further discussion of effects related to catastrophic events.

Response C-28

Catastrophic risks posed by a major wildland fire and/or earthquake are analyzed in Draft EIR section IV.F, Impact HAZ-5. Issues such as loss of City support and emergency services, evacuation, and regional loss of water supply are addressed. Given the presence of the Lab's own internal water supply (600,000 gallon capacity), stocked cafeteria and food supply, medical facilities and staff, fire station and emergency response staff, emergency generators and fuel supply, security staff, on-site heating and cooling systems (that can be powered by generators), secure perimeter and security staff, communications and EMS system, and on-site construction crews and craftspeople, the Lab is optimally situated in the region for a shelter-in-place emergency situation. In fact, given the wealth of resources and services available to the Lab population and the relatively small concentration of people within the Lab's 202-acre site, it is foreseeable that the Lab would be a more desirable location than nearby urban areas with densely concentrated populations and potentially less per capita access to resources, provisions, security, and services under certain regional disaster scenarios.

The Draft EIR does provide substantial evidence to conclude that impacts associated with potential catastrophic events to the incrementally increased population and facilities of LBNL would not be significant or substantially more severe than under current conditions. New, state-of-the-art, code-compliant buildings would be far safer, under earthquake and fire conditions, than the outdated buildings that would be demolished. The Lab is projected to incrementally increase in population over a 20-year period, but this population would be well served by on-site medical, emergency, fire, safety, and other support services, as well as an intensive emergency management system plan and network, so this incrementally increasing population would not represent a significant or substantial increase impact related to catastrophic events or hazards.

The Draft EIR analysis of potential catastrophic events discusses the scenario of a major earthquake and fire occurring at the same time.

According to the head of LBNL's emergency command center, the Laboratory is prepared to be self-sustaining for at least three days, which is the FEMA recommendation.[10]

[10] Royce Saunders, LBNL Environment, Health & Safety Division, personal communication, June 14, 2007.

Response C-29

The comment incorrectly states that the Draft EIR provides insufficient information in support of its analysis of hydrological impacts. The DEIR quantifies the area of the Strawberry Creek North and South Forks watershed pertinent to LBNL (see DEIR page IV.G-1) and illustrates this "watershed study area" in Figure IV.G-1 on DEIR page IV.G-2. The DEIR further illustrates the area in question, including the divide between the North and South Forks of Strawberry Creek in Figure IV.G-2, page IV.G-3. The DEIR further quantifies the area of "run-on" that drains from upslope off-site locations to the Lab's hill site on page IV.G-4; this area is illustrated in Figure IV.G-3, page IV.G-5.

In terms of potential changes and impacts due to the project, the commenter states that the Illustrative Development Scenario is an inadequate basis for the evaluation of impacts. This comment is incorrect. For a program EIR, such as the LBNL LRDP EIR, where few specific development projects are identified, let alone sited, it is necessary to make assumptions about the physical changes that are anticipated to occur during the lifetime of the LRDP. As described in Chapter I, Introduction, the Illustrative Development Scenario "is a conceptual portrayal of potential development under the LRDP … [intended] to provide a basis for some of the quantified modeling that has been completed for the LRDP." Without the Illustrative Development Scenario, or some similar alternative approach to forecasting potential physical changes under the LRDP, there would be no way to measure the physical impacts of the project.

As stated on DEIR page IV.G-23 (and as revised herein on page IV.G-25 of the revised Hydrology section contained in Appendix A) approximately 10 acres of impervious surfaces would be added to the LBNL hill site with full implementation of the LRDP, based on the assumptions contained in the Illustrative Development Scenario concerning development of building space, parking lots and structures, and new roads, and this increase in impervious surfaces would translate to an increase in peak runoff flows of about 10 cfs, or about 0.6 percent, over the current estimated total of 1,686 cfs (DEIR page IV.G-25) without implementation of BMPs. Through the use of both LBNL and UC Berkeley-identified BMPs, LBNL is committed to ensuring that post-development runoff volumes approximate pre-project runoff volumes for all construction projects, regardless of project size. Table IV.G-1, which was inadvertently omitted from the DEIR and is presented below, identifies how peak flow would be expected to be distributed across each sub-watershed if no BMPs were implemented.

Response C-30

Comment noted. Refer also to response to Comment C-26. The Regional Water Control Board Resolution to consider the presence of the pesticide diazinon in all urban creeks of the Bay Area does not change the conclusions in the DEIR, change existing impact significance, or result in any new impacts. The following text of the section under the heading **Total Maximum Daily Load (TMDL) – Section 303(d) of the Clean Water Act** on page IV.G-11 (Hydrology and Water Quality) is revised as shown below (new text <u>underlined</u>; deleted text indicated in ~~strikethrough~~):

TABLE IV.G-1
EXISTING AND PROJECTED FUTURE PEAK FLOWS GENERATED BY LBNL AND SURROUNDING PROPERTIES (CFS[1])

Sub-watershed	Existing Conditions Devel. Areas	Existing Conditions Undev. Areas	Existing Conditions Total	Project Increment	Future Total
Upper Strawberry	62	860	922	4	926
Chicken Creek	48	81	129	2	131
Panoramic	52	91	143	0	143
Stadium Hill	49	87	136	0	136
North Fork	149	207	356	4	360
Total	**360**	**1,326**	**1,686**	**10**	**1,696**

1 cfs = cubic feet per second.

SOURCE: Kuntz, 2004; Blair, 2006.

Total Maximum Daily Load (TMDL) – Section 303(d) of the Clean Water Act

California has identified waters that are polluted and need further attention to support their beneficial uses. These water bodies are listed pursuant to Clean Water Act Section 303(d). Specifically, Section 303(d) requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). Approximately 500 water bodies or segments have been listed in California. Once the water body or segment is listed, the state is required to establish "Total Maximum Daily Load," or TMDL, for the pollutant causing the conditions of impairment. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating water quality standards. Listing of a water body as impaired does not necessarily suggest that the pollutants are at levels considered hazardous to humans or aquatic life or that the water body segment cannot support the beneficial uses. The intent of the 303(d) list is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for continued water quality degradation.

In accordance with Section 303(d) of the Water Code, the San Francisco Bay RWQCB has identified impaired water bodies within its jurisdiction and the pollutant or stressor impairing water quality, and prioritized the urgency for developing a TMDL. While San Francisco Bay is included on the Section 303(d) list, Strawberry Creek is not. However, the RWQCB has found that Bay Area urban creeks do not consistently meet the Basin Plan's narrative water quality objectives pertaining to toxicity. In response, the RWQCB has adopted a Basin Plan amendment that establishes a water quality attainment strategy and TMDL to reduce diazinon and pesticide-related toxicity in urban creeks (RWQCB, 2005).[11] The amendment specifies a concentration target of 100 nanograms per liter (as a one-hour average) as well as generic pesticide-related toxicity targets to

11 The TMDL has been adopted by the RWQCB, but will need to be approved by the SWRCB, Office of Administrative Law, and then the U.S. EPA. The Basin Plan amendment will become effective upon U.S. EPA approval.

comply with the applicable water quality objectives established to protect and support beneficial uses. Pollutants or stressors identified on the Section 303(d) list for Central San Francisco Bay include chlordane, dichlorodiphenyltrichloroethane (DDT), diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, non-dioxin-like polychlorinated biphenyls (PCBs), PCBs (dioxin-like), and selenium.

A TMDL has been established for San Francisco Bay for mercury, and the RWQCB is working on TMDLs for the Bay for PCBs, pesticides, and selenium, as well as a revision to the mercury TMDL. ~~The RWQCB has also adopted a TMDL for pesticide toxicity in urban creeks. (TMDLs are also being developed for other water bodies, such as the Napa River, Guadalupe River, and Sonoma Creek.)~~ Although it is not anticipated that any future TMDLs would affect LBNL, due to lack of discharge of such substances, LBNL will comply with applicable regulations.

Response C-31

As stated on DEIR page IV.G-16, "LBNL is a federal facility operated by the University of California and conducting work within the University's mission on land that is owned or controlled by The Regents of the University of California. As such, LBNL is generally exempted by the federal and state constitutions from compliance with local land use regulations, including general plans and zoning. However, LBNL seeks to cooperate with local jurisdictions to reduce any physical consequences of potential land use conflicts to the extent feasible." While LBNL strives for cooperation with local jurisdictions and their plans, these plans are generally not "applicable" (CEAQ Guidelines Sec. 15125(d)) to LBNL by virtue of its status as a facility owned by the state and operated by the University on behalf of the federal government.

Response C-32

The Draft EIR concludes that potential stormwater contaminant load from parking lots under LRDP conditions would be less than that associated with current conditions, because, according to the LRDP and as depicted under the Illustrative Development Scenario, there would likely be a reduction in parking lot area exposed to stormwater runoff. Since stormwater contaminant load would be a function of parking lot area exposed to stormwater runoff (assuming, for the purposes of this programmatic analysis, that the Lab's parking lots collect pollutants at the same rate), this is a logical conclusion.

The Draft EIR Illustrative Development Scenario depicts an increase in net new impervious surface area of approximately 10 acres. Draft EIR Tables III-6 and III-7 indicate only building and parking lot surface area. As the commenter surmises, this total building area is not equivalent to the projected 10 acres because much of the new building and parking lot area would be sited on already developed (i.e., already impervious) land.

An estimate for how much of this construction would take place on “redevelopment” areas can be achieved by subtracting the projected 16.5 acres of development from the new impervious surface area measurement taken from the IDS (10 acres), which yields 6.5 acres. Of course, as described in the Draft EIR, the actual project under consideration for approval is substantially smaller than what is depicted in the IDS, as is the amount of potentially new impervious surface area that would likely be created.

All development taking place under the LRDP would be subject to all applicable stormwater-related permits and standards, as described in Draft EIR section III.G

Response C-33

Table IV.G-1 was inadvertently omitted from the DEIR. It is shown above, in the response to Comment C-29. LBNL is committed to maintaining peak stormwater flows at both the North and South Forks of Strawberry Watershed at approximately pre-project levels, which is consistent with current regulatory objectives. In addition, total post project runoff would approximate pre-project conditions.

Berkeley Lab believes that its system of hydraugers is appropriate, effective, and a relatively environmentally unobtrusive means for stabilizing slopes that might otherwise become oversaturated with water.

Response C-34

Parking areas would be engineered to treat runoff, either with stormceptor structures or natural systems as mention in the comment.

Berkeley Lab agrees that the watershed areas in its vicinity are sensitive, ecologically important areas that must be managed responsibly. Draft EIR section IV.G-9 describes LBNL’s current and proposed new measures for doing this, including its continued adherence to water quality regulations and permits designed specifically for this purpose, and its use and proposed use of engineering controls and management practices for managing stormwater, particularly during construction (please see DEIR IV.G-12 – IV.G-16, as well as impact statements HYDRO-1, HYDRO-2, HYDRO-3, and HYDRO-4).

Of the bulleted items sought by the commenter, the first and second bulleted items are found on 2006 LRDP page 58 (Development Framework Strategies), the third bulleted item is found on 2006 LRDP page 66 (Vehicle Access, Circulation, and Parking Strategies), and the fourth bulleted item is found on 2006 LRDP page 76 (Open Space and Landscape Strategies). All strategies and policies advanced in the 2006 LRDP are part of the project by definition and are included in the EIR analysis.

Response C-35

The newest hydraugers installed at LBNL were emplaced more than 12 years ago. While LBNL does rely on existing hydraugers to dewater unstable areas and improve slope stability, most areas of the site have been assessed and there are no current plans to install additional hydraugers.

Berkeley Lab believes that its system of hydraugers is appropriate, effective, and a relatively environmentally unobtrusive means for stabilizing slopes that might otherwise become oversaturated with water. Were any future hydraugers to be proposed, these would be designed and constructed on an individual, project-specific basis and are not prescribe or analyzed in this LRDP and its EIR.

Response C-36

The Draft EIR describes the LBNL site context and relationship to the Strawberry Creek watershed in both the Biological Resources analysis (Section IV.C) and Hydrology and Water Quality analysis (Section IV.G). These analyses include impacts and mitigation discussion in regard to water quality and groundwater recharge. LBNL has begun meeting with UC Berkeley to discuss common hydrologic issues. Although participation in a joint watershed management plan is not part of the 2006 LRDP or within the scope of this EIR, LBNL welcomes the opportunity to discuss this proposal with the City and UCB and will await a formal proposal to do so from the City.

Response C-37

RWQCB has indicated to LBNL that it is the RWQCB that is responsible for enforcement of the NPDES General Industrial Permit with LBNL; the City of Berkeley supports RWQCB in its oversight/enforcement role.

Response C-38

As stated in response to Comment C-33, LBNL is committed to ensuring that post-project flows approximate pre-project flows in the upper reaches of Strawberry Creek.

Response C-39

Please see the response to Comment C-38.

Response C-40

Each chapter of the 2006 LRDP EIR evaluating environmental impacts discusses the policies from the City of Berkeley's and the City of Oakland's General Plans that are relevant to the impact analysis set forth in that chapter. These policies thus are part of the overall record that will be presented to the Regents in connection with the environmental impact review for the LRDP as well as their policy decision regarding the LRDP.

LBNL respectfully disagrees with the City's footnote comment relating to the City's General Plan EIR. The LRDP EIR references the City EIR as an informational document, and does not

otherwise rely on that EIR. The fact that LBNL is not subject to the Berkeley General Plan does not render it inappropriate for the LRDP EIR to cite the City's General Plan EIR as an informational document.

Response C-41

The DEIR addressed the impacts the project would have on population and housing. As stated on page IV.J-14, "The increase in permanent employees would add to the residential population in Berkeley, other nearby communities, and the rest of the region and would add to the demand for permanent housing."

The DEIR concluded that individual projects identified in the Illustrative Development Scenario would increase the Lab's permanent employment and Lab guest population, but would not induce substantial population growth in the City of Berkeley or elsewhere in the region, either directly or indirectly. For full implementation of the LRDP, the impact would be less than significant (see page IV.J-18).

The DEIR stated, "Generally, the housing demand associated with permanent employment growth under the proposed LRDP would be satisfied by the housing that could be added in Berkeley and other nearby communities. In most communities where LBNL employees live, housing demand associated with increases in LBNL employment under the LRDP would account for less than one percent of the total increase in households projected for those communities. In Berkeley and Albany, Lab employee households would represent 5.7 percent of the increase expected between 2000 and 2025. In Lafayette, Moraga, and Orinda, Lab employee households would represent about 1.6 percent of the expected household increase" (DEIR, page IV.J-16).

Page IV.J-17 states that the employee population growth under the proposed LRDP in conjunction with housing supply constraints, are elements of an overall imbalance between housing supply and demand in the City of Berkeley, which has existed for some time. While these conditions are projected to continue under current land use policies, the new "smart growth" regional projections from the Association of Bay Area Governments assume a loosening of constraints and implementation of local and regional policies and government financing incentives to encourage private investment that, over the long term, would improve the balance of housing supply and demand in Berkeley and other central cities in the region.

The commenter is correct in noting the cumulative impact analysis set forth in the DEIR. The DEIR concluded that 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.

The DEIR concluded that many students, faculty, and staff prefer to live in Berkeley close to the Lab's hill site. "Therefore, the employment and enrollment growth associated with the two LRDPs, in conjunction with other projected population growth, would represent substantial cumulative population growth and a concentration of population in the City of Berkeley. The

employee population growth associated with the proposed 2006 LBNL LRDP would contribute to this cumulative impact; however, as discussed further under Impact J.1, increases in population growth associated with the implementation of the LRDP would represent about two percent of the total number of people projected to be living in the Berkeley and Albany in 2025, and less than one percent of total projected population in 2025 in all other places of residence. Housing demand associated with implementation of the LRDP could account for less than one percent of the total increase in households projected for most communities where LBNL employees live. As stated above, in Berkeley and Albany, Lab employee households could represent 5.7 percent of the increase expected between 2000 and 2025, and in Lafayette, Moraga, and Orinda, Lab employee households would represent about 1.6 percent of the expected increase in households. These increases under the LRDP represent a less-than-significant impact under existing conditions, and therefore would not be considered a cumulatively considerable contribution to potential population and housing impacts" (see pages IV.J-20-21). This conclusion is supported by the fact that the potential growth in population under the LRDP would represent a small part of the overall population growth that has already been forecast for Berkeley by ABAG. Moreover, as stated on DEIR page IV.J-21, the City of Berkeley General Plan EIR found that in increase in population in Berkeley "would result in a net benefit both to the city and to the region as a whole," because it would improve the City's jobs-housing balance by resulting in more housing growth relative to employment growth than in the recent past.

Concerning housing affordability, in general, changes in housing affordability does not result in physical impacts on the environment that are considered under CEQA. Rather, this is a potential social and/or economic impact. In general, "Economic or social effects of a project shall not be treated as significant effects on the environment" (California CEQA Guidelines, Sec. 15131(a)). However, "Economic or social effects of a project may be used to determine the significance of physical changes caused by the project" (CEQA Guidelines, Sec. 15131(b)). That is, a physical change brought about by a project may be determined to be significant if it results in substantial adverse social or economic changes. No direct physical changes relative to housing would occur with as a result of implementation of the proposed 2006 LRDP. To the extent that the project would result in indirect physical changes, including the construction of more or less housing in Berkeley and other communities, the question to be answered under CEQA is whether these indirect physical changes brought about by the project would result in social or economic effects that would be substantial and adverse, such that the physical changes would be considered significant effects on the environment. As noted above, the DEIR concluded that such changes would not be substantial and adverse, and therefore, the proposed 2006 LRDP would not result in a significant effect with respect to population and housing. It is also noted that it is less likely that housing demand by Berkeley Lab employees, particularly, highly skilled technical staff, would substantially increase the demand for below-market-rate housing in Berkeley or elsewhere, than might be the case for a project that would generate increased employment in lower-wage positions.

Response C-42

Under its mutual aid agreements, the Lab's fire station is the primary responder for all of the UC Berkeley Campus and portions of the City of Berkeley. Berkeley Lab responds to between 400 and 500 off-site calls annually (in addition to about 160 calls on-site). In return, the City of Berkeley Fire Station responds to about 20 calls per year at the LBNL site. About half of those calls are for medical emergencies. Most of the other half are secondary fire support responses provided because LBNL's fire engine is out responding to fire emergency calls in the City of Berkeley or on the UC Berkeley campus.

Because new buildings would be generally more fire safe and less hazardous than outdated buildings, and because fire emergencies at LBNL are very rare, projected construction under the LBNL program would not be expected to have a significant impact on the City of Berkeley's secondary emergency fire support to the Lab.

Because medical emergency rates are partly a function of population size, some proportionate increase in medical emergency calls may be assumed. However, with a projected increase of approximately 20-25 percent in population, the proportionate increase in emergency medical calls by the City of Berkeley to the Lab would be approximately two-to-three per year at full buildout.

The Draft EIR clearly articulates that the scope of analysis for the EIR is the LRDP, which itself "sets forth plans and policies that are intended to guide the physical development of the LBNL hill site" (DEIR page I-5). CEQA does not generally require that social or economic effects of a project be analyzed, except to the extent that these social or economic effects may be used to determine the significance of physical effects on the environment (CEQA Guidelines Sec. 15131). Here, no physical effect was identified, and thus social and economic concerns are not evaluated.

Response C-43

Please see response to Comment C-42, above, for quantification of mutual aid support and for reasoning behind less than significant impact conclusion. Berkeley Lab appreciates the City of Berkeley's suggestion to require Berkeley Fire Department review and input as part of LBNL's standard development review process. Independently of this proposed project and LRDP EIR, Berkeley Lab is currently exploring with the City of Berkeley ways in which to involve City departments – including the fire department – in the development and design review processes in a way that serves the interests of both LBNL and the City.

As discussed in the Draft EIR and in response to Comment C-42, above, implementation of the Berkeley Lab 2006 LRDP would not "result in substantial adverse physical impacts associated wit the provision of new or physically altered governmental facilities, or result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objectives for … Fire protection" (significance criterion, DEIR page IV.K-15).

For a fire services cumulative impact to be significant, the impacts of the proposed 2006 LRDP, together with the impacts of cumulative development (e.g., SCIP project) must result in a significant impact (as per the significance criteria listed above from DEIR page IV.K-15), *and* the contribution of the LRDP to this impact must be considerable. (DEIR page IV.K-23) Due to the current challenge to the SCIP EIR, it is not clear whether the SCIP conclusion of less than significant impacts to fire services will be upheld. However, it is clear, as demonstrated in response to comment C-42, above; that any Berkeley Lab contribution to a cumulative fire services impact would be a less than considerable contribution, and therefore the cumulative impact would be less than significant.

Response C-44

Comment noted. As stated therein, the Draft EIR is a programmatic document that cannot reliably foresee specific design details that would be developed during the individual design processes for various future projects.

Building 49 is not part of this program and is not considered to be reasonably foreseeable (DEIR page III-17). The “stepped” and partially subterranean basement levels projected to occur in some future projects at the Lab are not novel and are similar to several buildings existing on the main hill site. Lab roadways are graded to be serviceable to all sorts of mainstream vehicles, including heavy trucks, low-powered electrical vehicles, and fire trucks. As mentioned in response to Comment C-43, above, Berkeley Lab is currently exploring with the City of Berkeley ways in which to involve City departments – including the fire department – in the development and design review processes in a way that serves the interests of both LBNL and the City

Response C-45

The commenter’s reference to UC Berkeley’s responses to City comments on the Draft EIR for the SCIP projects cannot be confirmed. To the contrary, the response to Comment 5A-106, in the SCIP FEIR, affirms that EIR’s continued use of the SCIP DEIR’s significance criterion that is based on percent contribution to traffic volumes at an intersection operating at an unacceptable level of service without the addition of project traffic. The 2006 LBNL LRDP EIR uses the same significance criterion as was employed by UC Berkeley in both its SCIP EIR and its 2020 LRDP EIR.

The only study intersection where a less-than-significant impact determination is made on the basis of the five-percent threshold of significance was Bancroft Way/Gayley Road-Piedmont Avenue, where LOS F conditions would prevail in 2025 without traffic from LRDP development. Because the LRDP-generated increase in traffic volumes at this intersection would represent increases of 4.3 percent and 3.4 percent in the a.m. and p.m. peak hours, respectively, the project would not result in a significant impact. (The similar determination for the Channing Way / Piedmont Avenue intersection in the DEIR is no longer applicable because this intersection, which now operates as a roundabout, would operate at an acceptable LOS as a roundabout under all analysis scenarios.) It is common practice to use a percent-increase threshold for LOS F conditions for a far-term analysis year.

Response C-46

The Commenter's suggestions for the Transportation Demand Management (TDM) Plan have been received by Berkeley Lab and have influenced the revised TDM Plan included in this Final EIR (see Appendix B). Furthermore, several of the commenter's suggestions will continue to be considered and acted upon as the TDM Plan is further refined, particularly in the next few months. (As stated in the Draft EIR, the TDM is subject to change and continual refinement as conditions change and thinking evolves). LBNL will continue to work closely with the City of Berkeley towards this effort, and will make the updated versions of the TDM Plan available on-line for agency and public review.

Response C-47

The paragraph under "LBNL Trip Generation", on page IV.L-6, is revised as follows (new text underlined; deleted text indicated in ~~strikethrough~~):

> 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.

Response C-48

As the commenter notes, the information sought by the commenter (intersection turning movement volumes) is provided as part of the DEIR (in Appendix I), and is readily available to interested parties from the LBNL web site's page for the Long Range Development Plan (as well as in hard-copy from the Berkeley Lab). The DEIR's disclosure of relevant information in support of the impact analysis is therefore sufficient.

Response C-49

The commenter's assertion about improved traffic flow conditions at the intersection of Channing Way / Piedmont Avenue as a roundabout is acknowledged. Using techniques shown in the Federal Highway Administration (FHWA) publication "Roundabouts: An Informational Guide" and the TRAFFIX software, re-analysis of levels of service for all scenarios in the DEIR results in conditions no worse than LOS B (see revised the revised LOS tables in Chapter II of this document).

Response C-50

Table IV.L-3, DEIR page IV.L-12, is replaced by a revised version (see Chapter II of this document) to add the traffic control at each study intersection. The DEIR presents LOS and delay values under the various analysis scenarios in support of impact determinations. The *2000 Highway Capacity Manual* indicates that delay greater than 50 seconds for unsignalized intersections and 80 seconds for signalized intersections is LOS F, and the DEIR presents delay values to the tenth of a second unless the calculated delay is greater than the above-cited thresholds. It was the judgment of LBNL staff and the EIR consultants that presentation of high delay values in the text of the DEIR does not further an understanding of traffic conditions. However, in order to facilitate the commenter's understanding of the LOS tables, with one exception, actual calculated delay values are presented in the revised LOS tables in Chapter II of this document). The ">50" for the study intersection of Bancroft Way at Gayley Road / Piedmont Avenue has been replaced by a footnote reference because, as described in table footnote "b", the LOS F condition was derived on the basis of field-observed, not calculated or field-measured delay.

Response C-51

See the response to Comment C-50 regarding presentation of calculated delay values higher than the thresholds for LOS F conditions, and the revised LOS tables in Chapter II of this document.

Response C-52

See Response C-48 regarding presentation of intersection turning movement volumes.

Response C-53

See Response C-50 regarding presentation of calculated delay values higher than the thresholds for LOS F conditions, and the revised LOS tables in Chapter II of this document. See Response C-57 regarding improved traffic flow conditions at the intersection of Channing Way / Piedmont Avenue as a roundabout.

The paragraphs under "Affected Intersections", on page IV.L-28, are revised as follows (new text <u>underlined</u>; deleted text indicated in ~~strikethrough~~):

> 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 <u>(i.e., 6.7% [a.m.] and 6.4% [p.m.])</u> 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]

- 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.

Response C-54

See Response C-50 regarding presentation of calculated delay values higher than the thresholds for LOS F conditions, and the revised LOS tables in Chapter II of this document.

Response C-55

Gayley Road / Stadium Rim Way. As stated in Footnote 10, page IV.L-28, the EIR for the Southeast Campus Integrated Projects (SCIP), published by UC Berkeley in October 2006, identifies installation of a traffic signal as mitigation for a significant impact due to the Integrated Projects analyzed in that EIR. The footnote goes on to say that, for purposes of a conservative analysis of potential impacts associated with the LBNL LRDP, it was not presumed that the SCIP will be approved and implemented (i.e., not relying on the fact the traffic signal mitigation measure would be implemented should the SCIP be implemented, thus avoiding the significant impact at this intersection due to the LBNL 2006 LRDP). The text of Footnote 10 could have been repeated as part of the presentation of Mitigation Measure TRANS-1a on page IV.L-28, but the fact that it wasn't doesn't mean that the DEIR does not reflect the existence of the SCIP mitigation for this intersection.

Hearst Avenue at Gayley Road / La Loma Avenue. The requirement to thoroughly explore the feasibility of measures to mitigate significant impacts is acknowledged, and as described on page IV.L-32, the Lab did that. As stated on that page, physical geometric limitations constrain improvements within its current right-of-way, with all four intersection corners occupied by

[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 approved and implemented.

existing UC Berkeley facilities. Analyses of possible improvements (e.g., reconfiguring the eastbound Hearst Avenue, and/or the northbound Gayley Road, approach(es) to provide separate turn lane(s) that meet standards for lane widths) indicate that little can be done to mitigate future LOS conditions to acceptable levels without acquiring additional right-of-way or prohibiting certain turning movements. Although it might be possible to lengthen the existing very short dedicated right-turn lanes, or to create a short northbound left-turn lane (as suggested by the commenter), the aforementioned physical constraints would limit the length of such lanes, and as such, the turn lane(s) would not result in appreciable improvement in intersection operations. For example, the peak-hour demand for a northbound left-turn lane would require at least a 225-foot storage length (on average), and the 80-foot-long suggested by the commenter would result in continued impedance (delays) to through traffic on that approach. Mitigation that would modify signal phasing/timing also was examined, and was found to not improve future LOS conditions to acceptable levels.

The DEIR used conservative assumptions for its analysis of intersection LOS 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 DEIR analysis conservative 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), alluded to above, could be provided, possible improvement measures were not relied on to judge that significant impacts would be mitigated to less-than-significant levels. The Lab stands by the conclusion of the DEIR that, after examining possible mitigation measures and judging their success with a conservative standard, there is no feasible mitigation available that would improve future LOS conditions to acceptable levels (i.e., the significant impact at this intersection is unavoidable). However, as a result of continuing consultation with the City on this issue, the Lab has committed to fund and conduct a further study to re-evaluate whether there may be feasible mitigation (with design standards acceptable to the City) at this intersection. Examples of possible mitigation that would be studied include the following:

- Determine locations of right-of-way lines for the four intersection approaches, and examine feasibility of acquiring additional right-of-way without causing secondary significant impacts.

- Eastbound Approach – shift the double-yellow centerline on Hearst Avenue (west leg) to the north to achieve sufficient eastbound width to stripe a separate right-turn lane and shared left-turn/through lane; achieve a greater length of right-turn lane by prohibiting on-street motorcycle parking on the north side of Hearst Avenue farther away from the intersection.

- Optimize traffic signal timing at this intersection, and how signal timing here would relate to the new traffic signal proposed for the Gayley Road / Stadium Rim Way intersection.

That additional study will be conducted by the Lab as part of the TDM program set forth below as Mitigation Measure TRANS-1c. 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.

Durant Avenue / Piedmont Avenue. As stated at the top of page IV.L-32, with the implementation of this mitigation measure (install a traffic signal), the Durant Avenue / Piedmont Avenue intersection would operate at an acceptable level of service (LOS B or better) during both the a.m. and p.m. peak hours. The LOS calculation sheets documenting that improvement, which was inadvertently omitted from Appendix I of the DEIR, is presented herein (see Chapter II of this document).

Concerning the historic character of Piedmont Avenue and potential effects of installing a traffic signal, it is unlikely that such a change could be deemed a substantial alteration such that the physical characteristics of the Piedmont Avenue that convey its historic character would be materially altered, and that could therefore be judged a significant impact under CEQA. Piedmont Avenue today has many characteristics that are not historically part of the street, including existing stop signs and bollards and chains along the median. Thus, addition of traffic signals to Piedmont Avenue would constitute a significant impact on historic resources.

Bancroft Avenue / Piedmont Avenue. See response to Comment C-37 regarding the threshold of significance used for the DEIR, and response to Comment C-45 regarding the percent increase in traffic volumes (less than the five-percent threshold of significance) attributable to the LRDP.

Response C-56

Berkeley Lab agrees that the City of Berkeley, UC Berkeley, and Berkeley Lab should work together to develop a methodology for reducing impacts associated with development under each of these entities' jurisdictions. Regarding existing facilities, under CEQA, a lead agency is required to assess the impacts of a proposed project through comparing the effect of the project to existing, i.e. baseline, conditions. CEQA requires a lead agency to reduce a proposed project's significant environmental impacts (or contribution to significant cumulative environmental impacts) to less than significant levels if feasible, through implementation of appropriate mitigation measures.

Response C-57

See Response C-55 regarding treatment of mitigation measures for the intersections of Hearst Avenue at Gayley Road / La Loma Avenue, and Gayley Road / Stadium Rim Way.

Response C-58

Best Practice TRANS-6a on DEIR p. IV.L.39 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 (new text is underlined):

> 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.

Response C-59

If the draft LRDP is approved and implemented, LBNL would request that the City identify truck routes for all major construction activities. LBNL would direct contractors to use designated truck routes that are identified in consultation with the City of Berkeley.

Response C-60

As part of LBNL's Transportation Demand Management (TDM) Plan, LBNL would agree to participate in the monitoring and analyses of the Hearst/Gayley and Gayley at Stadium Rim Way intersections.

Response C-61

The City of Berkeley is correct that the TDM Plan does not specifically mention satellite locations at which LBNL employees work, in addition to those at the main hill site. The DEIR states that the total amount of offsite leased space under the LRDP is not anticipated to change substantially, and analyzes a project variant in which Berkeley Lab would consolidate personnel on the main hill site and therefore the total amount of off-site leased space would be reduced. The DEIR analyzes impacts associated with implementation of the LRDP such as traffic impacts associated with development at Berkeley Lab's main hill site and is required to include measures such as the TDM Plan to reduce the effects of significant impacts. The TDM plan does not address off-site leased spaces because under the proposed LRDP no substantial increases from baseline conditions are anticipated, and therefore no significant traffic impacts are anticipated, for offsite leased spaces.

It would be inappropriate to include parking cash-out law measures in the TDM plan because such measures do not address employer-owned parking spaces, such as those at LBNL's main hill site.

Response C-62

The Lab's TDM Program has been updated to include coordinating construction truck activities with UC Berkeley construction projects (see Appendix B of this Comments and Responses document).

Response C-63

Wastewater distribution improvements would be coordinated with UCB and costs would be shared between UCB and LBNL as appropriate. Optional selection criteria include environmental impacts, cost, existing reserve capacities and growth flexibility. Any subsequent wastewater system improvements would be evaluated under CEQA to identify physical environmental effects and, if applicable, identify mitigation measures. As described in Draft EIR pages IV.M-20 – IV.M-21, these improvements would be planned and timed so as to accommodate "additional wastewater flows" that would otherwise be routed into constrained portions of sub-basin 17-503. Appropriate environmental review would be conducted as such proposals are developed.

Response C-64

As mentioned previously, LBNL encourages meetings with UC Berkeley and the City of Berkeley on hydrologic issues of common interest.. Furthermore, Berkeley Lab will consult with the City on planned storm system improvements that may be of interest to the City's Creeks Task Force.

Response C-65

The comment makes reference to a policy statement in the Berkeley General Plan, which is cited on page IV.M-11 of the DEIR:

Policy EM-23 Water Quality in Creeks and San Francisco Bay, Action E): "Ensure that new development pays its fair share of improvements to the storm sewerage system necessary to accommodate increased flows from the development."

As stated in the DEIR, notwithstanding the fact that LBNL generally is not subject to local plans and policies, the Lab seeks to cooperate with local jurisdictions to reduce any physical consequences of potential land use conflicts to the extent feasible. Regardless of the applicability of the Plan, consistency or the lack thereof with a single policy "action" does not, in itself, result in any physical environmental impact that would require analysis under CEQA. Nevertheless, as stated on DEIR pages IV.M-20 – 21, Berkeley Lab is investigating, along with UC Berkeley and the City of Berkeley, alternative potential improvements to address the Lab's contribution to wastewater collection capacity issues in connection with the City of Berkeley's sub-basin 17-503, and LBNL intends to proceed with one of three options under consideration and move forward with the improvement independent of the new LRDP. Mitigation Measure UTILS-2, DEIR page IV.M-21, states, "LBNL shall implement programs to ensure that additional wastewater flows from the Lab are directed into unconstrained sub-basins…. 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."

Response C-66

The comment concerning the applicability of National Pollutant Discharge Elimination System (NPDES) permits is noted. As described on DEIR page IV.G-13 and noted by the commenter, LBNL is subject to a different NPDES permit for stormwater than is the City of Berkeley. The DEIR did not identify a significant impact with respect to the potential increase in stormwater runoff from the Lab's hill site as a result of implementation of the proposed 2006 LRDP. Therefore, no mitigation is required.

Nevertheless, as described in the revised EIR Hydrology section (presented in its entirety in Appendix A of this document), Berkeley Lab, has agreed to coordinate stormwater management efforts for the Strawberry Creek watershed with UC Berkeley. Therefore, and in anticipation of regulatory changes in the State Water Resources Control Board's permitting program, LBNL's enhanced stormwater management program reflects UC Berkeley's Continuing Best Practices, as cited in the UC Berkeley 2020 LRDP EIR. These expanded Berkeley Lab practices include: verify compliance with all applicable requirements and Best Management Practices (BMPs) during design of individual projects; implementation of an urban runoff management program containing the BMPs included in the Strawberry Creek Management Plan; design of landscaped areas of development sites to absorb runoff from rooftops and walkways where feasible and the use of open or porous paving systems wherever feasible, to minimize impervious surfaces and absorb runoff; ongoing storm drain system maintenance; limiting new development's encroachment on creek channels and riparian zones; management of runoff into storm drain systems such that the aggregate effect of projects implementing the LRDP is to approximate pre-project runoff volumes; and preparation of a hydrologic modification analysis for any subsequently proposed development project with the potential to alter drainage patterns.

Response C-67

Pages IV.M-4 and IV.M-6 of the DEIR have been revised accordingly (the changes do not affect the conclusions of the DEIR.) On page IV.M-4, the last sentence of the third full paragraph is revised as follows (new text <u>underlined</u>):

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

On page IV.M-6, the third sentence under the heading "Sewer System Conditions and Upgrade" is revised as follows (new text <u>underlined</u>; deleted text indicated in ~~strikethrough~~):

> 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~~ <u>2017</u>.

On page IV.M-6, the fourth sentence under the heading "Sewer System Conditions and Upgrade" is revised as follows (new text underlined; deleted text indicated in ~~strikethrough~~):

> 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.

Response C-68

The Draft EIR relied upon the UCB LRDP EIR, the SCIP projects, and the City of Berkeley General Plan in its cumulative analysis. Both the UCB LRDP EIR and the LBNL LRDP EIR are programmatic documents. As program-level EIRs, these documents evaluate the effects of implementation of their entire respective LRDPs. Moreover, in Section VI.C, page VI-3, the DEIR presents extensive documentation concerning projects accounted for in the assumptions underlying the DEIR's cumulative analysis.

Additional future LBNL projects proposed for implementation under the 2006 LRDP would be evaluated to determine whether the LRDP EIR has fully analyzed the project impacts, or whether additional CEQA review is necessary. Any proposal for future development at LBNL must be approved by the LBNL Director, by the President of the University of California, or The Regents, as appropriate, and be in compliance with CEQA.

As for mitigation of cumulative impacts, the DEIR identifies only three cumulative impacts for which mitigation was deemed infeasible: the proposed LRDP's contribution to regional toxic air contaminant (TAC) emissions, for which the lifetime cancer risk would remain in excess of 10 in one million—due almost entirely to existing and future TAC concentrations from sources other than LBNL; cumulative effects related to construction noise—a conservative finding, in that it cannot be stated with certainty that there would not be instances during the lifetime of the 2006 LRDP when construction noise emanating from a location on the Lab hill site would contribute to cumulative construction noise impacts; and cumulative effects on traffic at local intersections—deemed significant and unavoidable (please see response to Comment C-55 regarding mitigation measures for the intersections of Hearst Avenue at Gayley Road / La Loma Avenue, and Gayley Road / Stadium Rim Way). All other cumulative effects of the proposed LRDP were found to be less than significant or mitigated to a less-than-significant level.

Response C-69

While the Off-Site Alternative would generally result in lesser impacts on the LBNL main hill site than would the proposed 2006 LRDP, it would not avoid the project's significant and unavoidable impacts on cultural resources, visual quality, noise, and air quality (page II.18). The Off-Site Alternative would result in new development at the Richmond Field Station (RFS) to accommodate a portion of the Lab's projected growth. Aesthetic impacts at the RFS site would not be expected to be significant. For purposes of conservative analysis, the EIR concluded that the proposed LRDP, would potentially have a substantial adverse effect on scenic vistas, and might be found by some observers to substantially damage scenic resources. Because the Off-Site

Alternative would still develop more than half of the Lab's new space at the main hill site, visual impacts would remain significant and unavoidable with implementation of this alternative.

Compared to the proposed project, the Off-Site Alternative would result in similar construction air quality impacts. Less development at the hill site would result in proportionately lower local air quality impacts than the 2006 LRDP. However, as with the project, this alternative would result in a cumulatively significant impact with regard to toxic air contaminant emissions.

Cultural resource impacts of the Off-Site Alternative would be similar to those of the proposed project, resulting in a significant and unavoidable impact at the hill site due to the loss of historical resources. Significant and unavoidable impacts related to demolition and construction activities that could affect as-yet unidentified historical resources, and the demolition of the Bevatron, would remain under this alternative.

The DEIR concluded that geology and soils impacts at the hill site under the Off-Site Alternative would generally be the same as described for the proposed project, however, there would be a reduction in exposure to geologic and seismic hazards.

Hazards and hazardous materials impacts at the hill site under the Off-Site Alternative would also generally be the same as described for the proposed project, although impacts associated with hazards and hazardous materials would be incrementally less, because of less development at the hill site. However, the RFS site has a history of soil and groundwater contamination and any residual contamination would be required to be remediated in compliance with applicable regulatory standards prior to implementation of the Off-Site Alternative.

Construction noise impacts and the increase in the ambient noise level at the hill site under the Off-Site Alternative would be incrementally less than the proposed project. The decrease in noise impacts would result from less construction and demolition activity, as well as a smaller overall development program at the hill site. Mitigation measures adopted as part of the proposed project would apply to this alternative and would reduce the severity of these impacts, but likely not to a less-than-significant level, and construction noise would remain significant and unavoidable, as with the project.

Similar to the proposed project, the Off-Site Alternative would require installation of traffic signals at two intersections (Gayley Road/Stadium Rim Way and Durant Avenue/Piedmont Avenue) to mitigate significant impacts, and mitigation measures identified for the project (installation of traffic signals) would be required to reduce these impacts to less-than-significant levels. Also as with the project, because LBNL could not implement these measures on its own, the impact at these intersections would be considered significant and unavoidable (see pages 39-43).

Response C-70

Adequate analysis for the Off-Site Alternative was conducted in compliance with CEQA. For further discussion of the impacts under the Off-Site Alternative, please see Response C-56.

Comment Letter D

From Jeff Philliber <JGPhilliber@lbl.gov>
Sent Friday, March 30, 2007 9:25 am
To Katherine V Behrend <KVBehrend@lbl.gov>
Subject [Fwd: [Fwd: Response to LBNL Long-Range Development Plan]]

----- Original Message -----
From "Therese (Terry) Powell" <TPowell@lbl.gov>
Date Fri, 23 Mar 2007 13:32:13 -0700
To Jeff Philliber <JGPhilliber@lbl.gov>
Subject [Fwd: Response to LBNL Long-Range Development Plan]

FYI

-------- Original Message --------
Subject: Response to LBNL Long-Range Development Plan
Date: Fri, 23 Mar 2007 12:44:40 -0700 (PDT)
From: Marie Bowman <mariebowman@pacbell.net>
To:lrdp@lbl.gov, JGPhilliber@lbl.gov

Sent via email:LRDP@LBL.gov, ***JGPHILLIBER@LBL.gov***

Berkeley Alliance of Neighborhood Associations--BANA
P. O. Box 1217
Berkeley, CA 94701

March 23, 2007

Jeff G. Philliber
Lawrence Berkeley National Lab
1 Cyclotron Road
Berkeley, CA 94720

RE: Response to LBNL Long-Range Development Plan

BANA has reviewed the referenced plan. While the laboratory has proposed mitigations to areas of concern they do not go far enough in mitigating the impacts to our community/city.

We applaud the Laboratory's efforts to conduct research efforts in the development of new sources of energy and reduce the impact of energy consumption on the environment, however not at the cost of reducing the quality of life, and risks to health and safety to our community at large.

We support the comments submitted by the City of Berkeley, local organizations and the report prepared by the U. S. Geological Services.

A project of this magnitude has several individually limited but cumulatively considerable impacts, which have not been adequately or reasonably addressed:

Traffic—

Comment Letter D

During the construction phase and as proposed. There are few entrance and exits to the City of Berkeley, with no way to modify this.
Access to the Laboratory/Use of Centennial Drive—vehicle and bicycle, is already taxed with pre-existing use: UCB, Strawberry Canyon Center, Lawrence Hall of Science, Space Sciences Lab, Math Sciences Research Institute, Tilden Park, Golf Course, Fire Trail, residential community and the public. D-1

Parking—
The laboratory has a pre-existing and on-going parking crisis. The proposed plan doesn't adequately address the exisiting circumstances let alone the aggravated situation that will only continue to exacerbate parking at the LBNL.

Geological Hazards–
Watershed, earthquake fault lines, underground creeks, rivers and lakes and liquefaction D-2

Cumulative Impact to Infrastructure -- traffic, sewer system, streets, water, police, fire, geological hazards, biological and toxic hazards.

BANA respectfully requests that the Laboratory fully explore alternatives to eliminate the Critical Cumulative Impacts addressing all issues presented by this group and public so as to not impact the community's quality of life or endangering the community for failure to mitigate cumulative impacts.

Sincerely,
Marie Bowman
President

--
Therese (Terry) Powell <TPowell@lbl.gov>
Community Relations Officer
Lawrence Berkeley National Laboratory
One Cyclotron Rd, MS 65, Berkeley, CA 94720
tel:510-486-4387 - fax: 510-486-6641

Berkeley Alliance of Neighborhood Associations (BANA), March 23, 2007 (Comment Letter D)

Response D-1

Comment noted. The DEIR fully analyzed all of the issues raised by the commenter in regard to traffic.

Response D-2

Each topic addressed in the comment was fully analyzed in the DEIR, as well as the cumulative impacts under each topic area. Areas where cumulative impacts were determined to be significant and unavoidable include Air Quality, Noise, and Traffic. These impacts were addressed and Mitigation Measures were identified for each. However, while the mitigation measures would reduce the identified impacts, they would not reduce the impacts to a less-than-significant level.

Cumulative Impact AQ-6 states that 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.

Cumulative Impact NOISE-5 found that development under the proposed LRDP would result in temporary contributions to cumulative noise impacts related to construction and demolition activities.

Cumulative Impact TRANS-8 determined that 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.

Based on the above, these cumulative impacts were found to be significant and unavoidable. The DEIR evaluates a number of alternatives to the proposed project in Chapter V, Alternatives. As stated in that chapter, the above-noted cumulative impacts related to air quality and noise would remain significant and unavoidable even with implementation of the No Project Alternative, because the contribution to cumulative air toxics impacts from continued operation of Berkeley Lab (even without implementation of the 2006 LRDP) would remain significant and unavoidable, and because future redevelopment on the hill site pursuant to the existing 1987 LRDP EIR, as amended, would result in temporary contributions to cumulative noise impacts related to construction and demolition activities. The No Project Alternative would avoid the project's contribution to significant traffic impacts because the No Project Alternative would not include the increases in on-site parking that are part of the proposed project.

Comment Letter E

THE BERKELEY ARCHITECTURAL HERITAGE ASSOCIATION

P.O. BOX 1137 MAIN POST OFFICE
BERKELEY, CALIFORNIA 94701

TEL. 510-841-2242 FAX. 510-841-7421

March 23, 2007

Jeff Philliber
Environmental Planning Group
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90J-0120
Berkeley, California 94720 SEND Via FAX 510-486-4101

Re: Comments on the Lawrence Berkeley National Laboratory 2006 Long Range Development Plan Draft Environmental Impact Report

Dear Jeff Philliber:

The Berkeley Architectural Heritage Association (BAHA) appreciates this opportunity to comment on the Draft Environmental Impact Report (DEIR) for the Lawrence Berkeley National Laboratory (LBNL) Long Range Development Plan (LRDP). BAHA, a long standing membership organization dedicated to the education, encouragement, and protection of Berkeley's unique historic environment, is commenting in its capacity as a public stake holder with serious concerns about the profound environmental impacts that these plans would have upon the irreplaceable assets of Strawberry Canyon as a Cultural Landscape.

The LRDP, a programmatic document only, proposes to utilize the Strawberry Canyon area for almost a million square feet of new and, as of yet, unconstructed building space and to create 500 additional parking spaces for 1,000 new employees. Concurrently, the project objectives are proposed to strengthen, expand, and design for *new* institutional growth. While these projected plans and objectives would appear to be rational and in sync with current institutional research practices or business models, they are, in reality, not logical or socially responsible at this location. The natural and physical terrain of the hillside area, plus the University's plans already proposed in the adjoining Southeast Campus, and the significance of Strawberry Canyon as a Cultural Landscape make this proposal not only unwelcome, but incredulous. E-1

At this juncture the environmental review in the LRDP is lacking an adequate understanding of the project scale and building(s) mass that would, in fact, be needed to fulfill the programmatic plans outlined in the DEIR. The stated intent to expand current facilities and to rehabilitate current facilities is too vague. The sketchy "illustrative design" concepts portraying the physical imprint of potential "new scientific facilities" are insufficient. There is a need to disclose true architectural plans, including magnitude, location, height, design, materials, mechanical apparatus, and waste systems of such building(s) providing for such "national" research facilities "programmed to accommodate multiple disciplines in advanced

infrastructure suitable for future scientific endeavors...[and] to support future research initiatives and continued growth in existing programs" that might serve the combined uses of academic research, federal/state interests, and industrial capital/business interests. Lacking such full disclosure at this juncture, the following questions are posed:

- Which existing LBNL facilities would be expanded?
- Which existing LBNL facilities would be rehabilitated?
- How would existing facilities and rehabilitated facilities connect physically to "new scientific facilities" in order to "enhance collaboration, productivity, and efficiency?"
- Will the Final EIR disclose full architectural plans for all the buildings needed to fulfill the programmatic plans and project objectives outlined in the DEIR?
- Will any LBNL contracts with outside state/federal and private industry be available for public review at the time of the Final EIR?
- Will any LBNL contracts with outside state/federal and private industry be completed at the time of the Final EIR?
- How will the California Governor's pledge to secure $40 million, or more, determine the size, scope, demands of the projected "new scientific facilities?"

E-1

In the case of the "illustrative design" building concept(s) in the DEIR, sited across from the University's historic Botanical Garden, and next to the Stephen Mather Redwood Grove, the following questions seem appropriate now to ask:

- Why would "new scientific facilities" of such magnitude be placed across from the University's Botanical Garden, a cultural resource ranking with other major Botanical Gardens as the one of the world's leading Gardens in the number of plants it contains?
- Would not the "new scientific facilities" adversely effect the integrity of the adjacent California Area, the largest area of the Botanical Garden that boasts of having the largest area devoted to a regional collection of native plants?
- What would the effect of an industrial-park-like-development be upon the necessary mild climate that sustains the Botanical Garden?
- How would the LBNL "new scientific facilities" complex, including parking, effect the natural flow of water in the Botanical Garden?
- Is it not alarming that the LBNL "new scientific facilities" complex, including parking, be proposed adjacent to the Mather Redwood Grove, thus removing a context area that defines its integrity?
- Is the projected location for "new scientific facilities" the only location in Strawberry Canyon that could accommodate new building(s) and parking of that magnitude?

E-2

As a public stake holder it is expected that BAHA, would concur with the finding of the DEIR that the LRDP, as proposed, would cause "significant" environmental impacts. The public health and safety issues alone – such as water pollution, air pollution, landslides, earthquakes, acts of terrorism, traffic congestion, and extreme fire hazards – are conspicuous. Strawberry Canyon is a special place defined by a natural environment that is already under the stress of over-development. Further alteration of its geologically formed hillsides – formed by the timeless interaction of earthquakes, water flow, and precipitation off the Pacific Ocean – to accommodate unlimited "new scientific facilities" is, indeed, an alarming proposal. BAHA joins the City's Planning Commission and Landmarks Preservation Commission in requesting that alternatives be sought elsewhere on University owned property. The following questions seem critical to understand:

- Why would the LBNL LRDP DEIR finding of "significant" environmental impacts be "*unavoidable*" (italics ours) when the University owns property elsewhere that is potentially suitable for scientific research and development?
- What property owned by the University in Richmond has been set aside for potential University research and development?
- When was University property in Richmond identified as a potential for research and development?
- Is any of the University property in Richmond contaminated?
- Is any of the University's Strawberry Canyon property contaminated?
- Given the current practice of global partnerships and collaborations, technological flexibility, and shared advanced research locations, why would a LBNL LRDP project objective be limited to one "main site" within the University, Berkeley, area?
- Would not LBNL elect to give leadership to environmental solutions that will have a positive local, regional environmental impact as well as to global environmental solutions?

E-3

The University, Berkeley, and, indeed, LBNL gained their historical roots because of Strawberry Canyon. As early as the 1850s the site was recognized to be a provider of constant water, making possible the location of a future educational institution. The sense of place then was poetic among those who selected the site:

> *The line of the horizon sweeps in the distance round almost half a circle, commencing at the summit near New Almaden and following a mountain line till it passes west of [San Francisco], where it becomes an ocean horizon for a considerable distance...The extent, the variety of the life embraced in the scenery presented in this view, including as it does land and water, bay and ocean, islands, plains and mountains, city and country, are seldom equaled.* Rev. S. H. Willey, 1858

E-4

Later, in 1865, Frederick Law Olmsted, America's father of landscape architecture, was to describe the dramatic impressions of the "steep declivities of the coast range" and the "native foliage of a very beautiful character" that defined the effect of Strawberry Canyon as it graced what would become the urban town. The origins of LBNL in Strawberry Canyon, beginning in the WWII era, should be remembered as having its origin in such a rustic and unapproachable area because of the need to have a nearly secret and inaccessible location.

E-4

Again, BAHA takes the lead from the City's Landmarks Preservation Commission which responded to the DEIR with the comment "the Strawberry Canyon Area is a potential Cultural Landscape...[that] the DEIR does not acknowledge the adverse impacts...therefore, alternatives, including alternative sites for the proposed development(s), need to be identified and analyzed in the FEIR."

Thank you for your attention to BAHA's comments and for your consideration of BAHA's concerns.

Sincerely,

Wendy Markel

Wendy Markel, President

Berkeley Architectural Heritage Association, March 23, 2007 (Comment Letter E)

Response E-1

As stated in Chapter I, Introduction, page I-11, the 2006 LRDP is a land use plan that guides the physical development of the LBNL main site. The LRDP is not an implementation plan, and adoption of the LRDP does not constitute a commitment to any specific project, construction schedule, or funding priority. Rather, it describes the entire development program including construction of approximately 660,000 net new occupiable gsf for the site through 2025. The 2006 LRDP EIR is a program-level EIR that evaluates the effects of implementation of the entire LRDP. The DEIR provides a summary of available information on reasonably foreseeable future projects under the 2006 LRDP EIR, including the Computational Research and Theory (CRT) Building and the Helios Research Facility (see DEIR page III-19 and Appendix D), as well as information on two buildings proposed for implementation under the current LRDP EIR, as amended, the User Support Building and the Guest House (the respective environmental documents for which were issued for public review from November 6 through December 8, 2006, and from May 1 to May 31, 2007, respectively). The DEIR's impact analysis included impacts from these reasonably foreseeable projects based on available information about them, in accordance with CEQA.

Additional future LBNL projects proposed for implementation under the 2006 LRDP, including CRT and Helios, would be evaluated to determine whether the LRDP EIR has fully analyzed the project impacts, or whether additional CEQA review is necessary.

Response E-2

The DEIR included an Illustrative Development Scenario, which is a conceptual portrayal of potential development under the LRDP that would be consistent with the 2006 LRDP goals and objectives, the 2006 LRDP Land Use Map, the LBNL Design Guidelines, and the LRDP's proposed development uses and square footages (see DEIR page III-36).

The Illustrative Development Scenario was intended to serve as a conservative basis for the analysis of environmental impacts. The actual locations of buildings, configurations, uses, and the like may vary as specific projects are considered for approval in the future. The Illustrative Development Scenario is not intended to be a precise representation of the actual development program that would take place over the 20-year planning horizon of the 2006 LRDP, as the Laboratory's needs and opportunities will change over time, at any given site.[12]

Concerning the UC Berkeley Botanical Garden, located across Centennial Drive from the southeast corner of LBNL, any new construction associated with the proposed LRDP would occur on LBNL property and would have no direct or indirect effects on the use and enjoyment of the Botanical garden. In addition, any new development associated with the proposed project

[12] It is not possible to forecast accurately the complex series of development opportunities and decisions, including future building locations, sizes, configurations, uses, construction schedules, etc., that would comprise full development of the LRDP program.

would be over 100 feet away and separated by the width of Centennial Drive from the main portion of the Botanical Garden, in particular.

The Mather Redwood Grove is tucked into a curve of Centennial Drive, across Centennial Drive from the main portion of the Botanical Garden and immediately adjacent to Berkeley Lab boundaries. The grove is available for individuals to visit and also contains an amphitheater that is available for rental for group events. Although the amphitheater is generally shielded by the grove of redwood trees from the LBNL site, the potential exists that construction activities in the Lab's East Canyon area could result in intermittent and temporary annoyance to users of the Mather Redwood Grove due to noise from construction and demolition activities. (As stated in DEIR Section IV.I, Noise, construction noise effects would be significant and unavoidable, albeit temporary. Mitigation measures were identified in the DEIR to reduce the severity of this impact; however, the impact could not be fully mitigated in all cases. As stated on DEIR page IV.I-17, "Although in most instances, it can reasonably be anticipated that construction noise impacts on off-site receptors would be reduced to a less-than-significant level through implementation of the above mitigation measures, there may be individual construction and/or demolition projects undertaken during the life of the 2006 LRDP that result in noise impacts that could not be fully mitigated."

In terms of indirect effects on the Botanical Garden, as noted in the response to Comment C-8, the DEIR identified a significant, unavoidable effect on aesthetics and visual quality because the 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" (Impact VIS-2) and "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" (Impact VIS-3). Depending on the ultimate placement and design of proposed new structures at LBNL, this effect could be experienced by visitors to the Botanical Garden, as is illustrated in the visual simulation depicted in DEIR Figure IV.A-7, page IV.A-23.

It is noted that the visual simulations are not intended to depict actual proposed building designs: as stated on DEIR page IV.A-13, "The simulations are based on buildings identified in the Illustrative Development Scenario, which is a conceptual portrayal of potential development that could occur at particular locations under the 2006 LRDP. This scenario is not a definitive representation of buildout under the LRDP." Moreover, all individual projects proposed subsequent to adoption of the LRDP would undergo their own environmental review. As is noted in the DEIR (page IV.A-8), "Before approving any later activity under the LRDP as being within the scope of the project covered by this program EIR, the Lab will evaluate whether the aesthetic impacts of that later activity implemented pursuant to the LRDP were examined in the program EIR." This statement would apply to the proposed Helios project, under consideration for an East Canyon location in proximity to the Botanical Garden.

Response E-3

The commenter is addressing the suitability of developing the project in a different location. As stated on page II-18 of the DEIR, while the Off-Site Alternative would generally result in lesser

impacts on the LBNL main hill site than would the proposed 2006 LRDP, it would not avoid the project's significant and unavoidable impacts on cultural resources (demolition of the Building 51 complex and the Bevatron and other potential resources), visual quality (changes in views and visual character), noise (project-specific and cumulative construction noise impacts), and air quality (significant unavoidable cumulative impact related to emissions of toxic air contaminants).

The Off-Site alternative would avoid the project's significant traffic impact at the Hearst-Gayley/La Loma intersection, but would have project-specific and cumulative significant and unavoidable impacts at other local intersections, in a manner similar to the project.

As stated on DEIR page V-38, the Richmond Field Station (RFS), which is University-owned property in Richmond used for research purposes, "occupies approximately 162 acres on the shore of San Francisco Bay, about six miles to the northwest of the LBNL main site. The RFS site consists of approximately 90 acres of upland, industrially zoned land that is used primarily for research and development, and 72 acres of marsh and tidal mudflat. The site is in a historically industrialized zone." Existing soil and groundwater contamination at the Lab's main hill site in Berkeley and Oakland is discussed extensively in DEIR Section IV.F, Hazards and Hazardous Materials.

Page V-41 notes that the "RFS site has a history of soil and groundwater contamination." UC Berkeley is working with the California Regional Water Quality Control Board to implement a cleanup and restoration plan for contaminated areas of RFS and an adjacent marsh, including from industrial activities that took place prior to UC ownership of the site polluted parts of RFA and the marsh. Additional information can be found on UC Berkeley's Richmond Field Station website, at: http://www.cp.berkeley.edu/RFS_MarshRR.html.

The comment regarding the appropriateness of Berkeley Lab's objective to "limit" its activities to the main hill site concerns the proposed LRDP itself, and does not address the environmental review of the proposed LRDP. For information, it is noted that the third bulleted project objective on DEIR page III-20, is "Provide flexibility to return staff from its off-site facilities leased in Berkeley and Oakland to the main site *in order to enhance collaboration, productivity, and efficiency*" (emphasis added).

The comment concerning providing leadership regarding environmental solutions is noted, but does not address the environmental review of the proposed LRDP.

Response E-4

Please see the response to Comment C-21.

Comment Letter F

Committee to Minimize Toxic Waste

Jeff Philliber
Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road
MS 90J0120
Berkeley, CA 94720

March 22, 2007

Subject: Comments on Lawrence Berkeley National Laboratory's (LBNL) Long Range Development Plan (LRDP) Draft Environmental Impact Report (DEIR), January 22, 2007.

Dear Mr. Philliber,

LBNL's proposed expansion in the Strawberry Creek Watershed is extremely ill-advised. The seismically active Strawberry Canyon site was never intended to permanently house a Nuclear-Nanotech Industrial Complex, when the construction of the Cyclotron started in the 1940s, during the II World War as part of the Manhattan Project to develop the world's first nuclear bomb.

The primary direction of the LRDP should have been the off-loading of development from the Lab's main "hill site" to alternative locations, such as the University of California's (UC) Richmond Field Station. F-1

Most of the 15 proposed new buildings and 10 parking structures and lots are located in deep-seated landslide areas, intersected by dozens of named and unnamed earthquake faults within a complex network of historic streams and springs, modern streams and storm drains and large groundwater plumes of chemical and radioactive contamination. (Figures 1 and 2)

The DEIR fails to assess in detail any of the above referenced natural and manmade hazards. In addition, the UC Berkeley's 2020 LRDP referred to the demolition of LBNL buildings 1 and 3, the Donner and Melvin Calvin laboratories located on central UCB Campus. The LBNL DEIR fails to evaluate the Cultural Resources, Hazards and Hazardous Materials, Traffic etc. impacts from the demolition of these two buildings. F-2

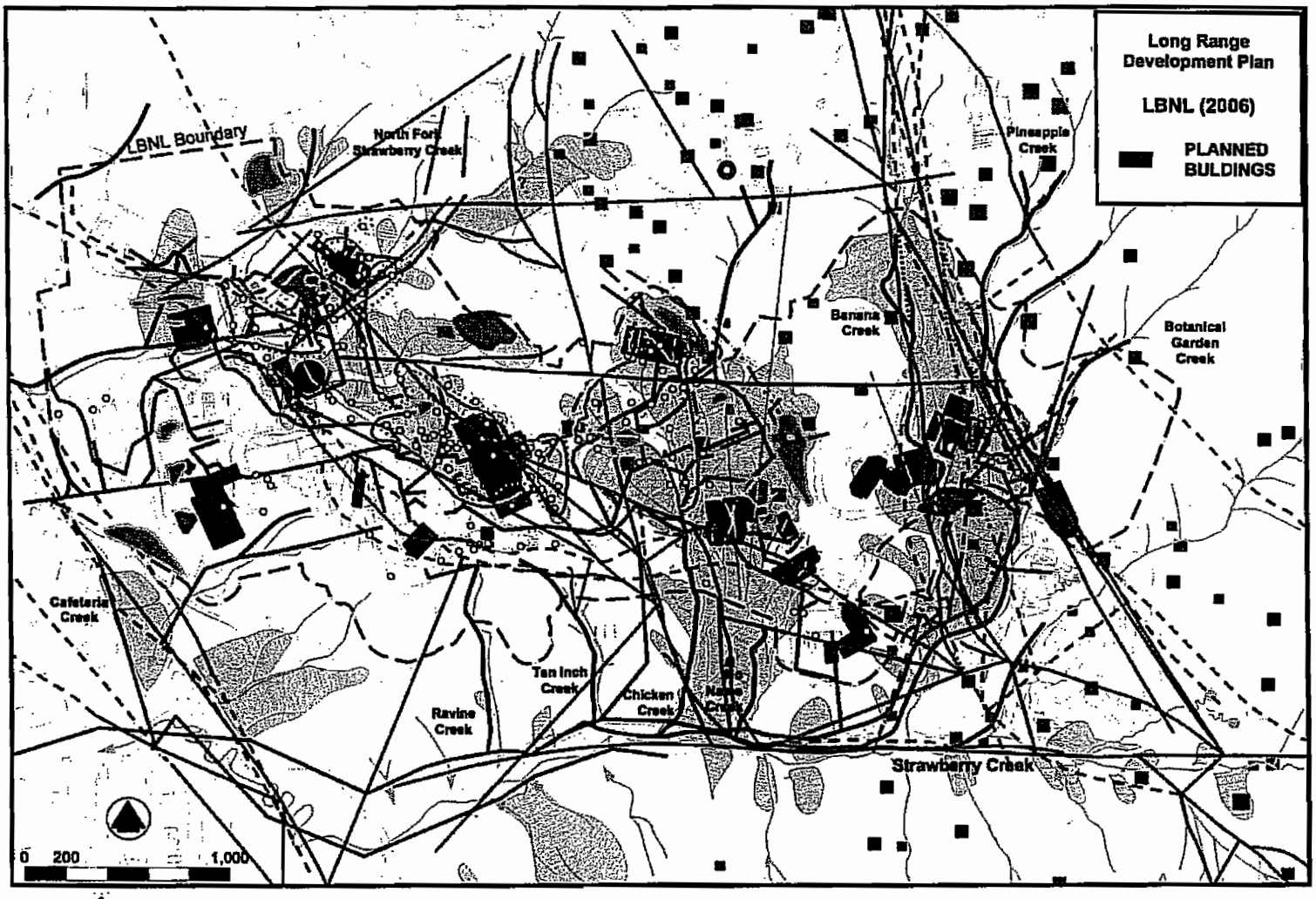
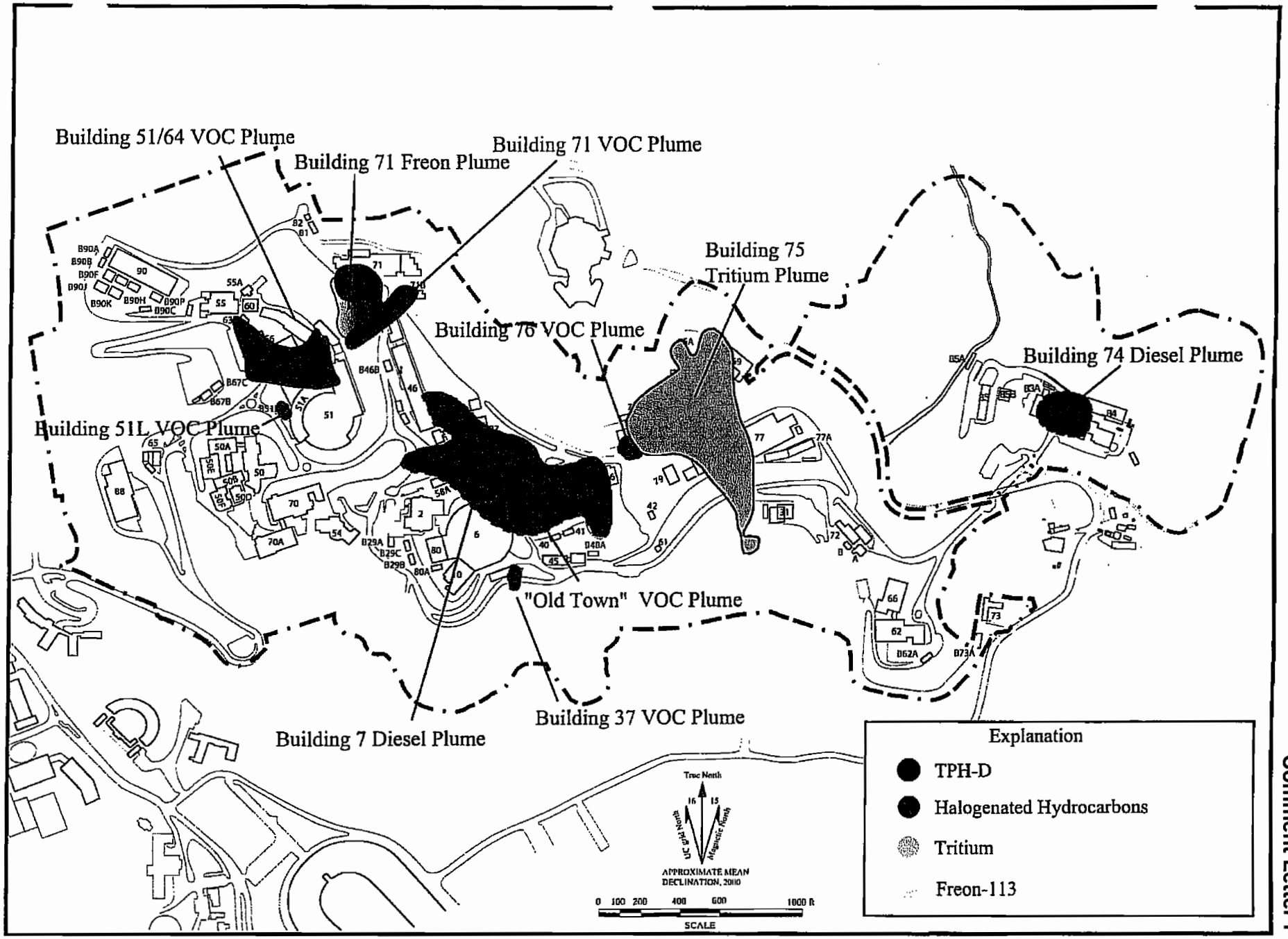


FIGURE 1 a. VARIOUS SITE CONDITIONS AT FUTURE BUILDING LOCATIONS OF LBNL'S LONG RANGE DEVELOPMENT PLAN.



06-plumes.ai
11 /03

Figure 2. Groundwater Contamination Plumes, Third Quarter FY03.

Comment Letter F

IN SUMMARY:

LBNL projects include :

• **Over one million square feet of new building development** in the Strawberry Creek watershed/Strawberry Canyon that will include up to 440,000 sq. ft. of replacement structures.

• **6 acres (273,800 sq. ft.) of new parking lots** (includes footprints of parking structures).

• **17 acres (718,300 sq. ft.) in total of new impervious surfaces** that have the potential to increase flooding in the Berkeley flatlands along Strawberry Creek.

• **Demolition of up to 85 existing structures** including the Bevatron which is eligible for listing on the National Register of Historic Places and Building 10, dating back to the 1940's and connected to the Cyclotron. Demolition of both of these historic structures would create radioactive debris and dust as well as health and safety risks from asbestos, PCBs, lead, mercury, beryllium, chromium, crystalline silica dust (in concrete slab and foundation) etc. F-3

•**Earthquake Faults:** The EIR fails to present a detailed map showing all the active and inactive faults within the LBNL boundary. (Note: faults considered inactive may become active, e.g. Northridge in Southern California). Additionally inactive faults can act as conduits, as can active faults, for contaminated groundwater. F-4

• **Landslides:** The EIR's slope stability map is deficient in that it does not show all the landslide areas within the LBNL boundary and vicinity. Landslides have blocked Centennial Drive for lengthy periods thereby blocking ingress and egress to, for instance, LBNL's Hazardous Waste Handling Facility by the Berkeley Fire Department's Hazardous Materials Team at the Berkeley Way Fire Station, in case of fire and/or earthquake. F-5

• **Soil Contamination:** The EIR does not show that new buildings are proposed in areas contaminated with radioactive and hazardous materials, i.e. Building S-8 is planned for an area in which the soil is contaminated with tritium (radioactive hydrogen) and Building S-4 is planned for an area contaminated with Curium 244. In fact, a map showing sitewide radioactive and chemical contamination in the soil is completely absent from the EIR. F-6

• **Molecular Foundry** was built in the Chicken Creek area of Strawberry Canyon with no EIR or an analysis of the health and environmental impacts of nanoparticle emissions (including nanoscale bacteria and viruses) F-7

• **BRITISH PETROLEUM** funded Biofuels Institute will deal with GMO, genetically modified organisms and chemical processes to turn grasses and other GMO crops into fuel. The EIR provided no details regarding the location of the building in the watershed and the impacts of its operation on the environment. F-8

Of special concern is the proposed location of the massive 175,000 sq. ft. CRT Building, right in the middle of the Alquist-Priolo Earthquake Fault Zone (Hayward Fault), clearly defying the very purpose of the Alquist-Priolo Earthquake Fault Zoning Act. In addition the Lab fails to consider the protection of Cafeteria Creek, next to the CRT Building. The DEIR also fails to describe a comprehensive watershed management plan and its implementation for the protection of the many named tributaries of Strawberry Creek. (Figure 3) F-9

Another hazard location is designated for the British Petroleum funded Biofuels Institute, to be built next to the nanotech facility, Molecular Foundry in the Chicken Creek sub-basin. The area is the location of a large radioactive tritium groundwater plume, where seepage from the groundwater to surface water has been detected. (Figure 4) F-10

It also appears that the Lab's new Guest House/Hotel, a three-story, close to 20,000 sq. ft. structure, is to be built right on top of the Cyclotron Fault.(Figures 5 and 6) F-11

The treacherous East Canyon area has been selected at least for 8 new structures. Figure 7 shows the various interpretations of the location of the Wildcat Fault, within this area of the Lab. F-12

Figure 8 is a compilation of landslide and surficial geology maps in the Strawberry Canyon. It appears that all the above referenced new construction is proposed in major landslide areas of the Lab. The DEIR fails to evaluate the potential impacts from landslides, originating either from inside the Lab boundary or from outside the boundary effecting buildings and roads within LBNL as well as access roads to the Lab, such as Centennial Drive. F-13

The DEIR also fails to address the significance of the Lennert Aquifer, which since the major landslide of 1974 has been pumped by the Shively Well at the UC Space Sciences building, preventing further damage to Lab buildings and the Lawrence Hall of Science. What is the extent of the Lennert Aquifer at LBNL? How many gallons are pumped annually? Where does the water go and why? (Attachment 9) F-14

Due to global warming, the <u>intensity</u> of rain events will increase, thus potentially triggering more landslides. How has LBNL factored in this feature of climate change in the long term management of the site in the watershed? F-15

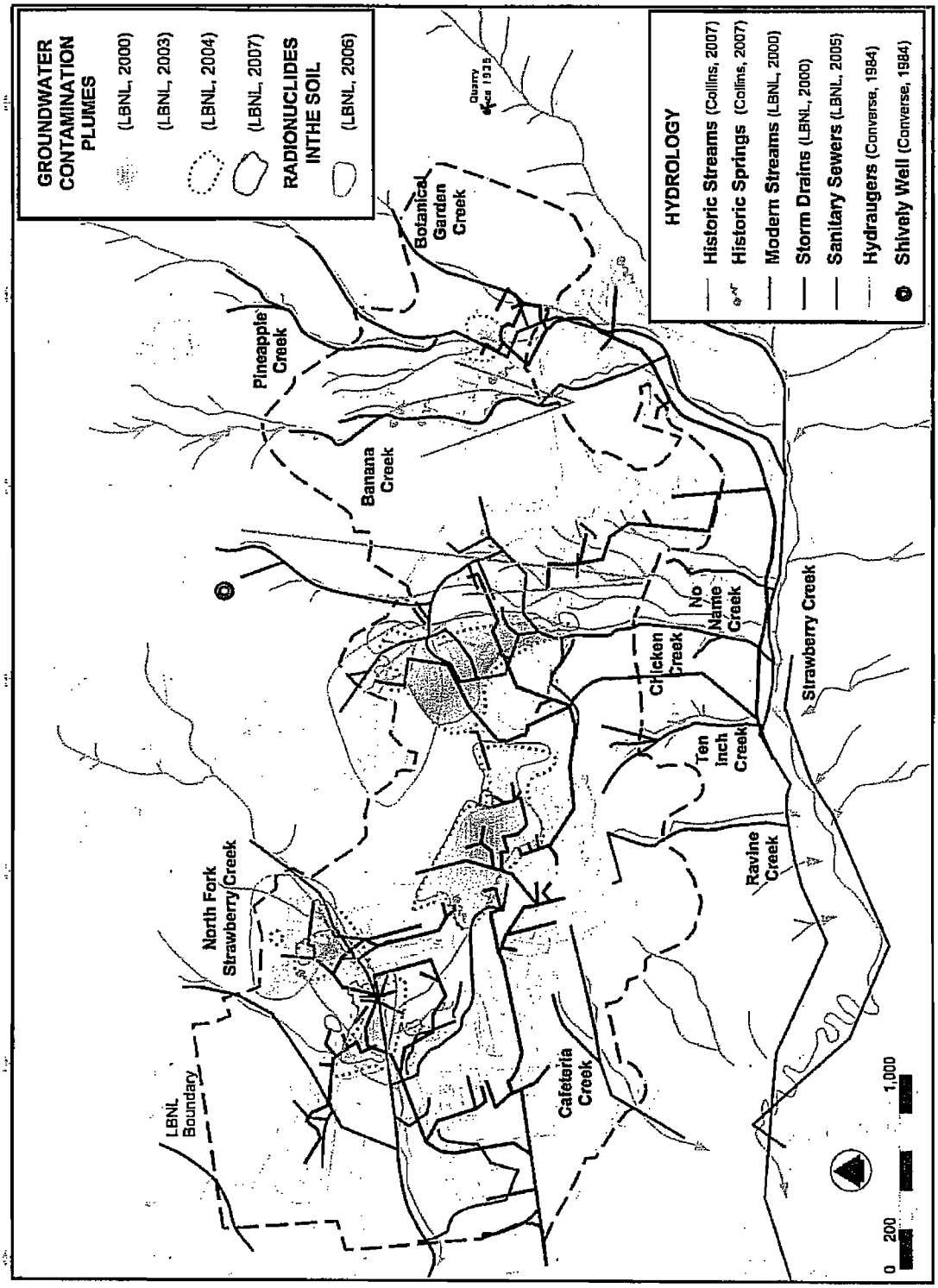


FIGURE 3 GROUNDWATER CONTAMINATION PLUMES IN RELATION TO THE MODERN AND HISTORIC DRAINAGE NETWORKS AT LBNL

Comment Letter F

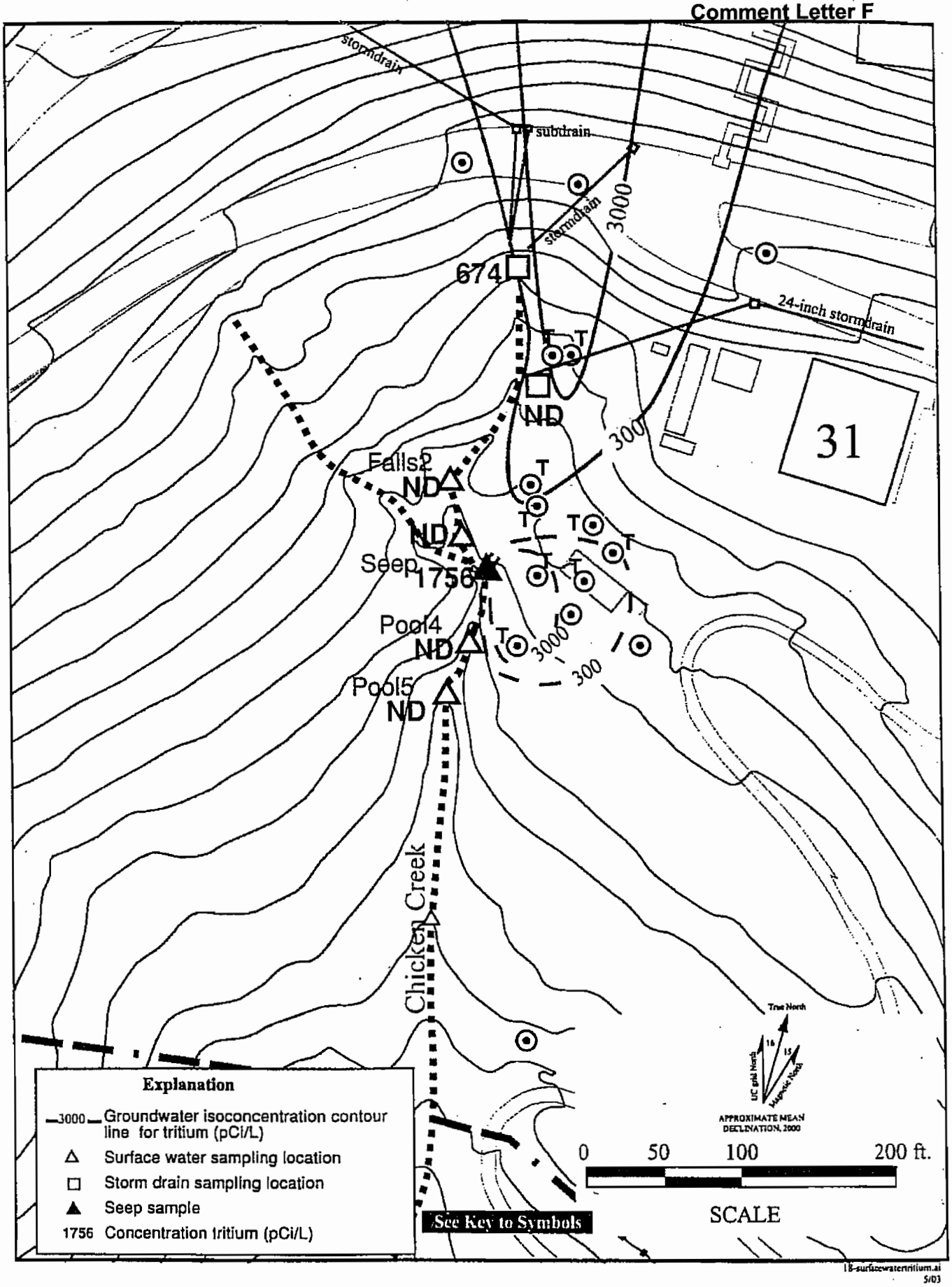


Figure 4. Concentrations of Tritium Detected in Surface Water Samples (pCi/L), February 2003.

FIGURE 5. SELECTED EXAMPLES OF FAULT MAPPING STUDIES AT LBNL IN STRAWBERRY CANYON

—— FAULTS

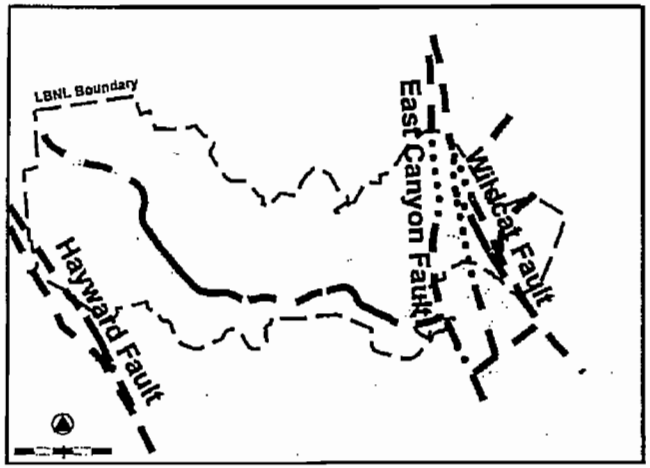


FIGURE a. LBNL (2000) Based on:
Harding-Lawson (1980, 1982), Radbruch (1969)

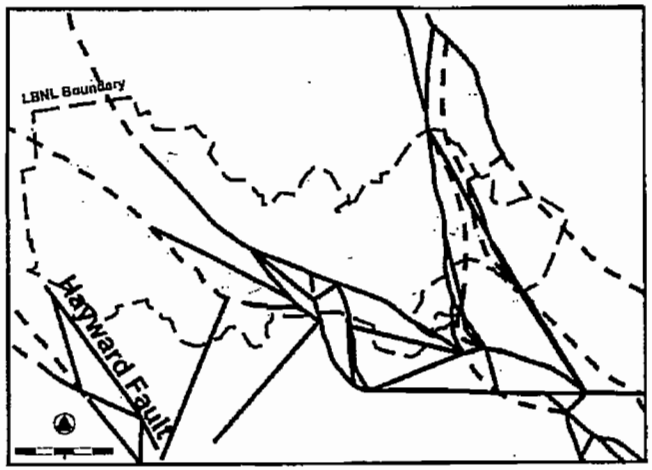


FIGURE b. USGS on Google Earth (2007)

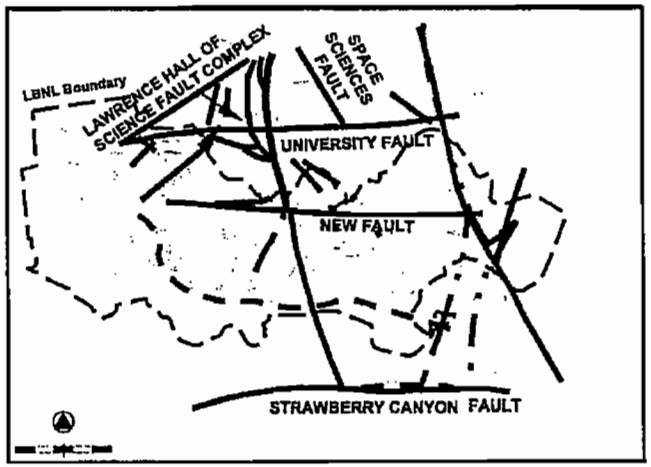


FIGURE c. Converse Consultants (1984) Based on:
Harding-Lawson (1979), Lennert & Associates (1978)
(Mapping does not include western portion of LBNL.)

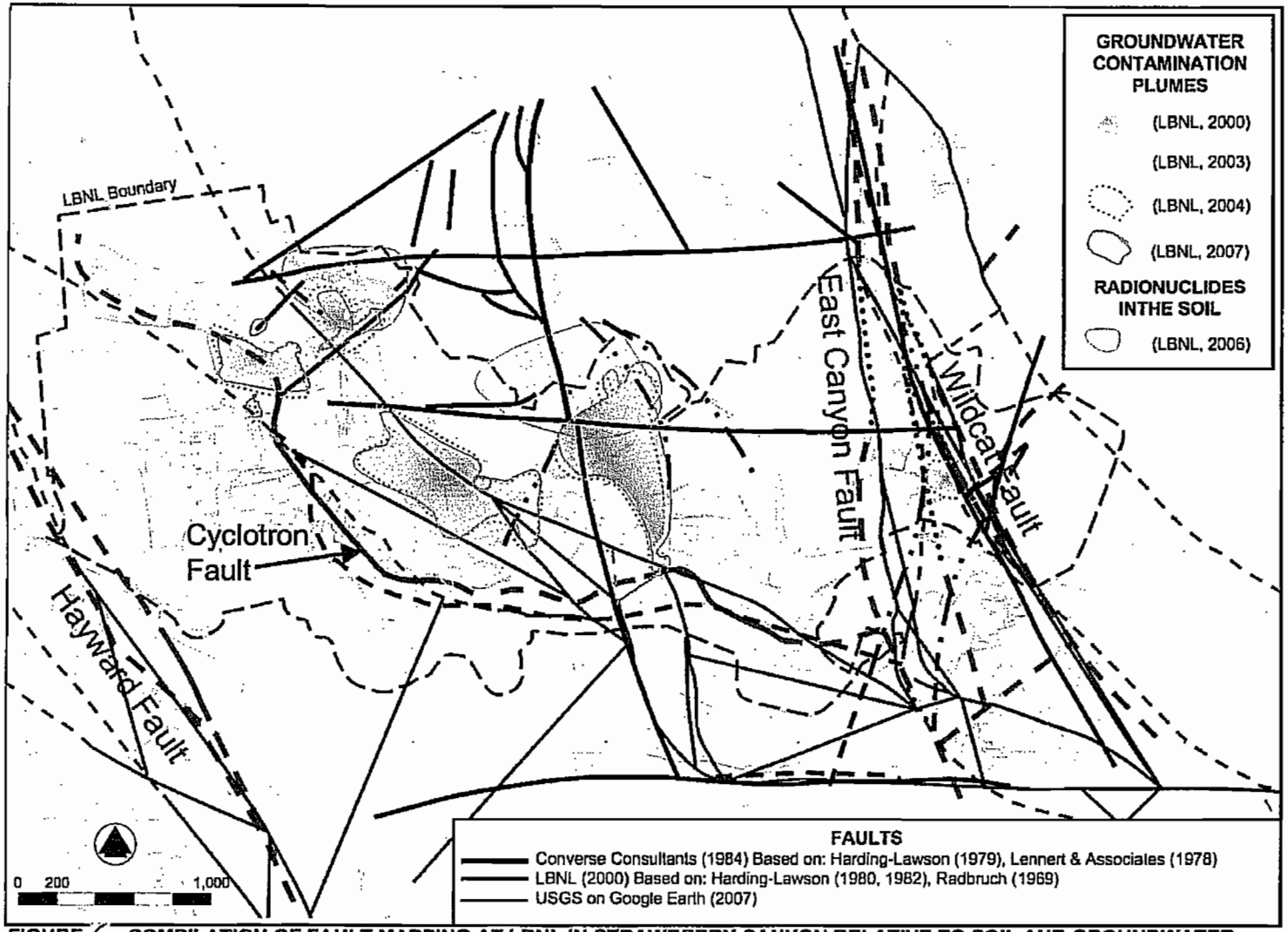


FIGURE 6. COMPILATION OF FAULT MAPPING AT LBNL IN STRAWBERRY CANYON RELATIVE TO SOIL AND GROUNDWATER CONTAMINANT PLUMES.

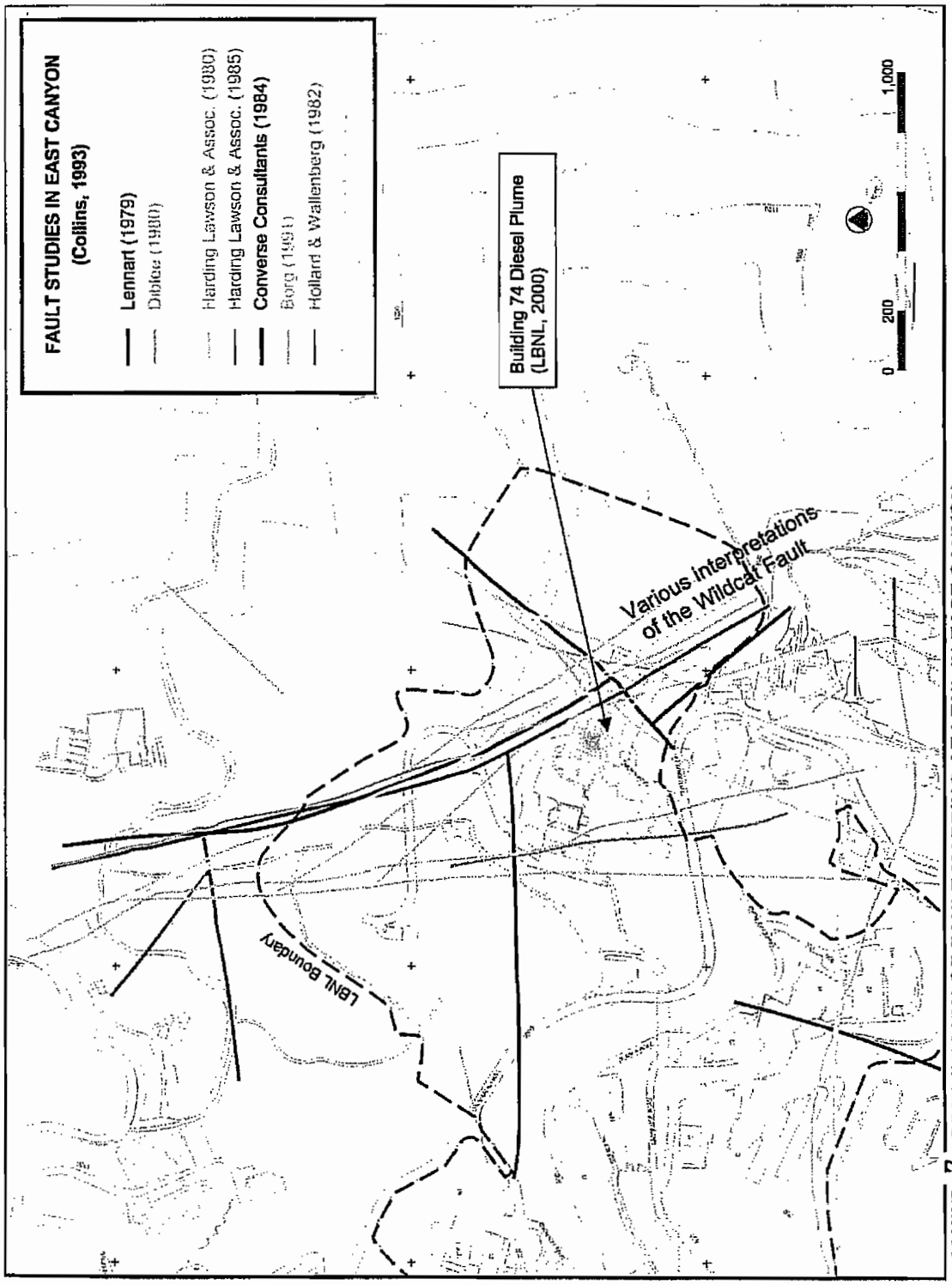


FIGURE 7 COMPILATION OF FAULT MAPPING AT LBNL IN EAST CANYON

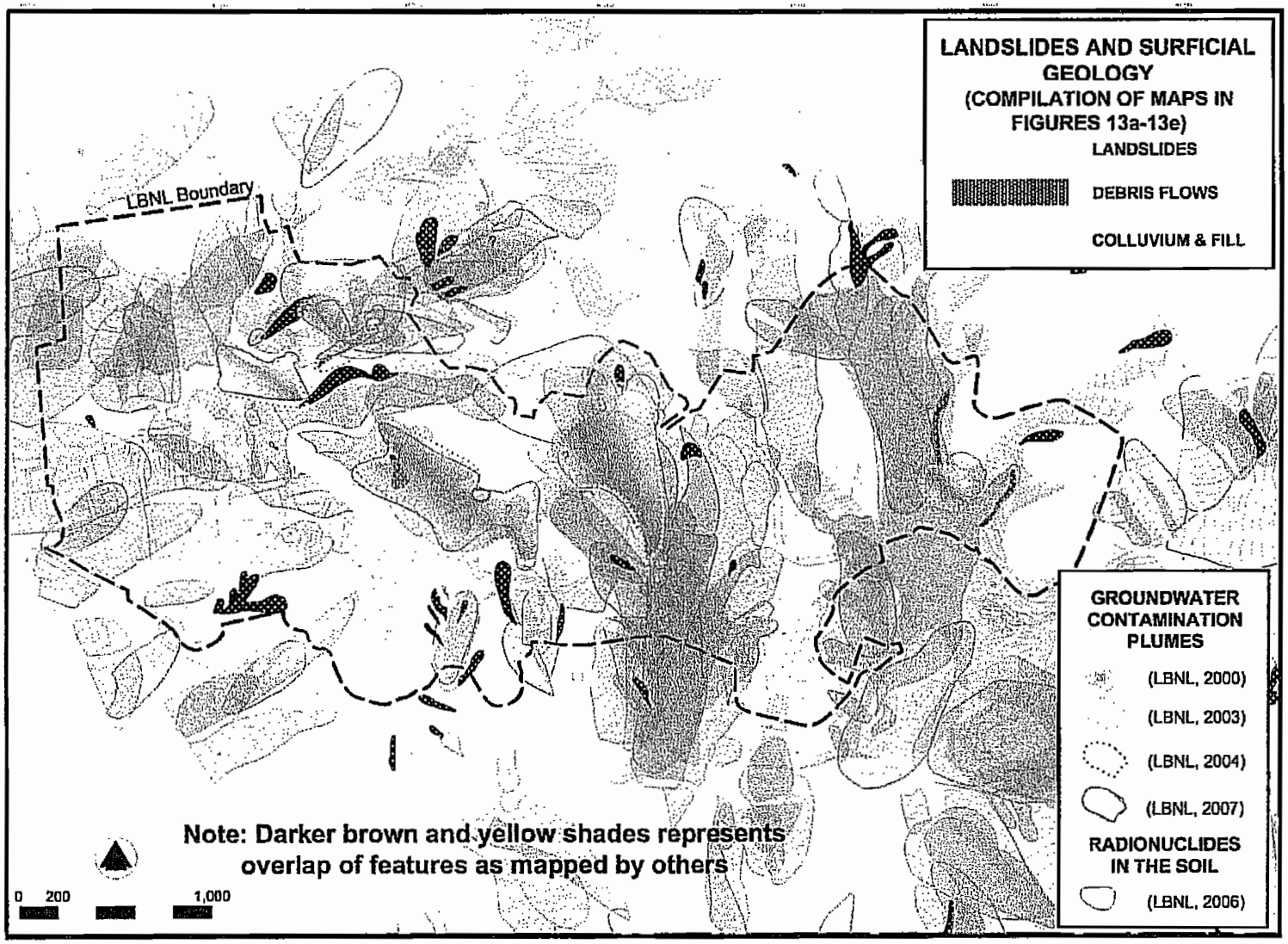


FIGURE 8 . COMPILATION OF LANDSLIDE AND SURFICIAL GEOLOGY MAPS 13a-13f IN STRAWBERRY CANYON

ATTACHMENT 9 Comment Letter F
(5 PAGES)

JOHN R. SHIVELY

CONSULTING ENGINEER

P.O. Box 7136
Berkeley, California 94707
(510) 531-1355

May 28, 1999

Dr. Charles Shank, Director
Lawrence Berkeley National Laboratory
1 Cyclotron Road, Mail Stop 50A-4119
Berkeley, California 94720

Re: City of Berkeley Fire Fighting System

Dear Dr. Shank:

Enclosed is a copy of my comments on the City of Berkeley's Draft Environmental Impact Report (DEIR) for the City's proposed Saltwater Fire Fighting System (SFFS). I propose an entirely different fire-fighting alternative, one that would be valuable to LBNL, referred to as the Hillwater Fire Fighting System. It would use a nearby existing source of hillwater rather than saltwater pumped from the Bay.

HFFS is of consequence to LBNL because it would enhance the fire fighting capability of the Lab's own fire protection. It would provide for reservoir impounded hillwater as a backup water source, should the normal water source fail during a major earthquake or a 1991 type conflagration. The HFFS alternative would utilize water from an existing hill area dewatering well located just south of the Space Sciences Laboratory. The water would be held in one or more large reservoirs.

I conceived of the idea of that vertical well, to intercept the hill-water that was causing the slides both inside and adjacent to LBNL, back in 1974.. I retained Civil Engineer B. J. Lennert to install this well. I was the Campus Principal Engineer in the campus Office of Architects and Engineers at that time. During August of 1974 a major hill slide had occurred inside LBNL. It broke a Lab building, took out a portion of a Lab road, and was threatening Lawrence Hall of Science. At the same time another slide was developing above the Lab's corporation yard, threatening the University's Centennial Drive. Lennert's attempts to stop the slides by dewatering the hill area with horizontal hydraugers weren't working.

The well apparently stopped both slides. Presumably the campus continues to pump the well to prevent future slides. Later in the 70's, after I had left the A & E Office, the campus fire marshal had a large reservoir tank installed near the well, kept full by the well, to provide the primary source of water for fighting fires in the relatively inaccessible areas of upper Strawberry Canyon. Unfortunately, sometime in the late 80's, the campus removed that reservoir, to make way for the construction of a new laboratory building. Since then the water produced by the well has been dumped straight into Strawberry Creek.

The HFFS alternative would not only enhance the Lab's own fire protection capability, it could have reliability and cost savings advantages for the City, compared to the saltwater proposal. LBNL's support is requested to encourage the City to conduct a feasibility study of the hillwater alternative. Please contact me if you wish more information about the hillwater alternative or the history of hill area slides.

Sincerely yours,

John R. Shively

John R. Shively, P.E.

Enclosure:

Comment Letter F

JOHN R. SHIVELY

CONSULTING ENGINEER

P.O Box 7136
Berkeley, California 94707
(510) 531-1355
May 25, 1999

Chancellor Robert Berdahl
Universiity of California, Berkeley
Berkeley, California 94720

Re: City of Berkeley Fire Fighting System

Dear Chancellor Berdahl:

Enclosed is a copy of comments I prepared as my response to the City of Berkeley's Draft Environmental Impact Report (DEIR), for the City's proposed Saltwater Fire Fighting System (SFFS).

In my comments I propose an entire different fire fighting alternative, which I am calling the Hillwater Fire Fighting System (HFFS). HFFS is of consequence to U.C. Berkeley because most of that alternative would, of necessity, be installed inside University property, high up in Strawberry Canyon. Thus it would require the consent and cooperation of the University.

I believe the HFFS is a superior alternative will have both cost and operational advantages over the currently proposed SFFS. Additionally HFFS will also be of value to the University for fire fighting capability on both campus and Lawrence Berkeley National Laboratory property.

My knowledge about the dewatering well near the Space Science Laboratory comes from my ordering its installation, following the hill slides that occured in 1974. Those slides threatened Lawrence Hall of Science and Centennial Drive. I conceived the idea of a well after attempts to tap and dewater the aquafers that were causing the slides with hydrogers (horizontal wells), were unsuccessful. I retained Civil Engineer B.J. Lennert to install the well. The dewatering well has been eminently successful. At that time I was the Campus Principal Engineer in the campus Office of Architects and Engineers.

Please contact me if you wish more information about the HFFS alternative or the history of the hill area dewatering.

Sincerely yours,

John R. Shively

John R. Shively, P.E.

Enclosure:

Comment Letter F

JOHN R. SHIVELY

CONSULTING ENGINEER

P.O. Box 7136
Berkeley, California 94707
(510) 531-1355

May 26, 1999

Fire Chief Reginald Garcia
City of Berkeley
2121 McKinley Avenue
Berkeley, California 94703

Re: Proposed Saltwater Fire Fighting System

Dear Chief Garcia:

Enclosed is a copy of comments I prepared as my response to the City's revised Draft Environmental Impact Report (DEIR) for the proposed Saltwater Fire Fighting System (SFFS).

In my comments I propose an entirely different fire fighting water alternative, which I am calling the Hillwater Fire Fighting System (HFFS). The essential difference of this alternative is that it would derive its water from an existing well located on University property up near Grizzly Peak Blvd. just south of the University's Space Science Laboratory. This well is being continuously pumped for hill area dewatering purposes to stop slides that were occurring in 1974. The well successfully stopped the slides. The water is currently being dumped into Strawberry Creek. I had the well installed in 1975 when, at that time, I was the Campus Principal Engineer in the U.C. Berkeley Office of Architects and Engineers.

Subsequently a reservoir was installed adjacent to the well to store water for fire fighting purposes high up in the relatively inaccessible steep areas of Strawberry Canyon, just north of the Panoramic Way residential area. Unfortunately, the University took out the reservoir to make way for the construction of a new laboratory building.

As you probably know up until about a century ago the City derived most of its water from wells up in the Berkeley hills. While the demand for water outstripped the supply of hillwater, the supply is still up there, and could be tapped and impounded in reservoirs for fire fighting purposes, with the added benefit of little or no dependence on pumps.

While I can appreciate the fact that the proposed saltwater system has a lot of momentum, and a hillwater system may have a problem in being reckoned with the language of Measure G, I think the City should seriously consider the hillwater alternative, for its anticipated operational and cost advantages.

Please contact me if you wish any more information about the hillwater alternative.

Sincerely yours,

John R. Shively

John R. Shively, P.E.

Enclosure:

Comment Letter F

JOHN R. SHIVELY

CONSULTING ENGINEER

P.O. Box 7136
Berkeley, California 94707
May 21, 1999

Mr. Aperba Chattergee, Project Manager
Saltwater Fire Fighting System
City of Berkeley
Berkeley, California

Re: Revised DEIR, Saltwater Fire Fighting System dated March 1999

Dear Mr. Chattergee:

Please accept the following comments, prepared in response to the invitation for commentary on the revised DEIR. Requested herewith is that these comments be included with the subject Environmental Impact Report.

The EIR should consider an important viable alternative, one that is presently not considered in the revised or original DEIR. It is for a fire fighting system that is gravity fed from above with hillwater from one or more reservoirs located in the Berkeley hills, rather than saltwater that must be pumped up from the Bay. This alternative may be identified as the Hillwater Fire Fighting System or HFFS.

Description:

The source of water for HFFS would be from reservoirs installed high up in Strawberry Canyon on University of California property, and filled with hillwater produced from an existing water well located just south the university's Space Science Laboratory. This well was installed in 1975 and has been maintained in continuous operation since then. It is the key part of the University's hill dewatering project, to stop hill slides that occurred below and were threatening Lawrence Hall of Science and the University's Centennial Drive. Presently the water is released into Strawberry Creek.

As of this writing the rate of water production of the existing well is not available, but is considered adequate to fill reservoirs that could supply water of a total volume and rate comparable to the proposed Saltwater Fire Fighting System SFFS. The rate of water pumped varies according to the time of the year and the maintenance of the well's intake screen. It would be prudent to install a second backup well at relatively small cost.

Reservoirs would be positioned on University property sufficiently high up in the Strawberry Canyon area to provide adequate head pressure to gravity feed all the areas of historic hill area fires, as well as lower elevations in the city through the existing EBMUD system. HFFS would use one or more earthquake resistant reservoirs, and could be either open or covered design.

Distribution:

The HFFS distribution system would provide gravity feed to a number of planned accessible fire fighting points and to a number of possible cross connections with the existing EBMUD fire hydrant system. It would feed the city both north and south of Strawberry Canyon into areas of both historic or potential fires. The piping system would be of earthquake resistant design.

HFFS Costs:

There are no cost figures available at this time. Such information would be very design dependent. However it can be predicted that both construction and maintenance costs would be well below those costs for the SFFS saltwater system.

Advantages:

The HFFS would be gravity fed from above, and not pumped from below. Thus it would not be dependent on a pumping system that could fail because of time deterioration, poor maintenance, lack of operational training over time. The HFFS system would be much less susceptible to mechanical failure or human error.

HFFS would supply water into points located in areas of historic or potential fires, rather than below them.

The HFFS would cause far less disruption to existing streets, traffic flow, and city commerce. Almost all construction would occur high up in sparsely populated areas of the city.

General:

The 1991 firestorm clearly established the need for a separate backup fire fighting water system. Unfortunately, the viable alternative, that of a system that can be constructed by utilizing an existing source of fresh water located high up in the Berkeley hills, was not considered at the time Measure G was conceived. Because of its higher reliability and anticipated lower costs, the hillwater system should be considered now.

Respectfully submitted,

John R. Shively

John R. Shively, P.E.

cc: Berkeley City Council
Berkeley Fire Chief
University of California Berkeley
Lawrence Berkeley Laboratory

In recent months, starting in December of 2006, clusters of earthquakes have been measured in and around Berkeley, including the Strawberry Canyon, along the Hayward Fault (Attachment 10)

Figure 11 shows earthquake epicenters and faults (fault interpretations) in the Strawberry Canyon. The DEIR fails to describe the entire Hayward Fault Zone in detail,which is the area reaching from the Hayward Fault to the East Canyon and Wildcat Faults.

Over 55 earthquakes have occurred in the Strawberry Canyon in the past 40 years. Such high incidence of microseismicity within the mapped traces of Wildcat Fault and between the Wildcat and the Cyclotron Faults provides compelling evidence that additional faults other than just the Hayward should be considered as active in Strawberry Canyon, which the DEIR fails to address.

In the Final EIR please provide the most recent updated list of seismic activity in the Strawberry Canyon, including the I quarter of 2007.

F-16

Faults in the Canyon are also potential conduits for the migration of contaminated groundwater at LBNL. Figure 12 shows Zones of Concern within the mapped groundwater contaminant plumes, and indicates areas where additional sampling should be conducted. The DEIR fails to address the dangers of proposed new development over areas of groundwater contamination and within the Zones of Concern.

F-17

In June of 2005 the National Academy of Sciences panel, formally known as the Committee on Biological Effects of Ionizing Radiation, or BEIR, concluded that there is no exposure level found below which dosage of radiation is harmless. The preponderance of scientific evidence shows that even very low doses of radiation pose a risk of cancer or other health problems. The National Academy of Sciences panel is viewed as critical because it addresses radiation amounts commonly used in medical treatment and is likely also to influence radiation levels the government will allow at abandoned and other nuclear sites. (Attachment 13) Therefore it is imperative that LBNL continue site clean-up and return the Strawberry Creek Watershed to its pristine, pre-development condition.

F-18

ATTACHMENT 10 Comment Letter F

THE BERKELEY DAILY PLANET

Volume 8, Issue 77 • FREE THE EAST BAY'S INDEPENDENT NEWSPAPER Weekend Edition, Dec. 29, 2006-Jan. 4, 2007

Peace on Earth Disrupted By Series of Holiday Quakes

By RICHARD BRENNEMAN

It wasn't holiday presents but a twitching reminder of its potentially destructive presence that the Hayward Fault gave East Bay residents this holiday season, ending—for the moment—with a weak Thursday morning spasm.

The seismic swarm began with a sharp little shake six days before the holiday at 7:12 p.m. on Wednesday the 20th, initially reported as registering 3.67 on the 10-point Richter Scale.

The next shock—a magnitude 3.68—hit at 10:49 p.m. Friday, followed by an imperceptible 1.4 42 minutes later centered a mile further southeast.

A 3.51 jolt at 9:21 a.m. Saturday, located at the same site as the two earlier and stronger quakes. Two more smaller quakes—a 1.6 and a 1.0—followed at 2:23 p.m. Saturday and 12:12 p.m. Sunday.

An April 15 quake measuring 2.8 on the Richter Scale originated in the same location—1.2 miles southeast of California Memorial Stadium, which sits directly over the fault.

According to a report by the UC Berkeley Seismological Laboratory, the recent quakes "are occurring in a pocket of seismicity in the Berkeley-Piedmont border region."

As of noon Saturday, the area had been the scene of "99 earthquake(s) of magnitude 2.0 or larger and 10 of magnitude 3.0 or larger occurring within a radius of

Continued on Page Twenty-Eight

Peace on Earth Disrupted by Series of Holiday Quakes

Continued from Page One

1 mile of this sequence since 1970." The three sharpest pre-Christmas temblors this year are "the three largest earthquakes to date."

University plans to renovate the Memorial Stadium interior and add a gym along its western wall are currently facing legal challenges, along with other projects located adjacent to the fault zone—including an underground parking lot.

One contention in all the suits is that the gym should be prohibited and stadium work limited because of the Alquist-Priolo Act, a state law barring new construction on faults and limiting renovations to have of a structure's value.

Another project, a transformation of residential Bowles Hall into a corporate learning retreat is also complicated because a corner of the building may be directly over the fault as well.

The strongest quakes all originated at depths of between 2.8 and 6 miles beneath the surface about 1.2 miles southeast of Memorial Stadium, according to reports posted by the U.S. Geological Survey (USGS).

While the small 2.6 shaker that struck at 10:07 Christmas morning also originated on the Hayward Fault, its epicenter lay further to the southeast in the hills above Union City.

And another small jolt—a 1.8 centered on the fault's northern reaches beneath San Francisco Bay five miles northwest of San Pablo—preceded Wednesday's first shaker by five hours and 5 minutes.

The latest quake Thursday morning measured 2.8, and originated about eight tenths of a miles further southeast that the epicenter of the strongest quakes.

In a twist, the epicenter for the strongest quakes was located precisely where the UC Berkeley Seismology Laboratory pinpointed the origin of a hypothetical 6.5 earthquake for a 2003 exercise.

According to the university's estimates, a quake of that intensity at that epicenter would result in more than $5.6 billion in damages.

For more on the simulation, see the university's web site at http://seismo.berkeley.edu/eqw/q2003/

For up to date information on the recent quakes, see the USGS web site at http://quake.wr.usgs.gov/recenteqs/Maps/San_Francisco.htm. "Events," as seismologists described them, are posted within moments of their occurrence.

To see where else the quake was felt, click on the first of the two "Did you feel it?" links for a map of reports, and then on the "Statistics" link for a list of reports by ZIP code.

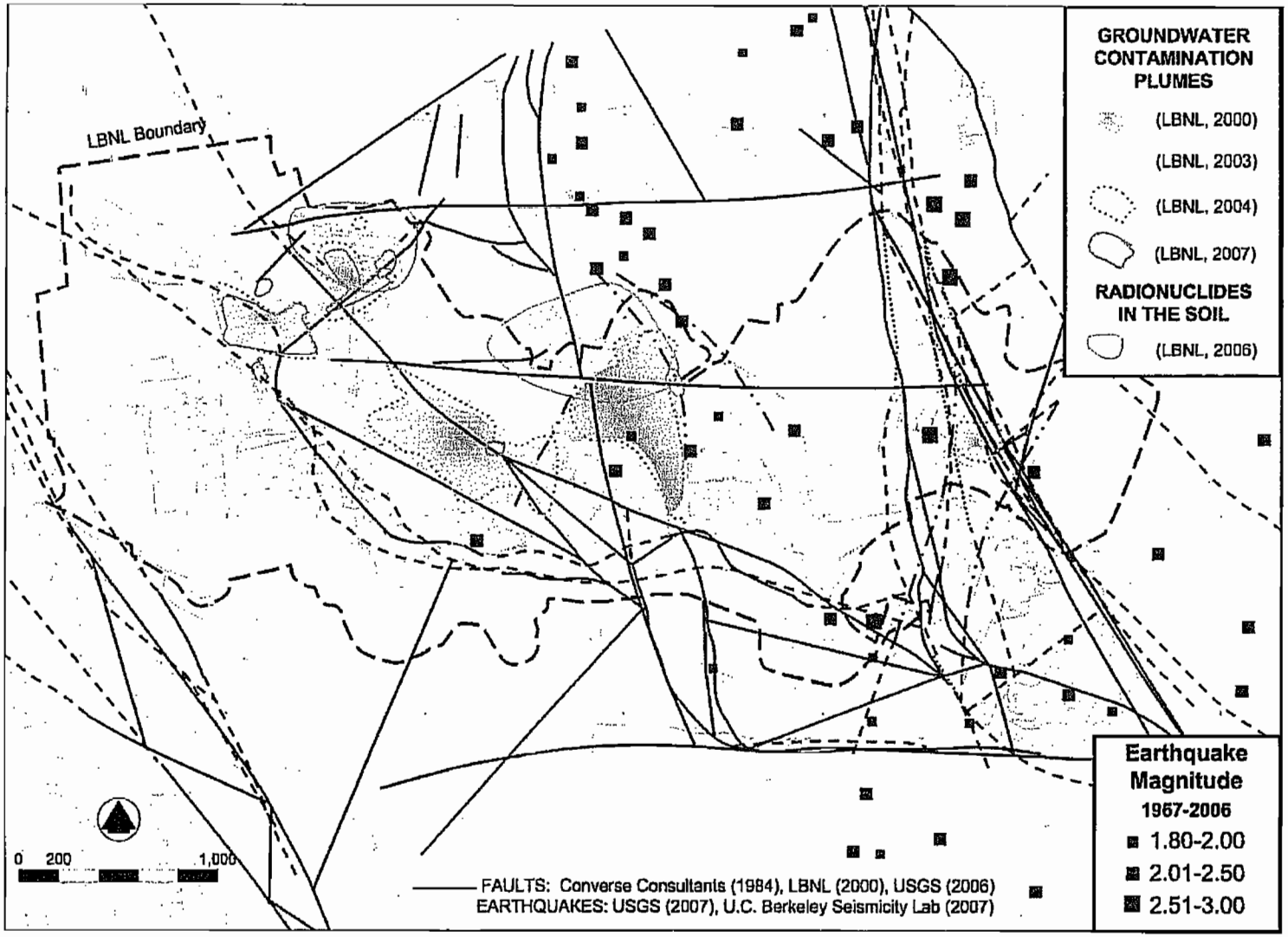


FIGURE 11 GROUNDWATER CONTAMINATION PLUMES AND RADIOACTIVE CONTAMINATION IN SOIL AND RELATION TO FAULTS AND EARTHQUAKE EPICENTERS AT LBNL IN STRAWBERRY CANYON

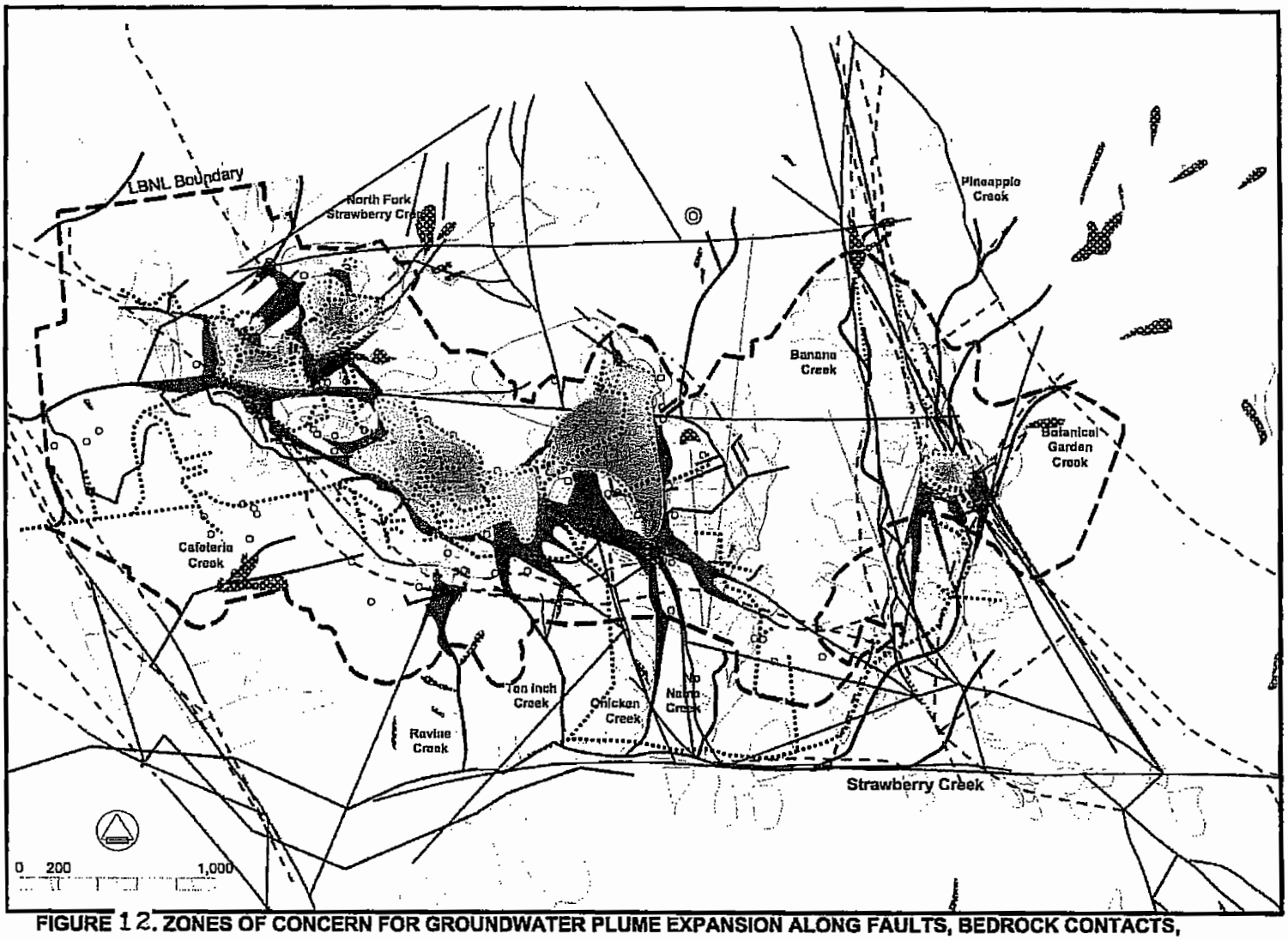


FIGURE 12. ZONES OF CONCERN FOR GROUNDWATER PLUME EXPANSION ALONG FAULTS, BEDROCK CONTACTS, LANDSLIDES. HISTORIC CHANNEL BEDS AND MODERN CREEKS. SEE NEXT PAGE FOR MAP LEGEND.

ATTACHMENT 13 Comment Letter F

San Francisco Chronicle
THURSDAY, JUNE 30, 2005 415-777-1111 46 CENTS PLUS TAX

Even lower radiation poses risk, panel says

No exposure level found below which dosage is harmless

By H. Josef Hebert
ASSOCIATED PRESS

WASHINGTON — The preponderance of scientific evidence shows that even very low doses of radiation pose a risk of cancer or other health problems and there is no threshold below which exposure can be viewed as harmless, a panel of prominent scientists concluded Wednesday.

The finding by the National Academy of Sciences panel is viewed as critical because it addresses radiation amounts commonly used in medical treatment and is likely also to influence radiation levels the government will allow at abandoned nuclear sites.

The nuclear industry, as well as some independent scientists, have argued that there is a threshold of very low-level radiation at which exposure is not harmful, or possibly even beneficial. They said current risk modeling may exaggerate the health impact.

The panel, after five years of study, rejected that claim.

"The scientific research base shows that there is no threshold of exposure below which low levels of ionized radiation can be demonstrated to be harmless or beneficial," said Richard R. Monson, the panel chairman and a professor of epidemiology at Harvard's School of Public Health.

The committee gave support to the "linear, no threshold" model that is currently the generally acceptable approach to radiation risk assessment. This approach assumes that the health risks from radiation exposure decline as the dose levels decline, but that each unit of radiation — no matter how small — still is assumed to cause cancer.

"It is unlikely that there is a threshold below which cancers are not induced," said the report, although it added that at low doses "the number of radiation-induced cancers will be small." And it said cancers from such low-dose exposures may take many years to develop.

The panel, formally known as the Committee on Biological Effects of Ionizing Radiation, or BEIR, generally supported previous cancer risk estimates — the last one by an earlier BEIR group in 1990.

Contrary to assertions that risks from exposure to low-level radiation may have been overstated, the panel said "the availability of new and more extensive data have strengthened confidence in these (earlier) estimates."

The committee examined doses of radiation of up to 100 millisievert, a measurement of radiation energy deposited in a living tissue. A single chest X-ray accounts for 0.1 millisievert, average background radiation 3 millisievert a year and a whole body CT scan delivers 10 millisievert.

The committee estimated that 1 out of 100 people would probably develop solid cancer or leukemia from an exposure of 100 millisievert of radiation over a lifetime with half of those cases being fatal.

The report noted that exposure from a whole body CT scan is much higher than the usual X-ray, and it raised concerns about the frequency in which such medical diagnostics should be used.

LBNL provides a "private" shuttle bus service for its employees, and operates a fleet of diesel busses in various loops in Berkeley and Oakland and within the Lab itself. Please describe how many different routes are involved within the LBNL bus service? How many trips per each route per day? What is the length in miles of each route? What is the total mileage driven by LBNL's diesel bus fleet daily? Weekly? Monthly? In a year?How many riders use the busses per day? Per week? Per month?Year? What is the amount of diesel particulate matter emitted by these busses per mile? per 10,000 miles? Per 100,000 miles? 200,000 miles? What is the amount of diesel particulate matter emitted by these busses daily, weekly, monthly, in a year? Please provide the same information for UC Berkeley's shuttle service. Are any ofthese shuttle bus services available for Berkeley residents? If not, why not? F-19

Continuing in the spirit of energy conservation and reducing the emission of greenhouse gasses: How many buildings at LBNL are currently supplied by solar power? What is the plan for converting existing buildings to use solar energy? Are solar panels part of every new building at LBNL described in the LRDP? If not, why not? F-20

And lastly, there is a real possibility of the occurance of emergencies such as a flu pandemic and scores of lab employees are quarantined at home for weeks or months. What plans are in place at LBNL to manage the laboratory operations and the site under such conditions? F-21

And furthermore, one day, possibly not in a distant future, there will be a catastrophic earthquake on the Hayward Fault. There will be heavy damage to lab buildings and transportation infrastructure, employees wanting to go home to check on their families. What plans are in place at LBNL to manage the laboratory operations and the site under such a situation? (Attachment 14) F-22

Sincerely,

Pamela Sihvola
P.O. Box 9646
Berkeley, CA 94709

PS. Enclosed also please find CMTW's 2003 comments on the Notice of Preparation (NOP) of the LBNL 2004 LRDP DEIR.
Please respond to all the comments and concerns expressed in the letter. (Attachment 15)

Comment Letter F

ATTACHMENT 14. (2 PAGES)

The Hayward Fault: Will it trigger the next quake:

What to do if it does

April 10, 1992

Editor's note: LBL geologist Pat Williams examines the probability that the nearby Hayward Fault will produce a major earthquake, and discusses how we can prepare for that possibility, both at work and at home.

By Pat Williams

One day in the future; while many or most of us are still employed at LBL, there will be a catastrophic earthquake in the Bay Area. Many earthquake researchers believe that our very close neighbor, the northern Hayward Fault, is the top candidate to produce the area's next major shock. Modest preparations at home and at work will make a tremendous difference in our comfort, safety, and peace of mind in the aftermath of this event.

Long-term earthquake forecasting leans heavily on history for evaluating earthquake occurrence probabilities. This method relies on three pieces of information: 1) the fault's long-term rate of slip, 2) the time elapsed since its last rupture, and 3) the offset expected in a "typical" fault rupture.

Surprisingly, little of this information can be determined by classical seismological techniques. Earthquake science now relies heavily on geological and historical investigation of past fault behavior. Geological fault studies search for ancient evidence of slip rate, the size of past offsets, and the times of past ruptures.

Investigators scan old newspapers to learn the extent and size of historical ruptures. Studies of the Hayward Fault have provided the following clues: its average slip rate is about 9 mm/yr (0.35 in/yr); the latest rupture of its southern segment (Fremont to San Leandro) occurred in 1868; and rupture of the northern section (San Leandro to Pinole) probably occurred in 1936. Earthquake forecasters estimate an average earthquake recurrence interval of 167 years. Other concepts, particularly the idea that strain of the earth's crust in the Bay Area has slowly "recharged" after being greatly relaxed by the 1906 San Francisco earthquake, suggest that new Hayward Fault earthquakes are likely during the period of the next few years to decades.

LBL's Exploratory Research and Development Fund enabled a direct study of the Hayward Fault's earthquake history. Current results of that study indicate that the fault's past ruptures occurred, on average, every 150-250 years. This appears to support the 167- year average recurrence estimated by earthquake forecasters.

Following a large earthquake, the greatest concern we will probably have, after our personal safety, will be the safety and whereabouts of our families. Due to heavy damage to the transportation infrastructure at the Lab and in the Bay Area, it is likely that most of us will have to leave the site under our own power in order to reunite with our families. This will be more difficult for those of us who live very far from the Lab.

Comment Letter F

Lab roads will probably be closed by landslides and ground rupture along faults. The accompanying figure shows that ground rupture on the Hayward Fault is likely to close both Centennial Drive and Cyclotron Road for some period of time. Roads closed by fault breaks may be made passable by the Lab's own crews within a few hours. Roads closed by landslides are generally more difficult to repair, and are likely to remain impassable for days to weeks. Even after Lab roads are made passable, use will generally be restricted to emergency vehicles only. Lab earthquake procedures (located on the inside-back cover of the LBL telephone directory) instruct us **not** to leave the Laboratory by car.

After a major seismic event in the Bay Area, bridges and rail systems are likely to remain closed for a few hours to a few weeks while they are inspected, and if necessary, repaired. Those of us who used bridges and rail transit to commute to work may be stranded away from home for a day or more, and when we do go home, we are likely to cover most of the distance on foot.

Reasonable preparations for a long walk home include keeping sturdy shoes, a jacket, a hat, and a backpack, containing some high-energy nonperishable food, a water bottle, and a flashlight, at your work place and/or in your car. Additionally, it is essential that we **write down** a family earthquake plan and in it include as participants teachers, friends, neighbors, and relatives who can help us in reuniting our families and whom we can help during the crisis.

In the plan: 1) make a school/daycare evacuation plan; 2) choose a primary and an alternate family meeting site: 3) identify some person(s) outside the area to coordinate family messages (long distance lines will be the first to be reestablished; and 4) include someone in the plan would could care for your children if the family is separated during an earthquake. Store adequate food, water, batteries and other supplies to last three or more days after the earthquake. Be sure that both the structural and non-structural elements of your residence are earthquake safe. The telephone white pages contain an excellent summary of earthquake emergency information. By preparing for future Bay Area earthquakes, we acknowledge the potency of the active faults of this region, we contribute to our own peace of mind, and we set the stage for a more rapid post-earthquake recovery of LBL and the community.

24.

ATTACHMENT 15 (4 PAGES)

Comment Letter F

Committee to Minimize Toxic Waste

LAWRENCE BERKELEY NAT'L LAB
NOV 26 2003
FACILITIES

Jeff Philliber
Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
MS 90K - One Cyclotron Road
Berkeley, CA 94720

November 25, 2003

Re: Comments on the Revised Notice Of Preparation (NOP) for the Draft Environmental Impact Report (DEIR), LBNL 2004 Long Range Development Plan (LRDP)

Dear Mr. Philliber,

The City of Berkeley had requested a 14 day extension to the comment period for the above mentioned LBNL 2004 LRDP NOP for these reasons: "Given the existence in the project area of locations identified as Hazardous Waste and Substances sites, the proximity of the facility to a major fault line, and its location in an area that is susceptible to wildland fires and seismic-induced landslides, it is particularly important that the City and other agencies have adequate time to list issues that must be addressed in the Draft EIR." (Attachment 1)

The Laboratory has refused to grant the City's request.

This is the first time in 15 years that the community has an opportunity to comment on the Department of Energy's (DOE) oldest nuclear industrial complex LBNL's Long Range Development Plan through the year 2025. Clearly more time should have been granted for this enormous task of compiling a comprehensive list of issues related to LBNL's proposed land use plans that need to be addressed in a clear, truthful, detailed manner in the upcoming DEIR.

Due to the lack of time, we are enclosing comments on specific issues that we have raised during this year with respect to several LBNL related projects such as the Molecular Foundry, Building 49, RCRA Corrective Action Process and DOE's proposed risk based "cleanup" of its sites. All these issues are relevant to the LBNL 2004 LRDP EIR process, and must be addressed in a comprehensive way.

The enormity of LBNL's expansion is defined on page 8 of the NOP, which states that "LBNL occupies 1,760,00 gsf at the main Hill site" and that the "implementation of the 2004 LRDP would increase the Lab's main Hill site building area to 2,980,000 gsf", i.e. an increase of 1,220, 000 gsf building area in the already fragile natural area of the Strawberry Creek Watershed.

One and a quarter million square feet translates to 70% increase in the Lab's Hill site building area and corresponds to approximately 18 or 19 six story buildings, the size of the proposed Building 49, a project, which review was rushed through just weeks before the Lab's announcement for the LRDP EIR process.

A similar rush-through occurred just some 6 months earlier with the ever controversial Molecular Foundry project, this time without an EIR, skirting the public process. (Attachment 2)

We had asked in our comment letter of October 31, 2003, that the Lab postpone the B49 EIR until the LBNL 2004 LRDP EIR is finalized, so that the project impacts can be adequately addressed and mitigated, not based on a 15 year old EIR, but one currently in preparation reflecting the present and future development at the site. (Attachment 3)

To continue in that spirit we are asking that LBNL include a <u>project level environmental analysis</u> of the Molecular Foundry as part of the LBNL 2004 LRDP EIR, as the University of California Berkeley (UCB) has done with the Chang-Lin Tien Center under the UCB LRDP ! Specific concern here are the impacts of construction to the Chicken Creek sub-watershed which includes No Name and Chicken Creeks and a historical spring, as well as the impacts of the operations of the Molecular Foundry, namely nonopollution, i.e. ultra fine particle emissions on human health and the environment.

Attached is the recommendation by Berkeley's Environmental Commission on November 6, 2003 addressing these very issues, which we ask you to consider in the LRDP EIR. (Attachment 4)

In addition to the attachments above we are enclosing the following documents (and their relevant attachments) for you review and consider and <u>respond to</u> in the LBNL 2004 LRDP EIR:

1. February 4, 2003 comments re: Molecular Foundry (which include comments to DOE re: Risk Based Cleanup, dated January 30, 2003) (Attachment 5)

2. April 17, 2003 Molecular Foundry comments addressed to the UC Regents (Attachment 6)

3. Urban Creeks Council of California comments on the Molecular Foundry, dated May 15, 2003 and addressed to the UC Regents (Attachment 7)

4. CMTW's questions to LBNL re: Molecular Foundry (Attachment 8) dated May 8, 2003

5. June 20, 2003 letter addressed to the Department of Toxic Substances Control re: RCRA Corrective Action process at LBNL (Attachment 9) Also attached is a June 24, 2003 request for RCRA related LBNL documents and contour map of LBNL with specific GIS layers

6. Comments on B49, dated July 17, 2003, September 3, 2003 and October 31, 2003 (Attachment 10)

7. October 9, 2003 comments on UCB's LRDP including a letter dated 3/13/03 re: LBNL (Attachment 11)

In summary we are asking that the LBNL 2004 LRDP address in a comprehensive way all the issues raised in the above referenced documents i.e.

1. Geologic hazards, modelling of all known faults (active and inactive) and their splays at LBNL and in the Strawberry Canyon area

2. Soil liquefaction potential along creeks

3. Historical landslides and soil failings at LBNL and in the vicinity in the Strawberry Canyon

4. Comprehensive watershed analysis including study of the Lennert Aquifer (a water bank)

5. Comprehensive watershed management plan, which would correctly characterize the tributaries of Strawberry Creek as Mediterranean Streams with their own specific habitats (Attachment 12)

6. Provide comprehensive surface and subsurface geologic information for the entire LBNL site in order to model groundwater transport relative to contaminant and water quality concerns

7. Provide a long term clean up plan for all toxic contaminants

8. Provide a long term decommissioning plan for the many lab buildings currently vacant or extremely unused, due to existing contamination

9. Comprehensive analysis of a new threat, nanopollution (Attachment 13)

10. Comprehensive analysis of the impacts of the Advanced Light Source, used in connection with the Molecular Foundry projects, as to increased risks from gamma and neutron radiation on the residential neighborhoods of the Panoramic Hill's north side

11. Comprehensive analysis of fire risks, due to the Lab's location in a high risk critical fire zone

12. Comprehensive evacuation plans for the residents surrounding the Lab to the north and south, site maps should show all the surrounding neighborhoods at least to the distance of 2 miles in all directions.

In conclusion, there is a lot of mistrust in the community regarding LBNL's willingness and ability to manage and control toxic, radioactive pollution from the existing facilities. The evidence is in the multiple contaminated groundwater plumes, in the radioactive vegetation, tritium contaminated Eucalyptus grove offsite next to the Lawrence Hall of Science, a children's museum and school. (Attachments 14 and 15)

In newspapers we see articles with headlines such as: "Berkeley lab found research fabricated (SF Chronicle, 7/13/'02), LBNL finds accounting to be sloppy (Berkeley Voice, 10/3/'03), Berkeley Lab poses health risk, fire could release dangerous radioactivity (SF Chronicle 2/6/'01) which do not increase the community's confidence in the Lab's management practices, especially in the areas of Environment, Health and Safety, for which there should be a comprehensive, independent audit.(Attachment 16)

We believe that the only acceptable alternative for the Lab is to stop growth in the Strawberry Creek Watershed and start satellite/second campus development offsite in order to protect and preserve the last pristine areas of the Strawberry Canyon for future generations.

Sincerely,

Pamela Sihvola
P.O. Box 9646
Berkeley, CA 94709

PS. Enclosed also please find the Berkeley City Council's unanimous Resolution, passed on Tuesday, November 25, 2003 re: LBNL's LRDP (Attachment 17). Also 4 articles in the Daily Planet (Attachment 18)

Pamela Sihvola, Committee to Minimize Toxic Waste, March 22, 2007 (Comment Letter F)

Response F-1

The commenter expresses support for relocation of LBNL facilities to a location away from the Lab's main hill site, such as the Richmond Field Station (RFS). The DEIR analyzes an Off-Site Alternative under which a portion of the growth proposed under the 2006 LRDP would, in fact, occur at the RFS (see DEIR page V-38).

Concerning the commenter's statement regarding a "Nuclear-Nanotech Industrial Complex," LBNL is not classified as a "nuclear" facility under Department of Energy definitions.

Response F-2

Geological and seismic conditions on the Lab's hill site are discussed in Section IV.E, Geology and Soils; site contamination is discussed in Section F, Hazards and Hazardous Materials.

Response F-3

Per the Illustrative Development Scenario of June 2005, which provides a conservative (given the reduction in the scope of the project) scenario for analysis in the Draft EIR, net new imperious area for buildings would be a maximum of 5.1 acres, net new impervious area for parking would be a maximum of 2.2 acres, and net new impervious for roads would be a maximum of 2.7 acres, for a total of 10.0 acres. While many outdated buildings are identified for potential demolition in the Illustrative Development Scenario, each of these subsequent individual projects would undergo appropriate environment and health and safety review, including for historic and health and safety issues, at the time when demolition were proposed. In the case of the Bevatron and Building 51, an environmental impact report was prepared and publicly circulated that analyzed such issues. Building 10, which is being demolished to accommodate the User Support Building, was analyzed in a mitigated negative declaration for that project. (Building 10 was found to be not eligible for listing on the National Register by the State Historic Preservation Office and the Department of Energy.)

Concerning exposure to hazardous materials from demolition activities, Impact HAZ-1, DEIR page IV.F-23, states, "Compliance with laws, regulations, policies, and procedures described in this chapter, coupled with continuation of the Lab's current management practices, would ensure that exposure of workers and the public resulting from the demolition and renovation of LBNL buildings would result in less-than-significant impacts." Berkeley Lab's policies and procedures, detailed in the discussion under Impact HAZ-1, include, "a survey and/or review of existing data is conducted to determine whether hazardous substances or radioactivity, whether in the building or the subsurface, may be encountered," and appropriate remediation, if applicable. The Lab has "detailed project specifications that are required of all subcontractors performing various activities, including demolition," with specific protocols established for work in radiation areas, such as a "Radiation Work Permit." As a result, effects related to building demolition were deemed less than significant.

Response F-4

Please see the response to Comment C-23 concerning earthquake faults. Please see also the response to Comment F-17, below.

Response F-5

Figure IV.E-3 does show all of the known landslides areas within the LBNL boundary. In addition, the Draft EIR discusses an historic slide that was recently discovered but which is still the subject of on-going study (p. IV.E-7). Emergency ingress and egress to the Hazardous Waste Handling Facility was not blocked due to a 2006-2007 landslide on Centennial Drive.

Response F-6

DEIR Figure IV.F-1 shows areas of chemical (volatile organic compounds) and radioactive (tritium) contamination at the Lab's main hill site. Recent observations by LBNL show that the concentrations and the extent of tritium contamination have been decreasing and will continue to decrease as a result of natural processes. The potential presence of contaminated soil would be considered as part of the planning process, after more definitive plans are reached for building development. When specific projects are planned, soil sampling and appropriate control measures would be considered to ensure that human health and the environment are protected.

Response F-7

The Molecular Foundry is a completed project, for which adequate CEQA and National Environmental Policy Act (NEPA) review was undertaken. An Initial Study/Mitigated Negative Declaration, which was tiered from the 1987 LRDP EIR, as amended, fully analyzed potential environmental impacts of the Molecular Foundry project and was circulated for public review between December 10, 2002, and February 5, 2003, prior to approval of the Foundry project in 2003. The Initial Study/Mitigated Negative Declaration included applicable mitigation measures from the 1987 LRDP EIR, as amended, along with project specific mitigation measures. The building was completed in 2006 and is now operational.

The commenter expresses concern about the Molecular Foundry's "health and environmental effects of nanoparticle emissions (including nanoscale bacteria and viruses)."

Bacteria and viruses, which in their elementary state are generally nano-scale in size, have historically been studied and researched at Berkeley Lab in appropriately controlled conditions and pursuant to all applicable environmental, health, and safety laws and protocols. Such research would be expected to continue and increase at Berkeley Lab, with or without implementation of the 2006 LRDP. Accordingly, biological research of this nature would continue to be conducted safely and under tightly controlled conditions, and no uncontrolled releases of such organisms would be expected to occur.

Nano-scale research (and the use of laboratory chemicals) at the Molecular Foundry was discussed in the Molecular Foundry Mitigated Negative Declaration and Environmental Assessment. The Foundry would not be a large-scale manufacturer of nanoparticles, but rather

would work only with very small quantities necessary for analyzing the behavior and interactions of such particles – sometimes at the individual particle level. Moreover, these limited quantities of nanoparticles would be used in highly controlled environments – negative pressure laboratories and often in sealed containers or suspended in inert media – thus very limited amounts of nano-particles would ever be subject to uptake and release in fume hoods. Further, any particles being so released from fume hoods would be automatically dispersed and rendered to undetectable concentrations almost immediately and certainly long before air patterns would allow such particles to reach sensitive receptors (It should be noted that many types of nanoparticles – including many of those that would studied at the Molecular Foundry – exist naturally and benignly in the atmosphere). Studies that purport to show harmful effects of nanoparticles such as carbon nanotubes required high concentrations of those particles to be forced into the lung tissue of mice, creating a physical clogging effect. It would not be possible to create, emit, and transmit such high concentrations from the Molecular Foundry (or any Berkeley Lab facility) to a sensitive receptor under Molecular Foundry or 2006 LRDP operating conditions.

Response F-8

The BP funded program is called the Energy Biosciences Institute and is one of three programs currently planned to be housed in the Helios Energy Research Facility (represented in the Draft EIR Illustrative Development Scenario for analytical purposes as Building S-9 and/or S-12). As stated on page I-11 of the DEIR, the draft 2006 LRDP "is not an implementation plan, and adoption of the LRDP does not constitute a commitment to any specific project, construction schedule, or funding priority [and] the LRDP EIR "is a program-level EIR that evaluates the effects of implementation of the entire LRDP. Any proposal for future development at LBNL must be approved by the LBNL Director, by the President of the University of California, or The Regents, as appropriate, and comply with CEQA." Information on Helios is provided on page III-19 and in Appendix D of the DEIR. Details of the Helios Energy Research Facility will be provided in the environmental document for that project, which will undergo its own project-level review and analysis under CEQA. The labs for this project will be designed for containment of all hazardous and/or bioengineered materials per building code and environmental regulatory requirements.

Response F-9

The Computational Research and Theory (CRT) Building, as currently projected, will likely be a six-story, 165,000-gross-square-foot building near the Blackberry Canyon Gate entrance to the Lab (Project Description, page II-19).

As stated in Appendix D, in conformance with the Alquist-Priolo Act, a geologic fault investigation was performed in September 2006. The investigation revealed no traces of an active fault on the proposed project site.

As stated in response to the previous comment, the LRDP EIR "is a program-level EIR that evaluates the effects of implementation of the entire LRDP. Any proposal for future development at LBNL must be approved by the LBNL Director, by the President of the University of

California, or The Regents, as appropriate, and comply with CEQA." Details of the CRT project will be provided in a project-level environmental document pursuant to CEQA. It is currently anticipated that CEQA review for this facility will be conducted sometime in mid- to late 2007. Any potential impacts that could result from implementation of the CRT Building will be assessed in that review.

The CRT building as depicted in the Illustrative Development Scenario and as currently proposed was purposefully sited so as to avoid impacts to the drainage referred to as Cafeteria Creek.

Watershed management and issues pertaining to Strawberry Creek and its tributaries are discussed in the Draft EIR Hydrology and Water Quality section and Biological Resources sections.

Response F-10

The tritium plume was considered and the Helios building is planned to be sited so as not to disturb the plume. The building is planned for an area where there is no detectable tritium. DEIR pages IV.F-5 through IV.F-7 discuss the tritium plume present in groundwater mentioned by the commenter, including the corrective measures that have been taken by LBNL under DOE oversight pursuant to the Atomic Energy Act. It should be noted that all tritium concentrates in all monitoring wells at Berkeley Lab are at levels less than the drinking water standard.

Response F-11

The negative declaration for the proposed Guest House project, which fully investigated geotechnical issues and found no significant impacts, was circulated for public review and comment in May 2007.

Please see also the response to Comment F-16, below, concerning the commenter's reference to the "Cyclotron Fault."

Response F-12

The DEIR on page IV.E-11 discusses the Wildcat fault and explains that it has never been considered active where it traverses LBNL.

Response F-13

The DEIR discusses earthquake-induced landslide hazards on page IV.E-23.

Response F-14

The so-called Shively Well is outside the LBNL management area and is not expected to be affected by the proposed project.

According to existing geologic maps, a very small section of the Lennert Aquifer extends into the LBNL property on the east side of Building 77, which is adjacent to Centennial Drive near the

Grizzly Gate. UC Berkeley pumps any water out of the Shively Well and discharges it to the UC Berkeley storm drain network where it eventually flows into the North Fork of Strawberry Creek.

Response F-15

Please see response A-4 regarding global warming. In addition, assertions that rainfall intensity at LBNL will increase (or decrease) due to global warming or other climate change factors that may occur during the lifetime of the project are speculative. This conclusion is based on the July 2006 report of the California Department of Water Resources entitled *Progress on Incorporating Climate Change Into Management of California's Water Resources*, available online at www.baydeltaoffice.water.ca.gov/climatechange/DWRClimateChangeJuly06.pdf. That report states that increasing precipitation is generally expected as a result of climate change but there will be significant regional variations on this global trend, and more analysis of precipitation trends in California is needed to determine whether changes in California precipitation are caused in part by global warming (section 2.5.2). The report also notes there may be increased variability in precipitation (id). In evaluating projected changes in future precipitation, the report notes that climate model projections for precipitation in California are mixed, with some projecting moderate decreases and some projecting moderate increases (section 2.5.4.1). All new facilities planned and constructed under the project would be designed in consideration of seismic and landslide hazards of the site.

Response F-16

The commenter suggests that other faults in Strawberry Canyon should be considered active based upon the earthquake record. The commenter is correct that earthquakes have occurred northeast of the Hayward Fault in the vicinity of LBNL. These events have historically been deeper than 5 kilometers below the surface, and have typically had an earthquake magnitude of 4 or less. These events, by definition, indicate there are active faults in the subsurface northeast of the Hayward Fault in the vicinity of LBNL. However, the commenter is using the term “active” to denote a fault capable of generating an earthquake of any size in this context. This alone is not sufficient to indicate these faults constitute a hazard, however. The two main hazards from faults are surface rupture and ground shaking (with attendant subsidiary hazards such as liquefaction).

The faults generating earthquakes northeast of the Hayward Fault at LBNL are not active in terms of surface rupture. As described in the DEIR, the California Geological Survey has not zoned any faults other than the Hayward Fault at the lab as active with regard to surface rupture, and further investigations of the Wildcat and East Canyon faults above and beyond that required by state regulation have shown that these faults are not active with regard to surface rupture at the lab. The Lab has not specifically investigated the possibility of surface activity of the fault referred to as the “Cyclotron Fault” by the commenter because there is no evidence that this fault is active. The “Cyclotron Fault” referred to by the commenter is a northeast-striking, shallowly northeast-dipping fault. The catalogue of earthquakes for the area does not contain hypocenter clusters or focal mechanisms consonant with activity on this fault plane. Rather, the hypocenter clusters and focal mechanisms are indicative of motion on north by northeast-striking, nearly vertical faults, such as the Hayward Fault.

In regard to the hazard from ground shaking, the existence of faults generating low magnitude earthquakes is not sufficient to show these faults can generate significantly damaging earthquakes. Rather these events must be shown to be occurring on regionally extensive faults, as significant fault length is required to generate damaging earthquakes. No such faults northeast of the Hayward Fault in the vicinity of LBNL have been identified in the peer-reviewed literature or elsewhere.

Response F-17

The depiction of a number of the faults shown on the figures included with the comments, including Figure 12 showing the "Zones of Concern" is inaccurate, and a number of the depicted faults do not exist. Specifically, the existence of several of the faults shown on the map., including the University fault, New fault, Space Sciences fault, and members of the Lawrence Hall of Science fault complex was based solely on conjectured groundwater flow suggested in an early landslide study, and not on field observations. Subsequent detailed geologic and hydrogeologic studies conducted at LBNL have yielded no evidence to support their existence.

Although the ability of earth materials to transmit water can be higher in some fault zones, in other cases faults have little or no effect on flow and the fine-grained materials formed by fault movement in many cases serve to impede flow. At LBNL, there is no evidence to support the comment that geologic faults act as conduits for migration of contaminated groundwater. Based on data collected over the past 15 years, the groundwater contaminant plumes at LBNL are stable or attenuating, the plumes are not migrating, and the distribution of contaminated groundwater in the subsurface is not indicative of preferential flow along fault zones. Issues related to soil and groundwater contamination, including any land use restrictions that may be required due to soil and groundwater contamination, are being addressed as part of the Resource Conservation and Recovery Act (RCRA) Corrective Action Process (CAP) under the regulatory oversight of the California Department of Toxic Substances Control (DTSC). Implementation of corrective actions as part of CAP has led to significant reduction of the magnitude and extent of soil and groundwater contamination at the Lab. Any land use restrictions imposed by DTSC as part of that process will be considered in any future building development.

Additional sampling is outside the scope of the DEIR.

Response F-18

The current levels of tritium found in the Strawberry Creek Watershed are below EPA drinking water limits, and it should be noted that groundwater below the LBNL site is not used for the public drinking water supply. This level does not pose a hazard to the health of the public or environment. There are no plans to treat the tritium in the groundwater, as there is no technically viable method to remove tritium from a water source. LBNL has continued to monitor the groundwater and the data indicates a slow decrease in the level of tritium since the closure of the NTLF. Results for tritium and all contaminants in the groundwater are reported quarterly to regulatory agencies, and these reports are placed in the Berkeley Public Library and posted at the Environmental Restoration website.

Response F-19

Information about the Lab's current shuttle bus system is presented in Draft EIR pages IV.L-16 through IV.L-18. This information includes shuttle service routes and schedules/frequencies. Several questions presented by the commenter ask for information that is not maintained by LBNL and is thus unavailable.

The DEIR transportation analysis projects that shuttle ridership may increase by up to 40 people (including 10 bicyclists) during a.m. and p.m. peak commute hours. Mitigation Measure TRANS-3 (DEIR page IV.L-35) would have LBNL accommodate this projected demand, which might mean that bus frequency is slightly increased during peak commute hours. Such increases might be offset by decreases in off-peak bus trips, which would have to be determined in the future based on shuttle user patterns, so it is not possible to predict the exact increase or decrease, if any, of aggregate bus trips.

Assumptions about shuttle bus diesel emissions were factored into the Human Heath Risk Assessment (HRA) that is discussed in DEIR Section IV.B, Air Quality, including UC Berkeley's buses for the HRA cumulative analysis. In addition, as discussed in Section IV.B, risk from diesel emissions is expected to decrease during the lifetime of the project due to new regulations, diesel formations, and technology.

Berkeley Lab buses are not available for ridership by the general public due to practical considerations (i.e., they would be overwhelmed by non-Lab users and thus would defeat the purpose of providing convenient transit to Lab workers conducting Lab business while minimizing the need for Lab personal vehicles and parking), and for security reasons.

Response F-20

Building 90 at LBNL had solar hot water panels installed in the 1970s that operated through the 1990s. These panels are no longer cost effective to maintain and have been deactivated. Berkeley Lab has performed several studies on adding both solar hot water panels and photovoltaic panels to existing buildings and new buildings, but has not been able to calculate a payback period acceptable to the federal government, which is less than 10 years. Nevertheless, placing solar panels on the Helios Energy Research Facility is an important consideration that will be pursued and implemented if feasible at the time that project is considered for construction.

Response F-21

LBNL recognizes there are a number of natural occurrences that could disrupt the operations of the Laboratory. In order to better prepare for such disruptions, LBNL is conducting a multi-year planning effort to develop a Continuity of Operations Plan, anticipating hazards and mitigating their impact on Lab operations. Phase I of this plan, which covers environment, health and safety, and emergency operations has already been completed. In conjunction with the Continuity of Operations Plan, the Lab has a Master Emergency Program Plan and a Pandemic Flu Plan in place. Together, these plans ensure that essential services such as fire protection and emergency

response will be maintained even in the event of a flu pandemic or other natural occurrence that might disrupt Lab operations.

In addition, the Lab actively participates in the National Incident Management System (see discussion of catastrophic scenario planning and response under DEIR Impact HAZ-5, for example). Furthermore, Berkeley Lab shuts down and operates with a skeleton crew for approximately 10 days annually between the Christmas and New Years Holidays, which provides practical and on-going experience in safely maintaining the Lab under conditions similar to those described by the commenter.

Response F-22

Please refer to discussion under DEIR Impact HAZ-5, which addresses potential catastrophic events such as earthquakes, potential evacuation scenarios, and their potential effects on LBNL. Also refer to the description entitled “Emergency Program” in DEIR section IV.K-5, which describes Berkeley Lab’s Master Emergency Program Plan, Emergency Management System, Incident Command System, and Emergency Operations Center programs. These systems, supported by the Lab’s trained staff and physical resources, would oversee operations at LBNL during a catastrophic emergency. Please see also the response to Comment C-28.

In post-script of Comment letter “F,” the commenter cites its comment letter on the Notice of Preparation for this EIR. This letter was evaluated in preparing the EIR. The EIR evaluates the potential safety and other impacts of all aspects of Berkeley Lab's operations.

From Jeff Philliber <JGPhilliber@lbl.gov>
Sent Friday, March 30, 2007 9:24 am
To Katherine V Behrend <KVBehrend@lbl.gov>
Subject [Fwd: [Fwd: Berkeley Lab 2006 Long Range Development Plan Draft EIR comments]]

----- Original Message -----
From "Therese (Terry) Powell" <TPowell@lbl.gov>
Date Mon, 26 Mar 2007 14:01:24 -0700
To Jeff Philliber <JGPhilliber@lbl.gov>
Subject [Fwd: Berkeley Lab 2006 Long Range Development Plan Draft EIR comments]

FYI - these comments arrived on 3/23/07

-------- Original Message --------
Subject: Berkeley Lab 2006 Long Range Development Plan Draft EIR comments
Date: Fri, 23 Mar 2007 16:50:40 -0700
From: Jennifer Pearson <jennifermaryphd@hotmail.com>
To:lrdp@lbl.gov, JGPhilliber@lbl.gov
CC:caroleschem@hotmail.com, info@strawberrycreek.org

Mr. Jeff Philliber
Lawrence Berkeley National Laboratory
1 Cycletron Road, MS 90K
Berkeley, California 94720

Dear Mr. Philliber:

RE: Berkeley Lab 2006 Long Range Development Plan Draft EIR

Many of us are pleased to learn the LRDP has been developed in conjunction with the new Berkeley Lab Sustainability Policy. Once implemented, this new policy may, indeed, be a great leap forward to gain trust and wide support within the local community. The steps in working out the details of the Sustainability Policy during demolition and construction of buildings and landscaping perched on these risky hilly watersheds over the next 20 years--could serve as a leadership model of scientific excellence for resource conservation and environmental stewardship replication on other federal and university land sites.

A few comments provided by members of Friends of Strawberry Creek Watershed:

1) It is interesting that you refer to the public trust. The concept of the public trust is a common law concept that relates back to the origins of democratic government in Roman times. Its' seminal idea is that within the public lies the true power and future of a society. (Cf. Wikipedia).

We expect you are familiar with the teachings and writings of Boalt Hall Professor, Joseph Sax, and a world-renowned scholar on the Public Trust Doctrine in natural resource law. Briefly, the Public Trust Doctrine is a principle that certain resources are preserved for public use, and that the government is required to maintain it for the public's reasonable use. This doctrine evolved with the right to water in Roman times, in the writing of the Magna Carta, and English common law, over 200 years of USA common law, and in recent time the US Federal Clean Water Act that defines all water as belonging to the people of the United States of America, (the public).

Indeed, water is enshrined in the right to life and dignity as set forth in the United Nations Universal Declaration of Human Rights, that serves as the basis for international law. If in fact, the management and staff of the Lab have truly turned to embrace a view of themselves as stewards of the public trust, is not the public trust doctrine of water security for the needs of future generations a fundamental area to scientifically and technologically develop in conjunction with any land use demolition and construction on the sites occupied by the Lab?

2) Would not this mean going beyond the limited notion of 'jurisdictional waters" to secure that ALL surface and ground water in the Strawberry Creek and Schoolhouse/Lincoln Creek watersheds be totally safe and able to sustain biological life?

3) Is not the first principle in sustaining human and environmental life, a commitment to totally clean water?

4) Will you endorse a vision and strive for institutional reforms at the Lab for water security?

To quote from page 44 of the Draft LRDP:

"The 2006 LRDP has been developed in conjunction with the Berkeley Lab Sustainability Policy that formalizes the Laboratory's continuing role as a leader in resource conservation and environmental stewardship….. Sustainability is broadly defined as 'providing for the needs of the present generations without impinging on the ability of future generations to meet

G-1

Comment Letter G

their own needs.' Accordingly, each project at Berkeley Lab will consider the long-term effects of actions taken during development." G-1

5) Over the 75 years life span of the Lab, most managers have been either disinterested or myopic on interpreting the 1970's Federal Clean Water act and have failed to prioritize stewarding the public's land and water paying little heed and even obfuscating efforts by scientists, and citizens in areas of water protection--particularly our cherished creeks that flow through the University of California campus and the City of Berkeley.

6) For future life, the biological environment, for workers at the Lab and nearby residents and students attending school at University sites and those of us who live downstream, will this mean that you will seek to carry out a holistic solution to restore, to preserve, and to wisely manage these precious watersheds?

7) Will you ensure any one working in a building perched on these watershed lands or near these land sites is safe—will the LRDP assert full methodologies for a safe and sustainable watershed?

There is much presence of water in the sites of the LRDP. That water provides the biological connectivity for all life in Strawberry Canyon and Blackberry Canyons, and downstream for all of the Strawberry Creek Watershed and the Schoolhouse/Lincoln Creek watersheds on the UC Campus and through the City of Berkeley to the outfalls at the Bay. G-2

8) The LRDP refers to drainages and ignores waterways. The drainage concept ignores the plentiful geologic springs, the extensive underground Lennert aquifer that is pumped and dumps geologic water into the North Strawberry Creek by the Math Science Research Institute, perched water lakes, ponds, headwater streams, creek tribulets and major year round creeks of Strawberry Creek, Creeks and streams are referred to as drainage. Will you describe the watercourses? G-3

9) How can the LBL address this national problem within the Long Range Development Plan that intends a demolition and expansion of the with doing no more harm? Will LBL participate in promulgating the advances in watershed science and technology for no loss 'at home' to practice watershed science competencies for the protection, restoration and enhancement of public water quality in for all of environmental law for the nation?

10) Will the new policy of sustainability recognize the importance of water security for the local people who work on the University lands or live close by? Will the new policy of sustainability drive specific institutional of compensatory mitigation to accomplish the goal of TOTALLY CLEAN WATER, thus ensuring the sustainability of our public water within the entire watershed over the long term? G-4

11) With respect to the preservation and restoration of the creeks, the maps indicate that storm water at the Lab is dumped into the creeks. There is mention of replacing the sanitary sewer galvanized cast iron pipes that date to the 1960's and expected to fail within the next 20 years—wastewater will go into the ground and likely end up in th creeks, wont it?

12) Is there a mitigation planned such as environmentally sensitive RETENTION BASINS or a method of quarantining contaminated sanitary or storm water upon detection of even small levels of pollution before the pollution goes into the 'drainages' or creeks?

12) Former employees have time and again confessed to the legacy of the past dumping of toxic waste into the sewers, the storm drains, barrels into the Bay, and simply on the ground outside a work area. While you may not choose to acknowledge these facts, nevertheless any 75 year old industrial site has far more contamination that we know about at present. What environmentally sensitive methodologies are planned or are being developed to use during any disturbance of the ground during demolition and construction? G-5

13) In the event of an unplanned release or even a small fault trace rupture precipitated by an explosion, an accident, a landslide, a new spring or seismic activity, it cannot be denied that underground contaminated water will seek the lowest path of resistance and flow downstream under the university and the City of Berkeley where open reaches of Strawberry and Schoolhouse/Lincoln Creek flow through parks and private residents' gardens.

Contaminated public water may not show up until a year or a year and a half later in West Berkeley as groundwater takes about that long to appear in people's basements. Sometimes in the dry seasons, suddenly their pumps go to work and draw water up from soils and dump it into either the street gutters or the sanitary sewer system. While some contamination may be filtered out by soils, that filtered contamination remains under people's homes. As such accumulates, then what? G-6

14) There are many models of BEST ACHIEVABLE TECHNOLOGY in the Bay Area such as oil refineries and other institutions that have come to view their responsibilities as stewards of the land, water and air and have embraced reforms for storm water, wastewater management so as to protect workers, students, the public natural watercourses for our health and safety. G-7

Comment Letter G

15) The LRDP does not provide a definition of science nor clear description of the scientific vision—simply that the Lab responds to national scientific priorities without detailing WHICH ones.

16) People we know say that as in the 1940's there remains a challenge of the unknown for any planning and building at the Lab. It is sad to say, the founders of the Lab did not know that their research practices would degrade the quality of the environment and for some, harm their own health and the health of their families resulting in early deaths.

Thus, we urge you to use SCIENTIFIC PRECAUTION based on the best science to strive to set the standard for fuller resource conservation and stewardship and take further steps to restore the ecological habitat of the land and neighboring land. G-7

Perhaps.the Sustainability Policy will promote a Holistic Habitat Conservation Plan or something similar aimed to reduce hazards. Perhaps, the Lab will assist the city of Berkeley and East Bay MUD with infrastructure that addresses contamination in sewers and watercourses. Perhaps the Lab's new view will play out to eventually serve as a leadership model of scientific excellence for resource conservation and environmental stewardship replication on other federal and university land sites?

In conclusion, we urge planners to assist in articulating a new set of clean handed practices that turn the vision towards the needs, the safety and the sustainability of the larger community beyond the fences that separate us.

Sincerely yours,

Jennifer Mary Pearson, Co-facilitator with Carole Schemmerling for Friends of Strawberry Creek Watershed

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Friends of Strawberry Creek Watershed, March 23, 2007 (Comment Letter G)

Response G-1

As stated in the DEIR on page IV.G-22, compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements and LBNL's standard stormwater management practices and engineering controls would ensure that potential adverse impacts to surface waters associated with construction under the LRDP would be less than significant. The NPDES permit requirements include creation of project-specific Storm Water Pollution Prevention Plans (SWPPPs) and, ultimately, implementation of Best Management Practices (BMPs) that would minimize soil erosion and subsequent sedimentation of stormwater runoff or increased stormwater pollution associated with construction hazardous materials.

Compliance with LBNL's NPDES permit and associated SWPPP and SWMP, implementation of the LRDP design guidelines and development principles, and continued implementation of engineering controls and standard management practices would also ensure that potential stormwater quality impacts associated with the LRDP would be less than significant (see Section IV.G.3.5, page IV.G-24).

In addition, as stated on page IV.G-28, potential cumulative hydrologic and water quality impacts associated with the proposed LRDP would be less than significant. Other development in the area and the region that could contribute to water quality impacts on San Francisco Bay, for example, would be subject to similar programmatic requirements (NPDES permit regulations, stormwater pollution prevention plans, etc.), thereby further reducing the potential for cumulative adverse impacts.

Please see also the revised EIR Hydrology section, presented in its entirety in Appendix A of this document.

The commenter's position regarding the public trust doctrine is acknowledged.

Response G-2

The Lab remains committed to complying with all relevant aspects of the federal Clean Water Act and state regulations which seek to implement it. In 1991, the Lab was one of the first entities in California to apply for and receive a Stormwater Permit for Discharges Associated with Industrial Activity, and has remained in compliance with it and any subsequent separate permits for construction activity. Reporting is an essential element of any stormwater permit. The Lab annually reports results of its stormwater management program both to appropriate jurisdictions and in its publicly-available Site Environmental Report. The Lab recognizes the challenges of its physical location upstream of the City of Berkeley and the UC Berkeley campus in regard to the Strawberry Creek Watershed, and takes seriously its stewardship of this creek, its tributaries, and the entire grounds on which Berkeley Lab resides. Lab policy dictates that there be no construction over or near the creeks that flow through the site and that the quality of stormwater runoff from the site be protected.

In compliance with the provisions of the Clean Water Act, LBNL will continue to implement relevant standards from the LBNL NPDES General Industrial Permit and associated SWPPP and SWMP, implement appropriate source control measures as recommended in the California Stormwater Best Management Practice Handbook for New Development and Redevelopment, and preserve existing pervious surfaces to the greatest extent practicable to minimize the amount of storm runoff, in accordance with the recommendations provided in the Bay Area Stormwater Management Agencies Association (BASMAA) *Start at the Source Design Guidance Manual for Stormwater Quality Protection*. As stated in the revised Hydrology section (see Appendix A), LBNL is also committed to ensuring that post-project stormwater flows approximate pre-project flows.

In 1987, UC Berkeley initiated a comprehensive study of Strawberry Creek. The study began as a water quality management plan, which was later expanded to urban creek and riparian habitat preservation and restoration. An update to the Strawberry Creek Management Plan is being developed by UC Berkeley to reflect progress resulting from program implementation and to expand the scope to address the Strawberry Creek Watershed as a functional eco-hydrological unit (page IV.G-10).

In addition LBNL seeks to cooperate with local jurisdictions to reduce any physical consequences of potential land use conflicts to the extent feasible. Both the City of Berkeley and the City of Oakland's General Plans include policies for water quality, creeks and watershed management. Pertinent policies were included in the Draft EIR (see page IV.G-16 – 18).

Response G-3

The Draft EIR Hydrology and Water Quality section assessed hydrology and water quality on the project site, which included an assessment of waterways and watercourses. Throughout the DEIR, the word "drainage" is used synonymously with "waterway." Pages IV.G-1 through IV.G-7 provides a comprehensive summary of surface conditions at the project site, which includes various watersheds, headwaters, and other watercourses. The DEIR defines watershed boundaries and location of headwaters. In addition, on page IV.G-7, the DEIR discusses perched groundwater, groundwater conditions, and geologic conditions affecting groundwater.

Response G-4

Future development of the Lab site as proposed by this LRDP would continue to be guided by all environmental regulations in effect at the time of construction for each project. As advances in watershed science and technology are introduced and generally accepted by scientific authorities and by regulatory agencies through mechanisms such as permits and standards of operation, the Lab will continue to incorporate these advances into its own practices. Stormwater management is unique in that compliance practices that work well on flat sites may be quite inappropriate for a hillside setting, and vice versa. As such, water quality agencies continue to develop a wide range of acceptable practices intended to protect this vital resource and the environs through which it flows. The Lab has historically implemented, and will continue to implement, all such practices in order to protect the quality of water flowing through and discharging from its site.

As a leader in energy and environmental research, the laboratory has a responsibility to be a model for environmentally responsible development. New buildings will meet or exceed the UC Presidential Policy for Green Building Design. This policy includes goals and guidelines for implementing stormwater management, water efficient landscaping, innovative wastewater technologies, and water usage minimization.

Response G-5

Most of the cast iron sanitary sewer mains were replaced in the mid-1990s with PVC pipes. The remaining cast iron pipes are building laterals that are usually less than 10 feet long. In the unlikely event of pipe leaks, the building occupants are expected to notify the maintenance personnel immediately, and it is unlikely that the sewer could flow to the creek without being detected by LBNL employees. In addition, the site is also patrolled by security personnel and maintenance personnel on 24/7 daily basis including holidays.

Wastewater at Berkeley Lab is discharged to the sanitary sewer system under one or more permits issued by the East Bay Municipal Utility District. Regular testing of this type of discharge is a requirement of each permit. Surface water discharge from Berkeley Lab that flows into the Strawberry Creek Watershed has been subject to water quality permit requirements since 1991. This permit requires regular sitewide inspections of potential areas of contaminants, monitoring of discharges, and annual reporting. Measures to properly manage stormwater runoff are called best management practices or BMPs in the regulations. A retention basin is one type of BMP, though such a structural feature has not been designed to date for any of the Lab's projects. However, when a specific development project is being designed at the Lab, many factors such as soil type, hillside slope, and structure size are consisted when selecting the appropriate best management practice. When the development project includes demolition, historical use of the site is considered to determine whether temporary retention and additional water quality testing is necessary.

Concerning potential disturbance of contaminated soil or groundwater during construction, Impact HAZ-2 on DEIR page IV.F-26 acknowledges that "Future construction activities, including earth-moving activities such as excavation and grading, could expose construction workers or the environment to hazardous materials." This text notes that LBNL has performed site investigations for soil and groundwater contamination in accordance applicable laws and regulations, and concludes by stating, "Construction activities at LBNL would continue to comply with applicable laws and regulations that govern the exposure of workers, the public, and the environment to hazardous materials, as well as LBNL-specific policies. Potential exposure of workers, the public, and the environment to hazardous materials would be minimized through development of Construction Site Health and Safety Plans and proper handling, storage, and disposal of contaminated soil and groundwater. This would reduce impacts to less-than-significant levels." As a result, the impact of potential environmental exposure to contaminated soil or groundwater was found to be less than significant.

Response G-6

As stated in Section IV.F, Hazards and Hazardous Materials, LBNL identified areas of soil and groundwater contamination that existed as a result of historical releases of hazardous materials into the environment. These areas of soil and groundwater contamination are all confined within the boundary of LBNL's main hill site. The locations and extent of these plumes have been determined using more than 300 wells over a period of more than 14 years (Section IV.F, page IV.F-5).

All areas of soil contamination have been cleaned up to levels consistent with Berkeley Lab operations (designated as institutional land use) and acceptable to regulatory oversight agencies.

There are currently about 150 groundwater monitoring wells at LBNL, with an additional groundwater monitoring well located off-site. Groundwater under the LBNL site is not used for human consumption by the Lab or by local utilities, and groundwater contamination is therefore not a threat to the local drinking water supply.

Groundwater storage is built to seismic codes in order to withstand catastrophic events. In the unlikely event that an explosion, accident, landslide, new spring or seismic activity occurred, the possibility of change to groundwater condition is very low. Contamination concentrations are low enough that in the event of an unplanned release, it is likely that concentrations would remain low. A hypothetical scenario in which low levels of contamination would end up under residents' homes is speculative and requires no further consideration under CEQA.

Response G-7

Section 1, pages 14-19 describes the science conducted at Berkeley Lab from its inception through 2006, defining the development scientific program areas. Section 2 describes the "Scientific Vision for Berkeley Lab" and identifies which federal scientific initiatives will be pursued, including: (1) Develop New Energy Technologies and Environmental Solutions; (2) Discover the Composition of Matter and Energy in the Universe (3) Understand and Engineer Living Systems through Quantitative Biology (4) Create Designer Materials through Nanoscience (5) Advance X-ray and Ultrafast Science, and (6) Enable Scientific Discovery through Advanced Computing. The context of the Laboratory's scientific goals and the description of each the 6 priority initiative areas with 2-5 sub-component elements are found on pages 30-31. Appendix D, page 90, further references documents, including the "Ernest Orlando Lawrence Berkeley National Laboratory Institutional Plan, FY 2004 - FY 2008" which further elaborates the Laboratory vision and scientific priorities (available on the web at http://www.lbl.gov/DIR/Institutional-Plan/).

It is inappropriate to compare the period of the 1940's with the current. Comprehensive environmental and workplace safety regulations were not implemented until the 1970's. As they have matured, such regulations have evolved in their complexity and thoroughness. Included in requirements now that did not exist in the early years of the Lab is adequate environmental planning to identify and address issues before actions are taken that modify the environment. As articulated in the University's sustainability policies and in the strategies and policies that

comprise the 2006 LRDP, and as implemented by the Lab's current practices in regard to environment, health, and safety, Berkeley values worker and public safety and strives to fulfill its obligations as a responsible steward of the environment.

Subject: Comments on Lawrence Berkeley National Lab Long Range Development Plan Draft Environmental Impact Report

SAVE Strawberry Creek Watershed

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   LBNL has contaminated and abandoned its own buildings on this site. LBNL should remediate this contamination instead of constructing new facilities in the watershed.

H-1

We, the undersigned, urge the Department of Energy (DOE), the Lawrence Berkeley National Laboratory (LBNL), and the University of California (UC) Regents to immediately cease the further destruction of the Strawberry Creek Watershed.

Since the Manhattan Project in the 40s, the operations at LBNL have contaminated the soil, surface and groundwater, and vegetation in the Strawberry Creek Watershed with toxic materials including radioactive tritium, uranium, VOCs, diesel, Freon, PCBs, and much more.

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Comment Letter H

SAVE Strawberry Creek Watershed

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Comment Letter H

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   LBNL has contaminated and abandoned its own buildings on this site. LBNL should remediate this contamination instead of constructing new facilities in the watershed.

We, the undersigned, urge the Department of Energy (DOE), the Lawrence Berkeley National Laboratory (LBNL), and the University of California (UC) Regents to immediately cease the further destruction of the Strawberry Creek Watershed.

Since the Manhattan Project in the 40s, the operations at LBNL have contaminated the soil, surface and groundwater, and vegetation in the Strawberry Creek Watershed with toxic materials including radioactive tritium, uranium, VOCs, diesel, Freon, PCBs, and much more.

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Name	Signature	Address	Telephone	e-mail
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Charles Smith	Charles Smith	37 San Mateo Rd., Berk 94707	(510) 525-4434	
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[illegible]				
AU Lopez				

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Comment Letter H

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Name	Signature	Address	Telephone	e-mail
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Susan Swift	Susan Swift	330 Hat Ct. El Sobrante 94803		
Claudette Bégin	[signature]	2222 Bancroft Way Berkeley		
Patrick Archie	[signature]	PO Box 2602 Berkeley CA 94702	(510) 289-1595	

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SHERRY PADGETT	S. Padgett	1344 SOUTH 49th ST RICHMOND, CA 94804		SHERRYSP@PACB
MICHAEL WARBURTON	[illegible]	1413 Arch, Berkeley, CA 94708		[illegible]
IVAN REARDON	[illegible]	5709 San Jose Ave Richmond, CA 94804		iReardon@igc.o
Shukuru Sanders	Sanders	1159 34 St Richmond CA 94804		Shukuru@aol.c
Paul Kilkenny	Paul Kilkenny	6115 Orchard Richmond, CA 94804	2364344	

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Name	Signature	Address	Telephone	e-mail
Deborah Landshoff		6016 Orchard Richmond	510-233-9733	
LaDonna Williams	LaDonna Williams	PO Box 5653 Vallejo Ca	(707)712-4088	zzeria@aol.c
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Name	Signature	Address	Telephone	e-mail
M. Abascal	M Abascal	1711A Lincoln St	—	—
Nancy Fisher	Nancy Fisher	3937 Brown Ave		—
Mark Ketchum	Mark Ketchum	2029 Delaware St.		
Valerie Kreppner	Val R Kr	2029 Delaware St.		
Chris Kroll	Chris Kroll	1605 Curtis St. Berk 94702		
Don Frew		1146 Cedar St. Berkeley		
David Light		1709 Channing Way Berk		

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John Lahman	[signature]	2024 Eastmoreland Ave Rockford IL 61108	815-5660785	herdpoisoningmedia@yahoo
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Lia Marshal		2700 Hearst Ave Berkeley	(510) 388-3642	

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WILLIAM BOGART	William Bogart	2022 VIRGINIA #8	510-843-4903	hi-there@rcn.com

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Gary Mack	Gary Mack	1253 Elm El Cerrito		
David Snippen	David Snippen	1834 Sonoma Berkeley 94707	524.7259	

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KARL REEH	[signature]	2229 STUART	843-2602	Karl Reeh @ Arl.co
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Carl Friberg	Carl Friberg	1685 Arch	548-5083	—
Wendy Alfsen	Wendy Alfsen	1800 Allston	883-9725	clovelandl@aol.c
Roger Van Oogtsel		2611 Le Conte	5491231	Redhand Arts @ earthlib
DEAN METZGER		1 HAZEL RD	549-0379	drm1a2@stcglobal.

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William Berry	William Berry	1366 Summit	849-1453	bberry@berkeley.
SUZANNE F. S. BERRY Suzanne F S Berry		1366 Summit	849-1453	—
Michael Pflaumer	Michael Pflaumer	6 Summit Ln.	549-3449	
ANDREA PFLAUMER	Andrea Pflaumer	6 Summit Ln	848-9493	
Mohammad Kazemini	Mohammad Kazemini	1498 Summit Rd	6449898	
Kathleen Minton	Kathleen Minton	1497 Summit Rd	845-5787	
Colette Denton	Colette Denton	1400 Summit Rd	652-3299	
Robert Denton	Robert Denton	1400 Summit Rd	652-3299	
Kathleen M. Heckman		144 Hill Rd.		
Melissa Bloom	Melissa Bloom	7 AJAX Pl	644-3027	melissa@jbloom.c
MARIS MEYERSON	Maris Meyerson	1509 LA LOMA	845-8559	
JAMES BLOOM	James Bloom	7 Ajax Place	644-3027	

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Name	Signature	Address	Telephone	e-mail
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Monika Heinrich		1460 Grizzly Peak Blvd. Berkeley Ca 94708	510 849 8884	
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Katherine Hansel		1534 Summit Rd.	845-7749	
Marge Madigan		1532 Summit Rd Berk	848-4602	

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MATT BUNN	[illegible]	1545 Summit Rd	510 841 5230	
Frances Berger		1506 Josephine St		
CLIFFORD FRED		1334 PERALTA AVE Berkeley		

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Charlene Woodcock	Charlene Woodcock	2355 Virginia St., Berk.		
Kirk Abbott	[illegible]	2218 Parker St, #D, Berkeley		
James Cunningham	[illegible]	1007 Miller Ave	(510)525-9399	
Dennis Metzler	[illegible]	1 Hazel Rd	549-0379	
Anne Wagley	Anne Wagley	127 Alvarado Rd		wagley@igc.org
Alex Krummenacher		2736 College Ave	841-4859	

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EWEN NEWMAN	[illegible]	1160 Josephine St	—	—
PAM SPENCE	P Spence	2744 FULTON ST	—	—
Marcia Levenson	Marcia Levenson	2507 Stuart St	—	—
Stanley Kahn	[illegible]	2445 RUSSELL ST. BERK.		
Lorie BRILLINGER	Lorie Brillinger	2841 Webster, Berk 94705		

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Name	Signature	Address	Telephone	e-mail
David Anderson	David Anderson	112 ROS ST., SAN RAFAEL		
Susan Matthews	Susan Matthews	1709 Franklin Berkeley CA		
Elise LATEDJOU	Latedjou	357 RALSTON ST		elatedj@yahoo.com
Christine Chan	Christine Chan	122 Hilton Ln #3 Pacifica Ca		94
CAROLE SELZ	Carole Selz	8601 Regal Rd. Berkeley, CA. 94708		
Elliot Cohen		Box 851 Berkeley Ca. 94701		

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L A Wood	[illegible]	1803 Bonita Ave. Berkeley CA 94709		
G. Connaughton	[illegible]	5598 McBryde Ave Richmond 94805		
Anya Perron-Burdick	[illegible]	1821 McAllister St. SF 94115		

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Carol Thornton	Carol Thornton	1427 Derby, Berkeley		510 540-6402
Jesse Quay	[illegible]	2251 Derby St. Berk 94705		510.376-9957
Jory Hecht	[illegible]	509 Pomona Ave Albany 94706		joryhecht@yah
Mary Small	[illegible]	483 59th Oakland		
Michele Lee	Michele Lee	2923 Sheldon Richmond, CA 94803		510. 243-1265
Ivy Morrison	Ivy Mn	1336 Boulevard Way Walnut Creek 94595		

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SAVE Strawberry Creek Watershed

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Comment Letter H

Preserve Strawberry Creek Watershed Alliance

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Comment Letter H

Preserve Strawberry Creek Watershed

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Preserve Strawberry Creek Watershed

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Preserve the Strawberry Creek Watershed Alliance, March 22, 2007 (Comment Letter H)

Response H-1

The Draft EIR, on page IV.F-5, states that remediation and monitoring of non-radioactive contamination in groundwater is being conducted under the Resource Conservation and Recovery Act of 1976 Corrective Action Program, while monitoring of a tritium plume in groundwater is being conducted under the Atomic Energy Act. "Tritium concentrations in all monitoring wells at the Lab are currently less than the drinking water standard. Following an extensive review by the California Department of Toxic Substances Control (DTSC), which included a public involvement phase, LBNL's proposed corrective measures to remedy soil and groundwater contamination were approved by DTSC on October 20, 2005 [reference omitted]. These measures include cleaning up areas of soil contamination, stopping discharge of contaminated groundwater to surface waters, preventing further migration of contaminated groundwater, and cleaning up groundwater contaminations to the drinking water standard. Separate CEQA and National Environmental Policy Act (NEPA) reviews were conducted for these activities by DTSC and the U.S. Department of Energy (DOE), respectively" (see page IV.F-5).

Adequate Environmental review as required under CEQA and NEPA was conducted for the Molecular Foundry. An Initial Study/Mitigated Negative Declaration, which was tiered from the 1987 LRDP EIR, as amended, fully analyzed potential environmental impacts of the Molecular Foundry project and was circulated for public review between December 10, 2002, and February 5, 2003, prior to approval of the Foundry project in 2003. The Initial Study/Mitigated Negative Declaration included applicable mitigation measures from the 1987 LRDP EIR, as amended, along with project specific mitigation measures. The building was completed in 2006 and is now operational.

The Molecular Foundry CEQA and NEPA analyses included risk screening for chemical emissions. Based on this and on an assessment of the manner in which nanoresearch would be conducted at the facility, it was determined that the proposed nanoresearch would not pose a significant health risk to either lab staff or the public. For example, nanoresearch would be conducted on a small scale with very limited quantities of nanomaterials. These would be contained in vessels and negative pressure laboratories. The small percentage of nanoparticles that may be emitted through fume hoods would be limited in quantity and highly dispersed to immeasurable levels long before they would reach any sensitive receptors.

As stated on DEIR page IV.B-10, "nanoscience is an emerging area of research aimed at the development of structures and devices at the atomic, molecular, or macromolecular levels to produce materials with novel properties and perform functions at the molecular level. No regulatory standards have been developed. The U.S. Department of Energy has issued a secretarial Policy Statement on Nanoscale Safety. This policy statement was included in the DEIR, Appendix G." LBNL's ongoing and active hazardous materials/waste remediation, monitoring, management, disposal, and abatement programs are described in DEIR Section IV.F, Hazards and Hazardous Materials.

Comment Letter I

Northern Alameda County Group
Oakland – Alameda – Berkeley – Emeryville

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Jeff Philliber
Environmental Planning Group Coordinator
Lawrence Berkeley National Laboratory
1 Cyclotron Road, Mail Stop 90J-0120
Berkeley, CA 94720

March 21, 2007

Dear Mr. Philliber:

Re: Lawrence Berkeley National Laboratory Long-Range Development Plan (LRDP) Draft Environmental Impact Report

Sierra Club appreciates the opportunity to comment on the Long Range Development Plan Environmental Impact Report released by Lawrence Berkeley National Labs / LBNL.

General Comments

The Long Range Development Plan (LRDP) marks a significant new phase in the history of LBNL. The development plan calls for the construction of an additional 56% capacity on a gross-square-foot basis (including demolition of 18% of existing structures)[1]. This substantial expansion of the Lab will take place in a relatively steep, narrow canyon near one of the most dangerous earthquake faults in California, and will result in significant and irreversible environmental impacts, especially on air quality and transportation. Unless these and other impacts are more fully mitigated, the DEIR is inadequate. I-1

Before the key identifiable areas of concern are discussed in detail, Sierra Club would like to emphasize that it supports an expansion plan that aims to preserve natural features as much as possible. The LBNL campus has natural features that add economic and practical value as well as aesthetic interest. LBNL offers tremendous views in all directions, as well as natural areas and areas of native and non-native vegetation that can be used by nearby residents and staff for recreational purposes. A plan which aims to preserve these natural qualities and features, or in some cases, for instance North Fork of Strawberry Creek and Chicken Creek, repair past damage to these features, is in our opinion preferable, both from an environmental but also from an aesthetic and economic point of view. Following are some benefits that will result from preserving natural features at LBNL during new construction: I-2

- Leaving stands of trees intact can and will save energy and dollars by providing shade and slowing winds.
- A natural stream corridor that manages surface water to prevent erosion will be less expensive in the long run than installing storm drains.

[1] From the "Planned Growth" presentation Feb. 26, 2007, new construction of 980,000 gsf is planned over the existing 2003 baseline capacity of 1,760,000 gsf (table, p. 20).

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- Retaining of native vegetation will reduce water runoff to downhill regions and lessen sewer system overflows.

I-2

These ideas ought to be considered separately from the individual components of the Development Plan and implemented wherever possible.

In the following sections, Sierra Club focuses its comments on the specific environmental areas.

Air Quality

Truck traffic should be minimized to mitigate air quality impact of construction. During construction phase, air quality will be severely impacted by trucks and construction traffic moving up and down the hill site. It would seem advisable to minimize the movement of excavated topsoil to remote locations for dumping, as is common practice in the Bay Area. ***Excavated topsoil should be relocated to areas that are intended for planting locally.***

I-3

Use of old construction equipment is a significant impact. The City of Berkeley is a densely populated city, including many sensitive receptors. Construction equipment emits particulate diesel particulate pollution that can cause cancer and exacerbate asthma. Section IV.B.3.4 ("Impacts and Mitigation Measures") of the DEIR states that there will be a less than significant impact with mitigation for "Construction of new facilities" (item AQ-1). For this statement to be adequate, LBNL should ensure as a mitigation measure that all construction contractors use equipment that is Tier-2 or better or uses B20 biodiesel to reduce particulates to the maximum extent feasible. These newer engines have dramatic improvements for public health. There is incentive funding available for contractors to upgrade, and CARB will soon require these standards in the future, because the pollution generated is significantly impacting human health. Therefore, using old, dirty construction equipment is a significant impact, unless mitigated by using Tier-2 or better engines or B20 biodiesel. The DEIR should require Tier-2 or better engines or B20 biodiesel in order to fully mitigate the impact. Otherwise the DEIR is inadequate.

I-4

Use of the term "where feasible" in the DEIR to describe mitigation plans is inadequate. Planned mitigations such as "Incorporate use of low-NOx emitting, low-particulate emitting, or alternatively fueled construction equipment into the construction equipment fleet *where feasible*," (page IV.B-34) are inadequate, in our opinion, because the term "where feasible" is ambiguous and undefined. If the specific engine types cannot be identified, using "Best Available Control Technology" is somewhat better than the current mitigation measure.

Harmful pollutant emissions during construction phase a concern. Of greater concern is the potential release of harmful vapors and gasses accumulated in older facilities and trailers that are scheduled for demolition (for instance in "Old Town"). Will monitoring systems be used to actually record the quantity of non-radioactive chemical pollutants such as Formaldehyde, Carbon Tetrachloride, Chloroform, and Benzene (carcinogens mentioned in the DEIR), which are released during building demolition? The term "fugitive dust" used in the DEIR seems an apt name to describe how these dangerous chemicals may escape into the surrounding area.

I-5

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Nanoparticles a concern. Nanotechnology is one of the future areas of research focus at LBNL. According to available information, nanoparticles present possible dangers, both medically and environmentally, due to their ultrafine, reactive properties. LBNL should follow developing best practices, regulations, and precautionary approaches affecting nanoparticles, and ensure that there are no impacts to health or the environment from use of nanoparticles. I-6

Human Health Risk Assessment and similar monitoring programs should be continued. The DEIR describes the currently existing LBNL Human Health Risk Assessment as a program that is in place to monitor harmful gases and chemicals, including radioactive elements. Without knowing exactly what is planned in this regard, Sierra Club hopes that such monitoring programs will be expanded to keep pace with the expansion of LBNL. I-7

Biological Impacts

Security requirements of the LBNL should be re-evaluated. According to the Feb. 26th presentation, less than 25% of overall funding for FY2006 was devoted to "Physics and Fusion" (pie chart p. 5). LBNL presentations and media reports all point to future research focused on biological, non-nuclear energy research. Therefore, it seems questionable to maintain such extensive security and fencing as currently exists. Removing some fencing would encourage humans to walk more to and from building sites, and wildlife to roam more freely. I-8

Pre-construction surveys for wildlife and measures to minimize disturbance of special-status wildlife must be observed. The DEIR lays out a detailed approach for protecting special-status wildlife, such as bats, hawks, the Alameda whipsnake, the Pacific treefrog, and special-status flowers. The proposed mitigation measures outlined, for instance in the Summary Table in Chapter II, if implemented, are all laudable and necessary measures. Among those that are commendable are: pre-construction surveys for nests prior to removal of trees and shrubs, establishment of no-disturbance buffer zones, and noise abatement for the purpose of protecting wildlife. Sierra Club recommends that LBNL employ adequate biologist resources prior to and during construction phase to identify the various special-status animals and plants discussed in the DEIR. I-9

Transportation

Net increases in parking capacity are undesirable and will result in increased traffic and intersection delays. The LRDP calls for the construction of 500 additional parking spaces. This increase will degrade the level of service at Hearst Avenue/Gayley Road, Gayley Road/Stadium Rim Way, and Durant Avenue/Piedmont Avenue. These are significant impacts, and the installation of traffic lights will not fully mitigate the impacts. ***Pedestrians in particular will be seriously impacted***, because the pedestrian use of these intersections are very high, this will be a significant impact that is not acknowledged in the DEIR. The increased traffic and potential change to a traffic signal is a significant impact. These routes are also used by bicyclists. No mitigation is included for access using the existing roads and apparently no improvement in bicycle parking is planned. I-10

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New Transportation Demand Managemen Plan is not adequate as envisioned. Mitigation Measure Trans-1c proposes a new Transportation Demand Management (TDM) plan. However, the LRDP proposes an increase of 500 parking spaces to 2800 parking spaces, increasing Adjusted Daily Population (ADP) by 1000 people to 4,650. While there may be a minority percentage of employees who carpool, most parking spaces represent a single occupant vehicle (SOV). The current drive-alone rate is about 60% (Section IV.L.2.7 : "Existing Use of Alternative Travel Modes"). The 2025 drive-alone rate is also projected to remain about 60%. Reducing the drive-alone rate marginally or not at all, while increasing overall automobile trips by 21% or greater, is out of keeping with LBNL's environmental commitments, and with the needs for future transportation planning, given the need to reduce greenhouse gas emissions. Additionally, increased parking spaces, even if in proportion with the increase in overall staffing, will significantly impact the single-use local streets, which are also needed to provide an adequate level of service to AC Transit vehicles. Failure to mitigate this impact will result in significant impacts on AC Transit service on Northside, Downtown Berkeley, and Southside because of increased traffic. I-11

LBNL should supplement the costs for public transit, and should begin charging a fee for parking for permitholders. The UC Berkeley campus has a drive-alone rate of roughly 50%. LBNL can reduce its rate to 50% or lower by taking a dual approach of lowering transit costs while increasing parking costs. Though unpopular, charging a parking fee, even to holders of the coveted "blue triangle" permits, would send a clear and unequivocal signal that parking is discouraged as an alternative to some form of public transit or carpooling (currently there is no charge for parking for permit holders). LBNL could at the same time provide free AC Transit passes and BART tickets to employees (or eco-passes similar to the City of Berkeley), while enhancing the BART shuttle and providing additional shuttles. Even UC Berkeley doesn't perform all these TDM measures, except for below-market parking charges and subsidized transit passes, but manages to have a low drive-alone rate. LBNL should lower its drive-alone rate from 60-63% to 50% or lower by eliminating the parking from the project and implementing full TDM measures. This is a needed change to mitigate the Transportation impacts identified in the DEIR. The proposed mitigations, without significant reductions in parking, are inadequate to mitigate the impacts. I-12

Possibility of Funicular Railway should be examined. A funicular railway similar to the Angels Flight system in L.A. would offer the opportunity to transport passengers up and down the hill, possibly offering some lab employees an attractive commuting option. With the exception of the ever-present danger of earthquakes, the LBNL campus seems ideally suited to such a system. Such a system could for instance run from the base of Hearst St. to the central complex area in the lab. The funicular could have one stop or two stop cars that run all the time. I-13

Bus and bike storage capacity not always adequate. Mitigation Measure Trans-3 does not adequately deal with the problem of buses overcrowding and bicyclists not able to bring bikes on the shuttle. Trans-3 should identify how LBNL will purchase sufficient buses with adequate space for employees with bicycles. Secure covered bicycle parking should also be included in the proposal for patrons and employees. I-14

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Utilities – Water Management

Mitigation measures proposed for UTILS-1 and UTILS-2 should be coordinated with EBMUD as well as the City of Berkeley and UC Berkeley. The increase of water consumption can amount to about 6% of EBMUD's water supply. This may be a significant impact on water supply. Mitigation measures to reduce water consumption are identified at a basic level in the DEIR, but should study in depth the feasibility of using greywater catchment and/or sinkwater diversion, and on-site recycled water. The hillside topography would seem to be ideal for certain types of water catchment. Also, when constructing paved surfaces, any new pavement added to the site should be pervious, that is, porous so water can drain into groundwater table. I-15

Finally, discussion of wastewater should acknowledge the eventual discharge of treated wastewater into San Francisco Bay. Other large employers in the local area (such as PG&E) are experimenting with innovative water conserving techniques, such as reusing water onsite for irrigation purposes, or installing waterless urinals. I-16

Summary

In summary, the Long Range Development Plan DEIR does identify many mitigation measures, such as pre-construction wildlife surveys and human health risk assessments, which the Sierra Club generally views as positive. However, in our opinion, certain elements of the LRDP, such as the use of old construction equipment, increase in parking capacity / of asphalted surface area, and increase in overall water consumption, which impact air quality, transportation, and water supply, do not appear adequately mitigated. Sierra Club has proposed some alternative mitigation measures in the sections above. If these impacts are not more fully mitigated, the Sierra Club must judge the DEIR as inadequate.

Sincerely,

Kent Lewandowski

Kent Lewandowski, Group Chair

Sierra Club, North Alameda County Group, March 21, 2007 (Comment Letter I)

Response I-1

The Draft EIR has adequately assessed impacts related to, and includes mitigation measures that would lessen the significant effects of impacts on, air quality, geology, and transportation. Please see the responses to more detailed comments, below.

Response I-2

Berkeley Lab expresses similar objectives to the commenter in the 2006 LRDP and, in that document, promotes many policies and strategies to preserve, maintain, and enhance the natural qualities and features of the main hill site. In both the 2006 LRDP and the Draft EIR, key stands of trees are identified and placed in the "perimeter open space" zone (where development is to be avoided), as are intermittent and ephemeral streams, and perennial streams and riparian habitat are identified as fixed constraints for development purposes.

Response I-3

As noted in Chapter III, Project Description (pp. III-43 – 44), some future construction activities would require excavation, and in some cases this would result in soil being transported off-site. The transportation and air quality analyses in the DEIR are based on an assumption of an average of "one-third of a cubic yard of excavated material for each square foot of project footprint, or about nine feet of excavation under the footprint of each building or parking structure identified in the Illustrative Development Scenario," with all such material hauled off site. The Project Description notes that while "this ratio is likely to be exceeded with some projects, others would require less excavation or would be balanced cut-fill excavations." The Lab would attempt to minimize soil hauled off site, both to minimize on- and off-site environmental effects such as those raised by the commenter, as well as to minimize the cost of soil hauling. The DEIR did not identify any significant air quality (or transportation) effects that would result from construction activities that could not be mitigated to a less-than-significant level.

Response I-4

Please see the response to Comment C-16.

Response I-5

Before any specific demolition project can take place, Berkeley Lab would conduct a hazard assessment to identify any monitoring and safety protocols necessary to protect worker and resident safety.

Response I-6

Please see the response to Comment H-1. Furthermore, as noted on DEIR p. IV.B-10, no federal regulatory standards have been developed for nanoparticle research. However, the U.S.

Department of Energy (DOE) has issued a secretarial Policy Statement on Nanoscale Safety (which was reproduced in the DEIR as Appendix G) and, as a DOE facility, the Lab complies with, and would continue to comply with this policy or subsequent updates thereof. The first bullet point in the DOE Nanoscale Policy reads, "DOE will adopt and implement, as appropriate, both existing and future environment, safety and health best practices, 'National Consensus Standards,' and guidance relating to nanotechnology developed by recognized standard-setting organizations. Further, any existing DOE Directives and Standards which contain provisions that are relevant to nanotechnology work must be appropriately applied."

Response I-7

As stated on DEIR p. IV.B-26, the human health risk assessment completed for Berkeley Lab was intended to evaluate "potential impacts of [toxic air contaminant] emissions resulting from expected growth and development of LBNL through 2025." Thus, the health risk assessment accounts for anticipated future development at the Lab.

Berkeley Lab conducts extensive ongoing monitoring through its Environment, Health and Safety Division, which monitors, among other aspects of Laboratory activity, handling of hazardous and radioactive materials, employee health, soil and groundwater contamination and remediation, and all aspects of the Lab related to worker and community health and safety.

For example, the Lab prepares an annual *Site Environmental Report* that summarizes environment, health, and safety program performance, identifying any areas where LBNL is not in compliance with environmental laws and regulations governing hazardous materials, and worker safety, emergency response, and environmental protection. The *Site Environmental Report* presents annual monitoring data for fume stack emissions; ambient air quality; water quality of rainwater, creeks, and storm runoff; sewers; hazardous waste "fixed treatment units"; soil; sediment; and vegetation. The report also presents a detailed accounting of Berkeley Lab's environmental performance in regard to the handling, storage, and transport of hazardous waste and low-level radioactive waste.

Additionally, the Lab's *Environmental Monitoring Plan* details four major aspects of monitoring that the EH&S Division undertakes "to ensure that [Lab] activities are conducted in a manner that will protect and maintain environmental quality:

1. Effluent Monitoring: The collection and analysis of samples, or measurements of liquid and gaseous effluents for the purpose of characterizing and quantifying contaminants, assessing radiation exposures of members of the public, providing a means to control effluents at or near the point of discharge, and demonstrating compliance with applicable standards and permit requirements;

2. Environmental Surveillance: The collection and analysis of samples, or direct measurements, of air, water, soil, foodstuff, biota, and other media from the Berkeley Lab site and its environs for the purpose of determining compliance with applicable standards

and permit requirements, assessing radiation exposures of members of the public and assessing the effects, if any, on the local environment;

3. Meteorological Monitoring: The collection of representative meteorological data (e.g., wind speed and direction, precipitation, temperature, humidity, atmospheric pressure) to characterize atmospheric transport and diffusion conditions in the vicinity of the Berkeley Lab and to represent conditions which are important to environmental surveillance activities, such as air quality monitoring; and

4. Pre-operational Monitoring: An environmental study conducted prior to the startup of a new facility or process for the purpose of establishing a baseline for environmental conditions.

Response I-8

The Lab is regulated by the Department of Energy which requires compliance with specific security directives that are in the DOE / UCOP Contract. These security directives are the required minimum to support the Lab's research and form the foundation for the protection of DOE assets located at the Lab. While the Lab's research portfolio is focused on non-nuclear, biologic, and energy efforts, it involves some use of sensitive chemicals and processes that require security of laboratory spaces.

Response I-9

The comment is noted. As stated by the commenter, mitigation measures were identified in the Draft EIR to mitigate the impacts to biological resources to a less than significant level, including pre-construction surveys by qualified biologists. If the proposed 2006 LRDP is approved, the mitigation measures identified in the DEIR would be carried out and the Mitigation Monitoring Reporting Program (MMRP) would ensure that such is the case. The MMRP is contained in Chapter V of this document.

Response I-10

As stated on page IV.L-28, with implementation of the 2006 LRDP, significant deterioration in level of service would occur at the three intersections cited by the commenter. See response to Comment C-47 regarding the absence of feasible mitigation for the signalized intersection of Hearst Avenue at Gayley Road/La Loma Avenue. See response to Comment L-2 regarding the mitigating effect of installing traffic signals at unsignalized intersections, such as Gayley Road at Stadium Rim Way, and Durant Avenue at Piedmont Avenue. Traffic signals do not, in general, adversely affect pedestrians, and it is reasonable to assume that traffic control at intersections with high pedestrian volumes would include pedestrian signals, and as warranted, additional controls on vehicle movements (such as restrictions on right turns on a red signal). Potential impacts on pedestrian and bicycle facilities are addressed in the DEIR on pages IV.L-37 and IV.L-38 (under Impact TRANS-5). Bicycle parking is provided at LBNL, including near the entrances to Lab buildings. Bicycle parking will continue to be evaluated and, as required by demand, will be increased as needed as part of the Lab's normal transportation planning. In

addition, the Lab's TDM Program includes measures to assess the need for increased bicycle rack capacity on Lab shuttle buses.

Response I-11

The mitigation measures identified in the Draft EIR for effects on local intersections would, if implemented, reduce traffic effects of the proposed project to a less-than-significant level, (please see response to Comment C-55 regarding the Hearst/Gayley/La Loma intersection), where right-of-way constraints limit the potential for physical improvements to the intersection. Although it would be speculative to quantify the potential reduction in vehicle trip generation that might be obtained from aggressive implementation of the Lab's TDM Program, the commenter correctly notes that traffic impacts would be expected to be reduced in severity. Please see the revised draft TDM Program, included as Appendix B to this Comments and Responses document.

The commenter appears to suggest that the Lab should be committed to a diminished or zero-net increase in parking and single occupant vehicle ridership. This is not practical and the Lab cannot commit to this and continue to meet its institutional objectives. Instead, the Lab is committed in the 2006 LRDP and the DEIR to maintaining or improving its current drive-alone ratio, which is among the best in the Bay Area for an employer of its size. In addition, Berkeley Lab has already reduced its projected increase in parking under the 2006 LRDP by 20 percent (see DEIR page I-7).

The Draft EIR (Section IV.L) analyzes the project's projected "minor increase" in transit ridership and on traffic impacts in general. Significant impacts to the level of service on three intersections during peak commute hours are analyzed and mitigation is identified. Any AC transit vehicles that happen to be routed through the Gayley corridor during peak commute hours would be subject to experiencing the potential decreases in level of service at the three intersections that are described and analyzed in the Draft EIR, Impact TRANS-1.

Response I-12

The specific measures identified by the commenter, such as charging for parking and provision of transit passes, are identified for consideration in the draft TDM Program included in DEIR Appendix F. Please see the response to Comment I-11, as well as the revised draft TDM Program, included as Appendix B to this Comments and Responses document. LBNL has committed to implementing a Transportation Demand Management Program that would include various elements mentioned in this comment. The TDM Program would authorize study and possible implementation of parking fee plan. In addition, under the TDM Program, LBNL has committed to conducting a new, comprehensive traffic study to assess future traffic conditions and needs at a particular point in the project's development. This study and the TDM Program implementation in general, would be coordinated closely with the City of Berkeley.

Response I-13

LBNL has looked into the funicular concept in the past and determined that it has not been feasible. One key problem is that there is no apparent source of funding available for such a

project. Nevertheless, LBNL's Transportation Demand Management Program would re-open this funicular concept and seek to find feasible options.

Response I-14

Mitigation Measure TRANS-3 would, if implemented, reduce potential effects of the proposed project related to adequacy of bicycle racks on Lab shuttle buses to a less-than-significant level. The particular means that the Lab employs to implement this measure need not be described in the EIR in order for the measure to be adequate. In terms of the overall capacity of the Lab's shuttle bus service, the draft TDM Program (DEIR Appendix F) notes explicitly, "The TDM component that has the greatest impact on Lab traffic is the Berkeley Lab Shuttle system" (page F-3). The draft TDM Program includes development of coordinated shuttle service with other major Berkeley employers, including UC Berkeley, and other enhancements of the shuttle program. Please see the revised draft TDM Program, included as Appendix B to this Comments and Responses document. See also the response to Comment I-10. Impact TRANS-2 analyzes and concludes that the project would have "minor" and less-than-significant increases in ridership on public transit. Impact TRANS-3 adequately addresses the potential overcrowding of riders and bicyclists on Lab shuttles by committing the Lab to monitoring the supply and demand and then adding services as needed. The commenter's suggestion that the Lab describe the procurement process for adding potential future buses is outside the scope of this EIR. Berkeley Lab has actively monitored and adjusted (e.g., replaced, updated, upgraded, and added new shuttles) its shuttle fleet and services, and would continue to do so in the future and as committed to under Mitigation Measure TRANS-3.

Response I-15

If the draft LRDP is approved and implemented, LBNL would coordinate water usage, sanitary sewer discharge and storm drain discharge with EBMUD as well as City of Berkeley and UC Berkeley.

LBNL has received a letter from EBMUD indicating that the district can provide the additional water that would be demanded under the LRDP. LBNL has studied the feasibility of using greywater catchment and/or sinkwater diversion and on-site recycled water in the past and has determined that it is not economically feasible. However, the Lab continues to explore this concept and is currently studying this as an option for the proposed Helios project.

New porous pavement would be considered on a project-by-project basis depending on a project's location, particularly at locations sufficiently far from hillsides where landslides are not possible.

Response I-16

LBNL won awards in the late 1980s and early 1990s for reductions of water consumption and those practices continue today. LBNL minimizes water use for irrigation, all equipment cooling is by recirculated water systems, and waterless urinals were used in the Lab's most recent

construction project, The Molecular Foundry. In addition, LBNL is testing innovative water filters that allow the reduction of “blowdown” water from cooling towers and boilers.

Comment Letter J

From Jeff Philliber <JGPhilliber@lbl.gov>
Sent Friday, March 30, 2007 9:24 am
To Katherine V Behrend <KVBehrend@lbl.gov>
Subject [Fwd: [Fwd: LRDP]]
Attachments LBNL letter.doc 313K

----- Original Message -----
From "Therese (Terry) Powell" <TPowell@lbl.gov>
Date Mon, 26 Mar 2007 14:00:36 -0700
To Jeff Philliber <JGPhilliber@lbl.gov>
Subject [Fwd: LRDP]

FYI - these comments arrived on 3/23/07

-------- Original Message --------
Subject:LRDP
Date: Fri, 23 Mar 2007 16:55:13 -0700
From: Milton Marks <milton@urbancreeks.org>
To:lrdp@lbl.gov

Please see attached letter re the LRDP and draft EIR.

Thank you.

Milton Marks
Interim Executive Director
Urban Creeks Council
1250 Addison Street, Suite 107
Berkeley, CA 94702
510-540-6669
510-848-2219 f
milton@urbancreeks.org

****
You can donate online to UCC today at www.urbancreeks.org Thanks!

--
Therese (Terry) Powell <TPowell@lbl.gov>
Community Relations Officer
Lawrence Berkeley National Laboratory
One Cyclotron Rd, MS 65, Berkeley, CA 94720
tel:510-486-4387 - fax: 510-486-6641

Comment Letter J

Urban Creeks Council
1250 Addison St. #107-C ♦ Berkeley, CA 94702 ♦ 510-540-6669 ♦ fax 510-848-2219 ♦
www.urbancreeks.org

March 23, 2007

Mr. Jeff Philliber
Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road – MS 90J0120
Berkeley, CA 94720

Dear Mr. Philliber:

On behalf of the Urban Creeks Council (UCC), I would like to submit the following comments on the Lawrence Berkeley National Laboratory (LBNL) 2006 Long Range Development Plan (LRDP) and Draft EIR:

1. UCC is concerned that the LRDP may not adequately protect the headwater streams affected by this project, particularly Strawberry Creek, though not limited to that creek. The LRDP does not provide adequate assurance that streams and water quality will not be compromised. J-1

2. LBNL should not deposit or bury toxic substances on site that could contaminate groundwater. J-2

3. Without adequate protection, the demolition of the Bevatron may release substantial toxic substances. Designing adequate protection mechanisms during any demolition and construction may not be possible in this environmentally sensitive area. J-3

4. As ongoing activities at the LBNL affect the entire City of Berkeley through the watershed, creating a Citizens Advisory Committee to help identify and resolve potential problems would be a helpful mitigation measure that UCC would support. J-4

5. UCC recommends minimizing impervious surfaces during development to increase the amount of rainwater that will percolate into the ground. J-5

Thank you for this opportunity to comment.

Sincerley,

Milton Marks
Interim Executive Director

Urban Creeks Council, March 23, 2007 (Comment Letter J)

Response J-1

As indicated in Section IV.G, Hydrology and Water Quality, LBNL's Construction Standards and Design Requirements, which would include opportunities to reduce stormwater flow impacts and further improve water quality, are integrated into LBNL's overall planning. The impacts to Hydrology and Water Quality were found to be less than significant. For further discussion regarding the impacts on streams and water quality, please see Responses G-1 through G-5.

Response J-2

Disposal of toxic substances by burial at the LBNL site is not allowed. The Lab is committed to preserving the quality of the groundwater at its site and to complying with the State of California's policy for protecting the beneficial uses of groundwater (State Water Resources Control Board Resolution 68-16 "Statement of Policy with Respect to Maintaining High Quality of Waters in California"). When accidental spills occur (for example, vehicle oil spills), all appropriate measures are taken to cleanup the spilled material in order to restore the environment and ensure that groundwater is protected.

Response J-3

The Building 51/Bevatron project has been addressed in a separate EIR, the Draft of which was published on October, 21, 2005. The EIR on Building 51, which analyzed the potential for release of hazardous materials during demolition, concluded that the Bevatron demolition would not result in any significant impacts related to hazardous materials that could not be mitigated to less-than-significant levels through implementation of mitigation measures included in the 1987 LRDP EIR, as amended, and/or project-specific mitigation measures, except for the significant unavoidable impacts on historic resources resulting from the demolition.

Response J-4

LBNL has, and will, continue to conduct public participation activities that are beyond those mandated by regulatory standards. In addition, the Lab coordinates its activities with local jurisdictions and involves both City staff and interested advisory commissions. In the past 10 years, the City of Berkeley's Planning Department, Public Works Department, as well as the Planning, Transportation, Landmarks, Community Health and Community Environmental Advisory Commissions have been involved with LBNL programs. The Lab will continue to support these activities.

Response J-5

As stated in Section IV.G, Hydrology and Water Quality, approximately 10 acres of impervious surfaces would be added to the site under the proposed 2006 LRDP. The projection of approximately 10 acres of new impervious surface was calculated based on the aggregate increase of building, parking lot, and road surface area as posited under the Illustrative Development Scenario.

The additional 10 acres would increase the amount of impervious surface from 67 to 77 acres across the 202-acre LBNL site. As stated on DEIR page IV.G-25 (as revised in this document; see Appendix A), “This increased impervious surface area would constitute about 1.1 percent of the 878-acre Strawberry Creek watershed pertinent to LBNL and. without the implementation of BMPs, would only slightly increase peak flows by about 10 cfs, or about 0.6 percent, over the current estimated total of 1,686 cfs generated in this watershed during a 100-year storm event.”

The DEIR determined that there would be no or negligible effects on erosion and downstream flooding or other impacts to beneficial uses as a result of new impervious surface area, and impacts would be less than significant.

Please see the revised EIR Hydrology section, included in its entirety in Appendix A of this document.

Comment Letter K

GENE C. BERNARDI
9 Arden Road
Berkeley, CA 94704

March 23, 2007

Environmental Planning Coordinator
Lawrence Berkeley Laboratory
One Cyclotron Rd MS 90J0120
Berkeley, CA 94720

Re: LBL LRDR EIR.

Dear Coördinator,

I understand you are planning to demolish 85 buildings at LBNL during the next 20 years. I believe that's the entire, or almost the entire, stock of buildings on site. Since all your buildings are apparently out-of-date and or decrepit, the best plan, in view of all the toxic contamination plumes in this earthquake prone, landslide zone, and the radioactive contamination, in the precious Strawberry Creek watershed, is to <u>close the Lab and clean up the toxic contamination and let the radioactivity decay in place</u>. K-1 K-2

Hopefully, sometime in the future, we will be able to freely enjoy what should be a wildland area and be able to rely on the water for domestic use, especially in case of a drought. K-3

Sincerely,

Gene Bernardi

Gene Bernardi, March 23, 2007 (Comment Letter K)

Response K-1

As described in Section III.E.3.2 of the Project Description, demolition is considered for buildings and structures that are seismically poor and not cost-effective to upgrade, no longer suitable for modern science, costly to maintain, and make inefficient use of valuable building sites within the existing developed zone of Berkeley Lab. As of 2004, more than 60 percent of LBNL buildings were more than 40 years old and 5 percent were over 60 years old, beyond the effective age of a typical laboratory building. Additionally, many of these buildings were constructed as temporary structures but were never removed or replaced.

In general, the 2006 LRDP foresees demolition of buildings that "can no longer reasonably meet modern mission needs and should be removed to make way for new modern structures." Redevelopment of such buildings would allow not only for physical upgrade of the Lab, but would also provide opportunities for increased building efficiency, improvements to site circulation and utility systems, and implementation of sustainable design practices. In many cases, the Laboratory would demolish surplus or outdated facilities prior to the identification of particular replacement buildings. The Laboratory would upgrade utilities and roadways in order to create "plug-in" development sites within the central core of the Laboratory.

Furthermore, the 85 buildings identified for demolition in the Illustrative Development Scenario analysis were reduced (from 440,000 gsf to 320,000 gsf of demolition at full project implementation, as described in the DEIR Project Description, p. III-22). Given the 2003 baseline size of the Lab (1.76 million gsf of occupiable space), the proposed 320,000 gsf represents only about 18 percent of the Lab's occupiable building space, and not "the entire, or almost the entire, stock of buildings on the site" as supposed by the commenter.

Response K-2

The commenter's opinion on the continued operation of the Lab is noted.

The commenter's suggestion that the Lab close for the purpose to clean up of toxic non-radioactive material and all decay-in-place of radioactive material is not necessary and would fail to meet the objectives of the project. The Lab's ongoing corrective action program to address non-radioactive contamination and the monitoring of tritium contamination (which is below the drinking water standard and which is continuing to decay to lower levels) is described on Draft EIR page IV.F-5. Both of these activities are taking place while the Lab continues to operate.

Response K-3

The commenter's advocacy for wildland use of the Lab hill site is noted, and it will be part of the overall record considered by LBNL and the Regents in determining whether to proceed with adoption of the proposed LRDP.

Comment Letter L

From Jeff Philliber <JGPhilliber@lbl.gov>
Sent Friday, March 30, 2007 9:25 am
To Katherine V Behrend <KVBehrend@lbl.gov>
Subject [Fwd: [Fwd: Comments on LRDP]]

----- Original Message -----
From "Therese (Terry) Powell" <TPowell@lbl.gov>
Date Fri, 23 Mar 2007 14:15:03 -0700
To Jeff Philliber <JGPhilliber@lbl.gov>
Subject [Fwd: Comments on LRDP]

FYI

-------- Original Message --------
Subject: Comments on LRDP
Date: Fri, 23 Mar 2007 13:32:49 -0700
From: Robert Breuer <rbreuer@pacbell.net>
To: lrdp@lbl.gov

Remarks on the Draft EIR for LBNL

Attention: Mr. Jeff Philliber

Concerning the Environmental Impact Review of the Long Range Development Plan by Lawrence Berkeley National Labs / LBNL, I particularly wonder at the significantly increased traffic impacts. It is not at all clear that the area can sustain any further traffic at all.

I live near the mouth of Strawberry Canyon, an area still served only by a couple of old narrow single lane roads laid out nearly a century ago when the canyon was entirely undeveloped place. With all the uses added over the years, the road access hasn't improved. Getting to the western end of Centennial Drive from Stadium Rim Way is accomplished via as inadequate a route as has ever existed, despite the substantial traffic increase brought with each major addition to the hill-top lab and related facilities. Despite a few road small improvements to Centennial Drive since the 1960's, the crucial access roads which wind around California Memorial Stadium have not been improved at all. They are, more than ever, thoroughly inadequate to the task of running significant numbers of vehicles up and down the roads to reach not only LBNL, but other hill facilities and attractions as well(Lawrence Hall of Science, Botanical Gardens). L-1

In calling for still more parking spaces on the hill, a further demand is put on the entirely deficient road infrastructure which pass the central campus area along Hearst Avenue/Gayley Road and the Bancroft/Durant Avenue/Prospect/Piedmont Avenue routes. Proposed mitigations of adding more traffic lights as will fix absolutely nothing in this situation, rather they will likely make conditions worse. Lights are unlikely to increase traffic flow rates, which probably are at a peak already. L-2

Perhaps most critically, the proposed plans further degrade the already poor access for emergency services to hill areas, including the particularly dangerous and isolated Panoramic Hill residential neighborhood. And of course pedestrians traversing across these streets (often jaywalking) and through these areas, already high in foot traffic compared to other parts of Berkeley, compete with vehicular flow, complicating the traffic picture. L-3

Furthermore, University's plans to construct a new thousand car parking structure at Stadium Rim Way and Gayley Road, as part of the Regents' approved Southeast Campus Integrated Projects (SCIP) contributes to the bottleneck by putting a giant traffic impediment directly at the very key intersection where most vehicles begin to go up the hill. Why hasn't the SCIP EIR been coordinated with that of LBNL? All of this right next to the two biggest entertainment venues in Berkeley: UC Memorial Stadium and the Greek Theatre. Is one an alarmist to think of this as a formula for catastrophe? Is not clearly dangerous to add still further building and human access needs to this concentrated hillside area, one with entirely inadequate access, let alone one immediately adjacent to areas subject to repeated wildfires from the east? L-4

People do need access to all the existing and proposed new building. We must realize that these people won't simply drop from the skiy down onto the hilltop developments, rather they will have to continue to drive up the road in vehicles. With the LRDP indicating an increase of 500 parking spaces to 2800 parking spaces and by an increased Adjusted Daily Population (ADP) of 1000 people to 4,650, a rational person is only left to wonder just how this EIR can pass for a coordinated, honest planning process? L-5

Sincerely,

ROBERT BREUER
29 Mosswood Road
Berkeley CA 94704

Comment Letter L

tel: (510) 540-5880
rbreuer@pacbell.net

--
Therese (Terry) Powell <TPowell@lbl.gov>
Community Relations Officer
Lawrence Berkeley National Laboratory
One Cyclotron Rd, MS 65, Berkeley, CA 94720
tel:510-486-4387 - fax: 510-486-6641

Robert Breuer, March 23, 2007 (Comment Letter L)

Response L-1

The commenter's opinions about existing conditions of roadways, such as Centennial Drive, are noted. Discussion of emergency access and egress problems associated with the Panoramic Hill Neighborhood area is included under Draft EIR Impact HAZ-5, and traffic impacts to Stadium Rim Way are discussed in Section IV.L, Traffic and Transportation. While the commenter's suggestion that Stadium Rim Way road is "thoroughly inadequate" and "as inadequate a route that has ever existed," is noted, it should also be noted that Lab drivers can choose among three entrances and several approaches to the Lab and would most likely choose to avoid particularly inadequate or congested roads in favor of roads and entrances that are less congested or more adequate.

Response L-2

The DEIR analyzed potential impacts associated with the LRDP at intersections on roads used to access the LBNL hill site, and identified feasible measures to mitigate significant project impacts. The commenter's opinion about the mitigating effect of installing traffic signals at unsignalized intersections with lengthy delays for stop-sign-controlled traffic is noted, but traffic signals do not increase traffic volumes (which are generated by persons traveling to and from various land uses), although signals do increase the peak capacity of a given intersection. The DEIR accurately describes the improved levels of service after mitigation.

Response L-3

The DEIR describes conditions at the intersection of Panoramic Way/Canyon Road-Stadium Rim Way, which provides the only vehicular access to the Panoramic Hill residential neighborhood, and describes potential project impacts at that location. As stated on pages IV.L-29 and IV.L-31, LRDP traffic is estimated to add seven vehicles in the a.m. peak hour and eight vehicles in the p.m. peak hour, representing increases of 1.5 percent and 1.3 percent, respectively, over future no-project conditions. Given that the existing roadways, while narrow, appear to provide at least a minimum level of adequate access to Panoramic Hill, except in instances of illegal parking (an enforcement issue), and given the extremely small increment of project traffic at this intersection, LRDP traffic would not result in a significant impact on access (including emergency vehicle access) or traffic safety at this location.

Response L-4

See response to Comment C-2 regarding coordination between the SCIP EIR and the LRDP EIR.

The assumptions underlying the LBNL LRDP DEIR's cumulative traffic analysis included the proposed UCB SCIP project, including the proposed parking garage identified by the commenter. For further discussion of the Gayley Road/Stadium Rim Way intersection, please see response to Comment C-55.

Response L-5

The DEIR's assessment of potential impacts associated with the LRDP follows standard planning-level analysis practices, and established the framework for any future tiered analyses in connection with subsequent project approvals pursuant to the 2006 LRDP. The DEIR, on pages IV.L-26 and IV.L-27, describes the methodology used to develop a traffic growth factor for LBNL. For planning purposes, LBNL uses adjusted daily population, defined as full-time-equivalent employees plus 40 percent of the annual total of authorized visitors, who are assumed to be present on any given day. The DEIR analyzed potential impacts of the projected increase in traffic volumes on area roads associated with the LRDP at intersections on roads used to access the LBNL hill site, and identified feasible measures to mitigate significant project impacts.

It is noted that the DEIR analyzes the potential physical effects of implementation of the proposed 2006 LRDP. It is the draft LRDP, not the DEIR, which is a planning document.

Comment Letter M

From Jeff Philliber <JGPhilliber@lbl.gov>
Sent Friday, March 30, 2007 9:23 am
To Katherine V Behrend <KVBehrend@lbl.gov>
Subject [Fwd: [Fwd: Environmental Concerns for LRDP]]
Attachments LongRangeCommentLBNL.pdf 163K

----- Original Message -----
From "Therese (Terry) Powell" <TPowell@lbl.gov>
Date Mon, 26 Mar 2007 14:05:37 -0700
To Jeff Philliber <JGPhilliber@lbl.gov>
Subject [Fwd: Environmental Concerns for LRDP]

FYI - These arrived on Sat., 3/24/07.

-------- Original Message --------
Subject: Environmental Concerns for LRDP
Date: Sat, 24 Mar 2007 07:35:42 -0700
From: Ignacio Chapela <ichapela@nature.berkeley.edu>
To:lrdp@lbl.gov
CC: Richard Brenneman <richardbrenneman@sbcglobal.net>, Gray Brechin <gbrechin@berkeley.edu>, Rex Dalton <Rexdalton@aol.com>, lawood1@comcast.net, Claudia Carr: ;, carpediem@nature.berkeley.edu, agroeco3@nature.berkeley.edu, Iain A Boal <boal@sonic.net>, awagner@berkeley.edu, travesty@calmail.berkeley.edu, "R.A. Walker" <walker@socrates.Berkeley.EDU>, afrancoi@socrates.Berkeley.EDU, Lee Worden <worden@berkeley.edu>, Ali: ;, Albie Miles <afmiles@ucsc.edu>, Matthew Taylor <matthew@matthewtaylor.net>, akatz@ebmud.com, John Garcia <jfgarcia2@usfca.edu>, jrm@nature.berkeley.edu

Please find attached a document outlining my concerns regarding the proposed development by the LBNL in Strawberry Canyon.

Please let me know if I can be of help.

Sincerely,

--

****

Ignacio H. Chapela, PhD
Associate Professor (Microbial Ecology)
Dept. of Environmental Science, Policy and Management
334 Hilgard Hall
University of California, Berkeley
CA 94702, USA

ichapela@nature.berkeley.edu
(510)643 2452

--
Therese (Terry) Powell <TPowell@lbl.gov>
Community Relations Officer
Lawrence Berkeley National Laboratory
One Cyclotron Rd, MS 65, Berkeley, CA 94720
tel:510-486-4387 - fax: 510-486-6641

Comment Letter M

UNIVERSITY OF CALIFORNIA, BERKELEY

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Ignacio Chapela, Associate Professor, Microbial Ecology

DEPARTMENT OF ENVIRONMENTAL SCIENCE, POLICY & MANAGEMENT
Ecosystem Sciences Division
334 Hilgard Hall

BERKELEY, CALIFORNIA 94720
(510) 643-2452
FAX (510) 643-5098

Mr Jeff Philliber
Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Rd MS 90J0120
Berkeley, CA 94720

23 March, 2007

Dear Mr Philliber,

As a biologist and faculty member on campus I want to register my most serious concern about the LBNL's Long Range Development Plan's environmental considerations.

After studying the Environmental Impact Report which should have guided the massive expansion of LBNL buildings in Strawberry Canyon, I find serious failures in the analysis leading that Report. Less than a document founded on sound scientific analysis, the absence of many aspects of environmental consideration make this document appear as a thin cover for construction that implies very serious environmental problems. M-1

Water management from the impermeabilization of soils through concrete and asphalt surfaces is not considered, there is practically no consideration of wildlife aspects of the proposed fence- and building relocation, little or no engagement with creek and stream impacts, edge effects, effects of habitat fragmentation, biological corridors or serious botanical, zoological or microbiological ecology. M-2

While these considerations would be all valid for the physical sciences that have been taking place at the LBNL for decades, they should have taken first priority in the current LRDP since much of the development is supposed to be meant for biological research activities, such as those taking place in the newly constructed (without proper EIR) Molecular Foundry building, and those proposed to house "synthetic biology" and transgenic organisms. The release of such transgenic organisms, in particular microbes, represents a serious challenge to the ecology and public safety not only of the land behind the LBNL's fences, but to the entire canyon and the City and Bay below. Given what I have seen proposed in the prime example of these new activities, the British Petroleum proposal, we must assume such releases of microbial and other genetically altered life forms to become frequent; for good measure of this statement, please note that the proposed level of containment on such buildings is of BSL-2 standard, M-3

which does not provide sufficient protection from microbiological or pollen/small windborne seed release. M-3

In addition, I understand that you have heard complaints about the EIR for this proposed LRDP which I will not belabour here, but to which I strongly adhere, including the mishandling of pre-existing pollution (heavy metals, radioactivity, VOCs, persistent organic pollutants), and groundwater. All this in a terrain dominated by highly unstable soil and geology. M-4

Finally, I must express my dismay at the disregard of the LBNL's plans for the teaching and training activities that take place regularly in the Canyon, including my own and other professors' classes and research. There is no doubt that such activities would be seriously impacted by the proposed buildings and parking structures. I would advise the LBNL to reconsider its plans through a much more inclusive, transparent and modern scientific approach if nothing else for the purpose of avoiding future environmental, moral, fiduciary and legal liabilities. M-5

Sincerely,

I. Chapela

Ignacio H. Chapela
Associate Professor, Microbial Ecology

Ignacio Chapela, March 24, 2007 (Comment Letter M)

Response M-1

LBNL disagrees with this comment. The EIR is based on substantial scientific analysis, and provides an adequate analysis of all issues required by CEQA.

Response M-2

Water management from the creation of new impervious surfaces was addressed in the DEIR. Please see DEIR pages IV.G-25 – IV.G-27 and Response J-5 for further discussion. (See also the revised Hydrology section of the EIR, presented in its entirety in Appendix A of this document.) Effects on biological resources are analyzed in DEIR Section IV.C.

Response M-3

Berkeley Lab follows biosafety regulations and guidelines prescribed by the National Institutes of Health, Centers for Disease Control, U.S. Occupational Safety and Health Administration, U.S. Department of Agriculture, and U.S. Department of Energy. Work with biological materials is evaluated and appropriate biosafety controls and containment levels are implemented. Biosafety containment levels consist of combinations of standard microbiological practices, safety equipment, and facilities needed to properly contain the biological work. Facilities are and would continue to be designed to the appropriate Biosafety Level (e.g., Biosafety Level 1 and Biosafety Level 2).

Concerning the Molecular Foundry, the commenter incorrectly implies that the this project was approved with inadequate CEQA review. On the contrary, adequate environmental review, pursuant to CEQA, was conducted of the Molecular Foundry. An Initial Study/Mitigated Negative Declaration, which was tiered from the 1987 LRDP EIR, as amended, fully analyzed potential environmental impacts of the Molecular Foundry project and was circulated for public review between December 10, 2002, and February 5, 2003, prior to approval of the Foundry project in 2003. The Initial Study/Mitigated Negative Declaration included applicable mitigation measures from the 1987 LRDP EIR, as amended, along with project specific mitigation measures. The building was completed in 2006 and is now operational.

Response M-4

Please see the response to Comment G-5. In addition, the Lab does not agree with the "complaints about the EIR for this proposed LRDP" alluded to by the commenter that the Lab has allegedly mishandled "pre-existing pollution (heavy metals, radioactivity, VOCs, persistent organic pollutants), and groundwater." The Lab's on-going corrective action program to address non-radioactive contamination and the monitoring of tritium contamination (which is below the drinking water standard and which is continuing to decay to lower levels) is described on Draft EIR page IV.F-5. The former program is conducted under the federal Resource Conservation and Recovery Act (RCRA), underwent public review, and was approved by the California Department of Toxic Substances Control in 2005; the latter is conducted under the Atomic Energy Act. The former seeks to clean up areas of soil contamination, stop discharge of

contaminated groundwater to surface waters, prevent further migration of contaminated groundwater, and clean up groundwater contamination to at or below the drinking water standard. The tritium plume present at LBNL is already below the drinking water standard. Additional information on this is contained in Draft EIR section IV.F, Hazards and Hazardous Materials.

Response M-5

This comment is directed at the project itself, and not the environmental review of the proposed LRDP. Moreover, the DEIR analyzes the potential impacts of the LRDP program to Berkeley Lab's hill site environs, including to Strawberry Canyon.

Comment Letter N 2

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Public Hearing
Monday, February 26, 2007

SPEAKER CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

Speaker Name: Maureen Daggett

Email: mobei101@yahoo.com

(4) Clevis units composting of sewage, gas - instead of sewage disposal?

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Public Hearing
Monday, February 26, 2007

COMMENT CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

N-4

Comments: (1) are green technologies utilized in the design: no sign in pdf. (2) are other alternatives considered for transportation other than additional cars and a large parking lot. (3) Cost of enlarging pipe

Solar, wind, other

N-1

N-2

N-3

Name: Maureen Daggett Date: 02-26-07

Address: 1427 Hawthorne Terrace, Berkeley, Ca 94708

Phone No.: (510) 292-5909 Email: mobei101@yahoo.com

*Optional

(2)

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Public Hearing
Monday, February 26, 2007

SPEAKER CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

Speaker Name: Maureen Daggett

Email: mobei101@yahoo.com

Maureen Daggett, February 26, 2007 (Comment Letter N)

Response N-1

As stated in the Project Description, the 2006 LRDP is consistent with the University's Presidential Policy for Green Building Design and Clean Energy Standards, adopted in July 2003 (amended October 24, 2003), which seeks to minimize the University's impact on the environment and to reduce the University's dependence on non-renewable energy. The policy is based on the Leadership in Energy and Environmental Design (LEED) rating system promulgated by the U.S. Green Building Council. Berkeley Lab would design and build all new buildings developed pursuant to the draft LRDP to meet the LEED "certified" rating, at a minimum, and would strive to meet the higher "silver" rating with additional sustainability features proven to be lifecycle cost-effective. In addition, all new buildings will outperform the required provisions of the California Energy Code by at least 20 percent and the Lab will strive to achieve the goal of procuring at least 20 percent of its electricity needs from renewable resources by 2017. The 2006 LRDP states that Berkeley Lab will develop a sustainability strategy integrating the Lab's site, climate, and infrastructure-intensive facilities to achieve the most sustainable facility practicable (see page III-35).

Response N-2

Alternate forms of transportation were addressed in the DEIR. One of the development strategies set forth in the 2006 LRDP applicable to traffic includes the increased use of alternate modes of transit through improvements to the Laboratory's shuttle bus service. In addition the LRDP seeks to promote transportation demand management strategies such as vanpools and employee ride share programs (see page IV.L-24).

Response N-3

This comment appears to be directed at merits of the project itself, rather than environmental issues evaluated in the EIR, and it will be part of the overall record considered by LBNL and the Regents in determining whether to proceed with adoption of the proposed LRDP.

Response N-4

The commenter refers to the possible use of Clivus toilets instead of standard toilets that are serviced by the sanitary sewer system. The DEIR did not identify a significant unavoidable impact with respect to wastewater generation, and therefore no further mitigation is required. For information, Clivus toilets are a waterless composting toilet treatment system. LBNL has no plans to install such toilets.

Comment Letter O

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Public Hearing

Monday, February 26, 2007

COMMENT CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

Comments: Concerns about health effects of lead PCB Mercury beryllium & asbestos on people of Berkeley from dismantling Bevatron & Dry experimental building. Also failure to warn Public about GMO crops in our environs, Bldgs 5-8 & 5-4 soils w/ poisons and nanoscale bacteria virus.

O-1

O-2

Name: Nancy Delaney Date: 2/26/07

Address: 2018 Channing Way Berk 94704

Phone No.: Email:

*Optional

Comment Letter O

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Public Hearing

Monday, February 26, 2007

SPEAKER CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

Speaker Name: Nancy Delaney

Email: see other side for snail mail contact

Nancy Delaney, February 26, 2007 (Comment Letter O)

Response O-1

As stated on page IV.F-4, existing buildings at LBNL range in age from less than 10 years [such as the new Molecular Foundry] to over a half century old. Some 30 outdated structures could be demolished under the LRDP, including the Bevatron complex (Building 51/51A). Structural demolition or renovation could involve exposure to hazardous materials historically used or present in these structures, such as lead-based paint, asbestos, polychlorinated biphenyls (PCBs), and/or radioactive materials. Prior to demolition or renovation of buildings where such hazards may exist, the Laboratory ensures that surveys are performed to determine the types and locations of hazards, and establishes procedures to safely perform this work. All demolition under the LRDP program would comply with all applicable regulations relating to control, handling and disposal of hazardous materials, including asbestos and lead. For additional information on such concerns as related to the proposed demolition of the Bevatron, please see the Draft EIR for the Demolition of Building 51 and the Bevatron, which has been publicly circulated for review in October / November 2005 and is currently available at the Berkeley Public Library.

Response O-2

The Comment lists several areas of concern.

Regarding GMO crops, the Commenter suggests that the EIR fails “to warn the public about GMO crops in our environs…” GMOs, or “genetically modified organisms,” are organisms whose genetic material has been altered – often with DNA from other organisms – so as to express or emphasize particular traits or characteristics. Although this is the same goal as traditional agricultural cross-breeding, this technique radically reduces the time needed to affect change and increases the precision with which desired characteristics can be selected. Such research may be conducted at Berkeley Lab, for example, in efforts to make plants more drought-tolerant and pest-resistant, and to require less fertilizer, pesticide, and irrigation.

Such research in this developing field would be expected to occur and increase in the future at Berkeley Lab, with or without implementation of the 2006 LRDP. Accordingly, biological research of this nature would be conducted safely and under tightly controlled conditions, and no uncontrolled releases of such organisms would be expected to occur. Instances where GMO-related research would take place, such as if it were part of the Helios project, would undergo individual project approval and appropriately detailed CEQA analyses at that time when project details became available. Future GMO research programs are not well defined at this time. However, as there would be no uncontrolled propagation or releases of GMOs, and because such research would take place within properly secured laboratories and greenhouse facilities, no significant cumulative impacts are anticipated as a result of GMO-related research.

Groundwater contamination areas that may coincide with the posed footprints of some Illustrative Development Scenario buildings are discussed in Chapter IV.F, Hazards and Hazardous Materials of the DEIR. Nano-particle concerns are addressed in response to Comment F-7.

Hank Gehman
5 Canyon Rd
Berkeley, CA 94704
hank@jong.com
March 22, 2007

Comment Letter on LBNL Draft EIR by email
Enclosure by mail

Jeff Philliber
Environmental Planning Coordinator
Lawrence Berkeley National Laboratory

Dear Sir,

I am writing to comment on the failure of the DEIR to properly examine: A) the seismic hazards of the project and: B) the construction impacts of the project.

A) Seismic Hazards

1) No emergency access after the earthquake.

In the DEIR analysis of Impact GEO-1 (IV.-21) you admit that the earthquake "could hinder or prevent emergency access to LBNL through the Blackberry Creek entrance" and would be a "significant" problem. In your Mitigation Measure GEO-1 (IV.E-22) you plan to solve that problem by "identify(ing) alternative ingress and egress routes for emergency vehicles and facility employees". What are those routes? And why don't you identify them now, in the DEIR? Just saying that you will "identify" alternative routes at some future date is wholly inadequate. In fact, alternative access would rely on Centennial Drive which is just as likely to be closed by road failure and landslides as would be the Blackberry Creek entrance. Entrances to the LBNL that use Centennial Drive for access are not viable alternatives. Like the Blackberry entrance, Centennial Drive also falls within the Alquist-Priolo Zone and damage to that route must be also considered in the Impact GEO-1 which the DEIR does not do. In a 1992 LBL publication, LBL geologist Patrick Williams predicted that "ground rupture on the Hayward Fault is likely to close both Centennial Drive and Cyclotron Drive for some

P-1

period of time". "Roads closed by landslides are generally more difficult to repair (than closures due to fault breaks), and are likely to remain impassable for days to weeks." The lab will be cut off from any help other than helicopters, which will be very busy elsewhere. The on-site safety infrastructure will be totally inadequate to deal with the damage, fire and injuries after the earthquake. Adding one thousand additional people and all of the new buildings will only multiply the dangers that already exist. It is irresponsible to continue to add to LBNL's Berkeley Hill location without emergency access. Access is a very serious problem and the Mitigation Measure GEO-1 is disingenuous and fails to offer any mitigation. P-1

2) A general underestimation of seismic risk at the LBNL hill site.

In Impact GEO-2 (IV.E-23) the DEIR fails to adequately describe the seismic risks at the LBNL hill site. The DEIR assumes an expected earthquake magnitude of 6.7 or greater. This is an outdated assessment. It is now 7.0 or greater which is an increase by a factor of three in the expected forces (Jack Boatwright, USGS in "Inside Bay Area", 2-07-2007). Furthermore, the DEIR completely ignores the 1997 study of the Berkeley Hills by Prof. Patrick Williams of UC Berkeley for the USGS, "Hayward fault slip vector and rate constraints at Berkeley: Reinterpretation of East Bay Landforms and Tectonic Hazards", (USGS Award 1434-HQ-97-GR-03080). In this study, Prof. Williams finds a "rapid and recent uplift" in the Berkeley Hills where the Lab is sited. "With these interpretations, a "characteristic" northern Hayward fault rupture is implied to be accompanied (by) significant compressional shortening along the western Berkeley Hills and thus probably can produce a larger moment-magnitude earthquake than previously estimated. Rapid uplift of the Hills also has important implications for the geotechnical stability of significant portions of the East Bay Hills." The increased expected force at the Hayward Fault will be amplified by the release of seismic energy in the Hills. This will create a much more lethal scenario of earthquake damage and landslides than this DEIR uses as its base for future LBNL development. P-2

In the Mitigation Measure GEO-2 (IV.E-24) the DEIR claims that if the buildings are constructed following current codes and standards, injuries and structural damage from shaking and landslides "would be reduced and the impacts, therefore, would be considered less than significant". Those standards are already seismically obsolete. As we learn more about seismic risks, the new buildings, laboratories and containment and storage facilities anticipated under this LRDP will have to be abandoned just like the LBNL is now planning to abandon its older, no longer seismically safe, buildings. I also question the DEIR's notion of what "less than significant" means when human lives are at stake. No doubt that building to code will reduce death and injury but how many lives will still be lost and what is the threshold beyond which loss of life is considered "less than significant"? The first principle of earthquake safety is to keep people away from the most dangerous places. To continue to increase human occupancy and site potentially dangerous laboratories on one of the most dangerous locations in America when perfectly good alternatives exist is wrongheaded and callous. This DEIR plays loose with the safety of people at the lab and ignores the negative safety impacts on its neighbors. P-3

B) Construction impacts will be amplified by concurrent construction of SCIP.

In the Cumulative Impacts section of the DEIR (IV.L.3.5) you admit that there will be increased traffic congestion with the expansion at the Lab and with the SCIP projects. But you make no mention of the cumulative impact of construction traffic as the work at the LBNL and SCIP proceed simultaneously. In the Construction –Period Impacts; Impact TRANS-6 (IV.L-38) you only examine the impact of LBNL construction traffic in isolation as if there would not be any other major construction going on at the same time. This is a major defect of this DEIR. With road closures anticipated and high truck volume (10,000 one-way truck trips for the garage parking facility alone) with SCIP construction what will be the cumulative effects on truck congestion, scheduling and routing? The DEIR says that the contractors shall use the City-approved truck routes in Berkeley. But will this be possible? In a personal conversation with Jeff Phillber I was told that all construction traffic would use the Blackberry entrance. But because of delays and conflicts, will there be any construction traffic using Centennial Drive? If so, it is likely that this traffic will attempt to use Canyon Rd to leave Berkeley through South Berkeley. This would cause a dangerous and unacceptable congestion at Canyon Rd which is too narrow and has a very tight turn. Construction scheduling must be coordinated between LBNL and SCIP to avoid using Canyon Rd., but this DEIR makes no mention of doing this. While the LBNL may feel that it is acceptable to consider development under the 2006 LRDP separately from UC Berkeley's 2020 LRDP, clearly the cumulative impacts must be completely studied in this EIR which this draft version does not do. P-4

Thank you for your consideration.

Sincerely,

Henry M Gehman

Hank Gehman

Comment Letter P

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March 22,2007

Jeff Philliber
Environmental Planning Coordinator
LBNL

Dear Jeff,

Enclosed are documents to be included with my comment sent to you by email on March 23,2007 discussing seismic hazards at the LBNL site. Please note that in the USGS study I substituted full-sized Figures, #1-#4 from a Feb 27, 2007 download to correct for a print-size error on the Dec. 6, 2006 download.

Thank you.

Henry M Gehman

Hank Gehman

Hayward fault slip vector and rate constraints at Berkeley: Reinterpretation of East Bay Landforms and Tectonic Hazards

USGS Award 1434-HQ-97-GR-03080

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Investigations Undertaken

Offset and abandoned channels of Strawberry Creek have been shown to record the vertical and lateral motions of the northern Hayward fault at Berkeley. Geological features of the western Berkeley Hills are consistent with rapid and recent uplift to the west of the fault. Analysis of two offset channels of Strawberry Creek indicates up-to-the-west uplift across the Hayward fault at a rate of approximately 0.5 mm/yr. If this rate is steady, and extends along the 20-kilometer-body of the western Berkeley Hills, the interpreted 120 m uplift of the Hills occurred during the past about 250,000 years. With these interpretations, a "characteristic" northern Hayward fault rupture is implied to be accompanied significant compressional shortening along the western Berkeley Hills and thus probably can produce a larger moment-magnitude earthquake than previously estimated. Rapid uplift of the Hills also has important implications for the geotechnical stability of significant portions of the East Bay Hills.

Ironically, the UC Berkeley Main Campus is probably the best location for study of the long-term kinematics of the Hayward fault. The University's location was chosen, in large part, because of the presence of a reliable water supply from Strawberry Creek. Motion of the Hayward fault has displaced the modern, active course of Strawberry Creek by about 300 meters (1000'). Paleochannels are offset 580 meters (1900') and 730 meters (2400'). Strawberry Creek and its paleochannels record both vertical and lateral components of the strain field across the Hayward fault. The up-to-the-west deformation that is indicated by fluvial and landform evidence at Berkeley has important implications for structural geology of the Hayward fault, and very likely explains the presence of several thrust-bounded highlands to the west of the fault.

General evidence for the rapid uplift is illustrated in Figure 1, a topographic map along the Hayward fault zone in southeast section of Berkeley, circa 1923. Note the abrupt increase of slope at the fault-line to the south of The UC Berkeley football stadium. Obvious stream offsets occur at Claremont, Hamilton, Strawberry, and Blackberry creeks. Note that the fault climbs northward from the 400' contour at Strawberry Creek to the 520' contour north of Blackberry Creek. The fault continues to climb northward across the western Berkeley Hills ultimately reaching a height of 800' (Figure 2). Note that the Mining Circle Channel projects to the fault at about 440'. The Hearst channel projects to the fault at about 480'. These intercepts are very suggestive of ongoing uplift across the Hayward at Berkeley.

The beheaded Strawberry channel's origins are supported by the provenance of offset gravels.

Clasts of Claremont Chert are abundant in gravels exposed in excavations that intersected the paleochannel during expansion of Doe Library in the central UCB campus. Chert is absent in the hillslope north of Strawberry Creek, but is abundant in the Strawberry watershed, and so identifies these as Strawberry Creek deposits. Unpublished notes of George Louderback also describe chert in three channel deposits of the Lawson Adit (Figure 1), a tunnel bored between the Mining Circle and Hearst paleochannels. Buwalda (1929) first associated the Adit gravels with fault offset, documenting that sorting, wear and provenance of the gravels tied them uniquely to Strawberry Creek, hundreds of feet to the south.

Landforms of the western Berkeley Hills support a hypothesis of uplift to the west of the fault. The Hayward fault traverses the hills (Figure 2) between Strawberry Creek and Richmond. Dibblee (unpublished mapping of the Richmond and Oakland East quadrangles) mapped a faultline at the base of the hills, as illustrated in Figure 2, and labeled as the El Cerrito fault. The Hayward fault climbs from 400 feet at Strawberry Creek to 800 feet at the crest of the western Berkeley, a rise of 120 meters. If the about 0.5 mm/yr rate of vertical motion suggested by the apparent uplift of abandoned Strawberry Creek channels holds for long period required for uplift of the western Berkeley Hills across the Hayward fault, the period required to reach their present configuration is approximately 250,000 years. Lack of a well-developed fault-line valley along the relatively more stable ridge-top area also suggests the youthfulness of the present configuration. It is thus proposed that the western Berkeley Hills block has been upthrust between the El Cerrito and Hayward faults during Quaternary time

The earliest detailed landform map in the Hayward fault zone is the UC Berkeley building and grounds map, compiled in 1897 (Figure 3). This map records the morphology of the abandoned Mining Circle and Hearst channels of Strawberry Creek at a contour interval of four feet. The fault climbs approximately 24 meters across this Figure (from 400 to 480'). Once again, the offset channels project to the fault at about 440 and 480 feet. Note that the near-fault profile of each beheaded channel is steepened by alluvium, which heightens the apparent channel intercept with the fault zone. A better estimation of the height of the intersection can be made by projecting the stream profiles from a greater distance from the fault (Figure 4). Note also the area of thickly ponded alluvium behind the Strawberry Creek shutter ridge. This ponding causes a tendency to underestimate the depth of the Strawberry Creek Canyon, and consequently underestimate the total vertical separation between the canyon and the beheaded channels. A projection to the fault of the bedrock stream profile is thus required to estimate the Wisconsin-era canyon morphology, and to recover the maximum vertical separation of the beheaded profiles.

Channel and Bank Profiles are illustrated in Figure 4. The active and beheaded channels of Strawberry Creek are aligned along the Hayward Fault. Ranges of vertical separation across the fault are noted graphically. Indicated are at least 10 but no more than 18 m of uplift of the Mining Circle channel. Also indicated are at least 12 but no more than 30 meters of Hearst channel uplift. Flattening of the active Strawberry Creek profile below the fault, along the length of the shutter ridge, results from tectonic lengthening of the channel by fault offset, and consequent alluviation. A "falls" occurred at the northern end of the shutter ridge. The much greater steepness of the paleochannels is attributed to control by much lower glacial base levels. The Strawberry profile is believed to have been greatly shallowed by agradataion as base-level rose. The much wider morphology of the modern stream valley that is apparent in Figure 3 is indicative of alluviation of the glacial era valley.

References

Comment Letter P

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Related publications and reports

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Lienkaemper, J.J., Map of recently active traces of the Hayward fault, Alameda and Contra Costa Counties, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2196, 1992.

Williams, P.L., Features and dimensions of the Hayward fault zone in the Strawberry and Blackberry Creek area, Berkeley California, Lawrence Berkeley Laboratory Pub. 36852, 1995.

Williams, P.L., Rate determinations for late Quaternary compressional tectonics across the central California Coast Ranges, EOS Trans AGU, December 1996.

FIGURE CAPTIONS

FIGURE # 1

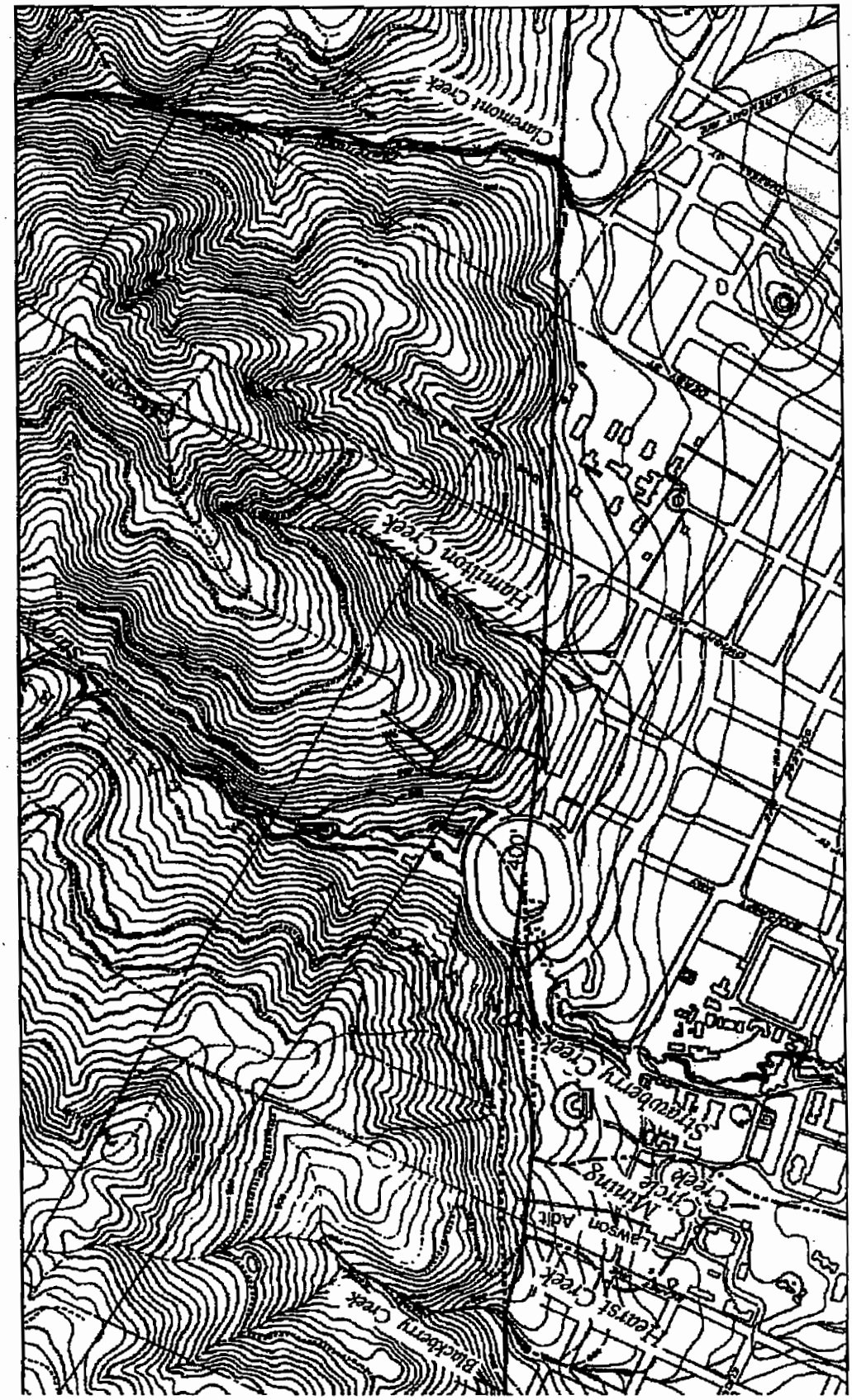
Claremont Creek
Hamilton Creek
400'
Strawberry Creek
Mining Circle Creek
Lawson Adit
Hearst Creek
Blackberry Creek

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Figure 1. Topographic map in the vicinity of the Hayward fault zone, southeast section of Berkeley, circa 1923. Note the abrupt increase of slope at the fault-line and the geometry of streams offset by the Hayward fault. Note that the fault climbs from the 400' contour at the Creek to the 520' contour north of Blackberry Canyon. The fault continues to climb northward across the western Berkeley Hills ultimately reaching a height of 800', see Figure 2. Contour interval = 20'.

FIGURE #2

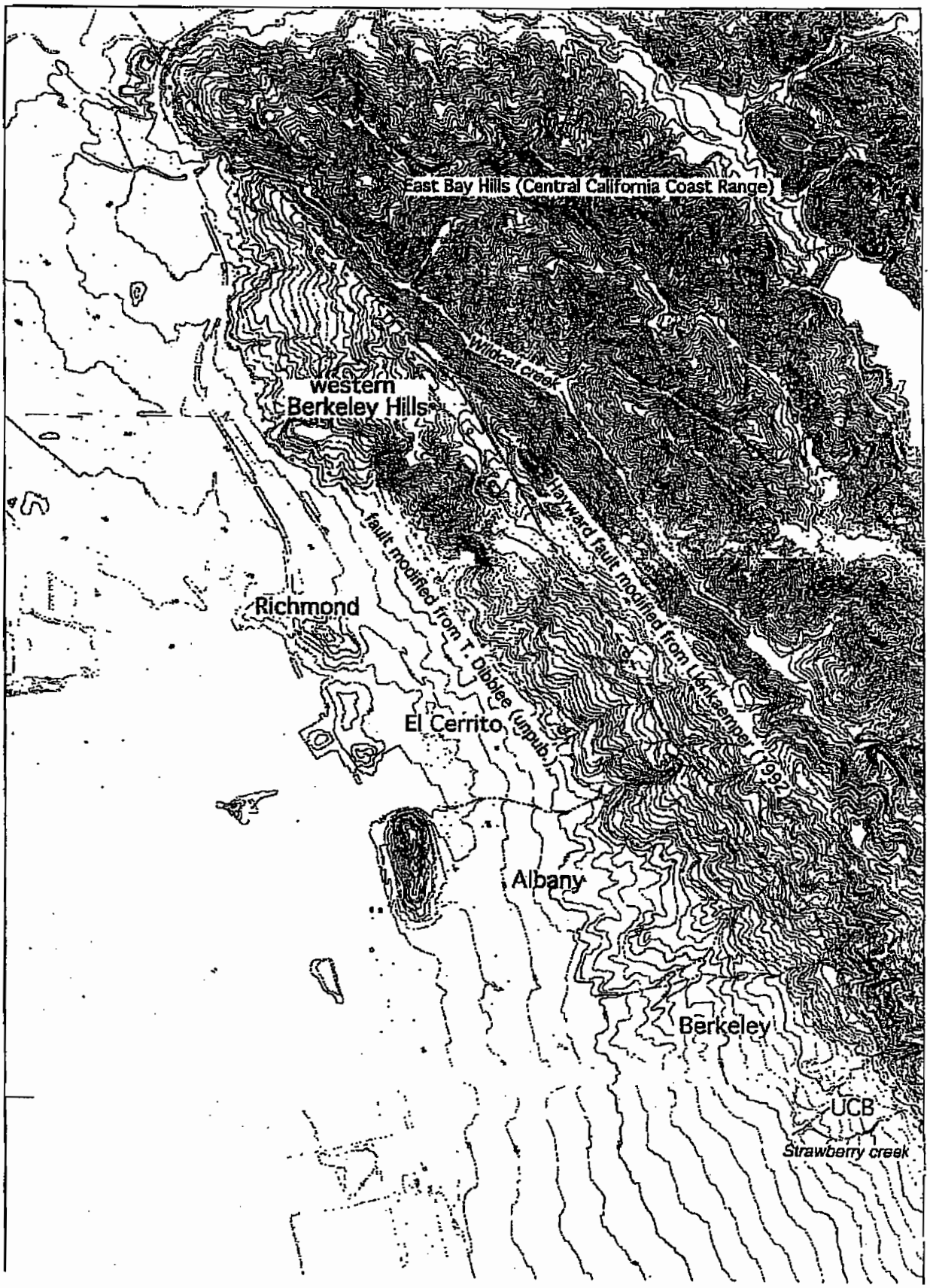
East Bay Hills (Central California Coast Range)
Wildcat creek
western
Berkeley Hills
Hayward fault modified from Lienkaemper, 1992
fault modified from T. Dibblee (unpub.)
Richmond
El Cerrito
Albany
Berkeley
UCB
Strawberry creek

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Figure 2. Topography of the western Berkeley Hills with Hayward and "Dibblee" fault locations. Map extends from Strawberry Creek to Richmond. The morphology of the fault's traverse over the hills indicates uplift of the western block. The fault climbs from 400 feet at Strawberry Creek to 800 feet at the crest of the western Berkeley, a rise of 400 feet (120 meters). Lack of a well-developed fault-line valley along the relatively more stable ridge-top area suggests the youthfulness of the present configuration. If the about 0.5 mm/yr rate suggested by Strawberry Creek stream morphology holds for long-term uplift across the Hayward fault, the western Berkeley Hills required approximately 250,000 years to reach their present elevation. Contour interval = 20'.

FIGURE #3

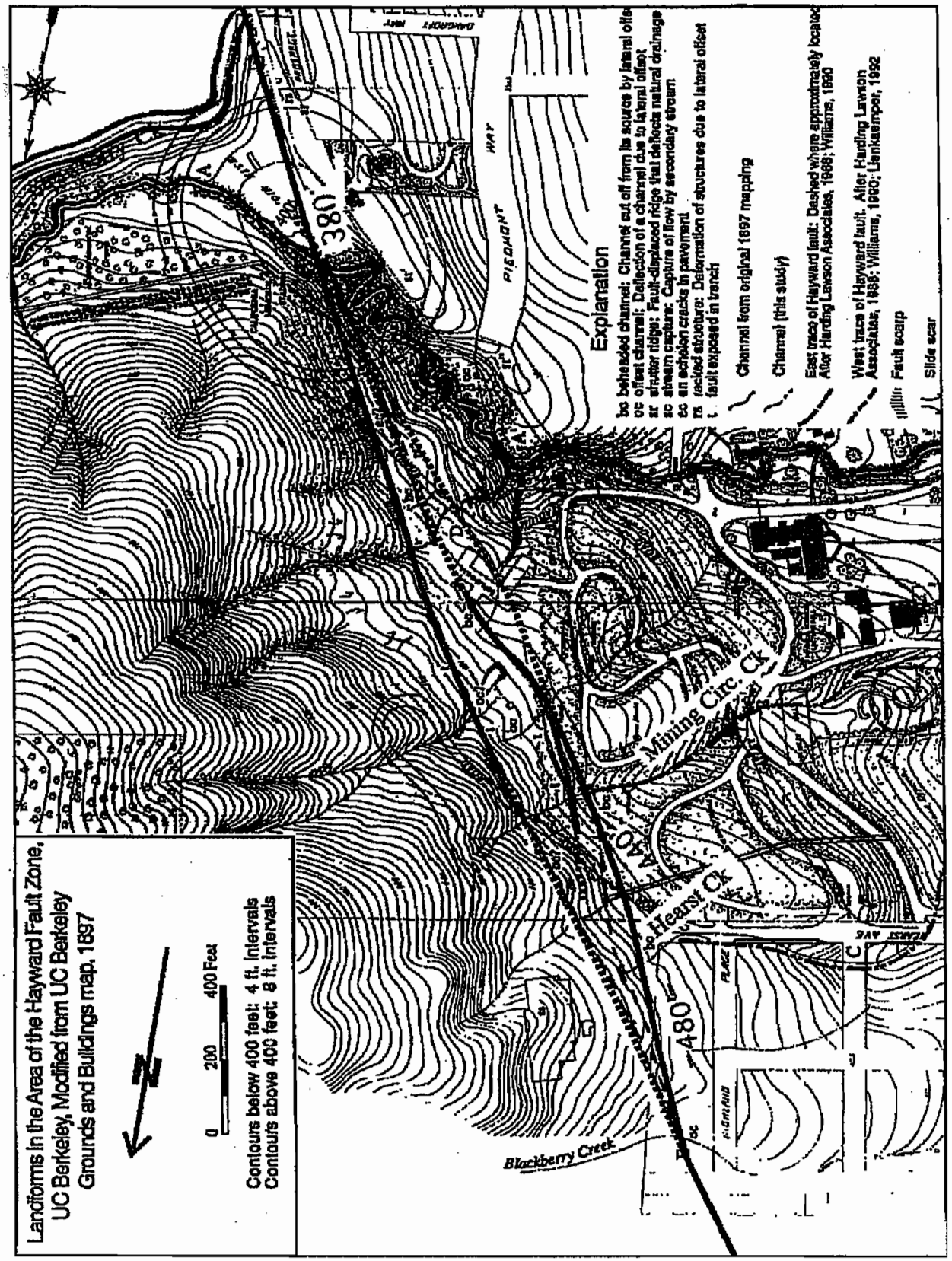
Landforms in the Area of the Hayward Fault Zone, UC Berkeley, Modified from UC Berkeley Grounds and Buildings map, 1897
0 200 400 Feet
Contours below 400 feet: 4 ft. intervals
Contours above 400 feet: 8 ft. intervals
Explanation
bc beheaded channel: Channel cut off from its source by lateral offset
oc offset channel: Deflection of a channel due to lateral offset
sr shutter ridge: Fault-displaced ridge that deflects natural drainage
sc stream capture: Capture of flow by secondary stream
ec en echelon cracks in pavement
rs racked structure: Deformation of structures due to lateral offset
t fault exposed in trench
Channel from original 1897 mapping
Channel (this study)
East trace of Hayward fault: Dashed where approximately located After Harding Lawson Associates, 1988; Williams, 1990
West trace of Hayward fault. After Harding Lawson Associates, 1988; Williams, 1990; Lienkaemper, 1992
Fault scarp
Slide scar
Mining Circ. Ck
Hearst Ck
Blackberry Creek
PIEDMONT WAY
380
440
480

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Figure 3. Landforms and culture in the area of the Hayward fault zone, University of California, Berkeley drawn on a UC Berkeley base map, compiled in 1897. This map records the morphology of the two abandoned channels of Strawberry Creek. University of California structures as of AD 1897 are solid. Selected later University of California structures outlined for reference. Major fault-related landforms include: A-A': Strawberry Creek channel offset; Sr': primary shutter ridge; Sr'': remnant shutter ridge MCC: beheaded Mining Circle Channel; H: beheaded Hearst Avenue Channel. Elevations of the intersections of ancient and modern channels of Strawberry Creek with the fault are noted. Contour interval is 4' below 400' and 8' above. The fault climbs approximately 24 meters across this Figure (from 400 to 480').

FIGURE # 4

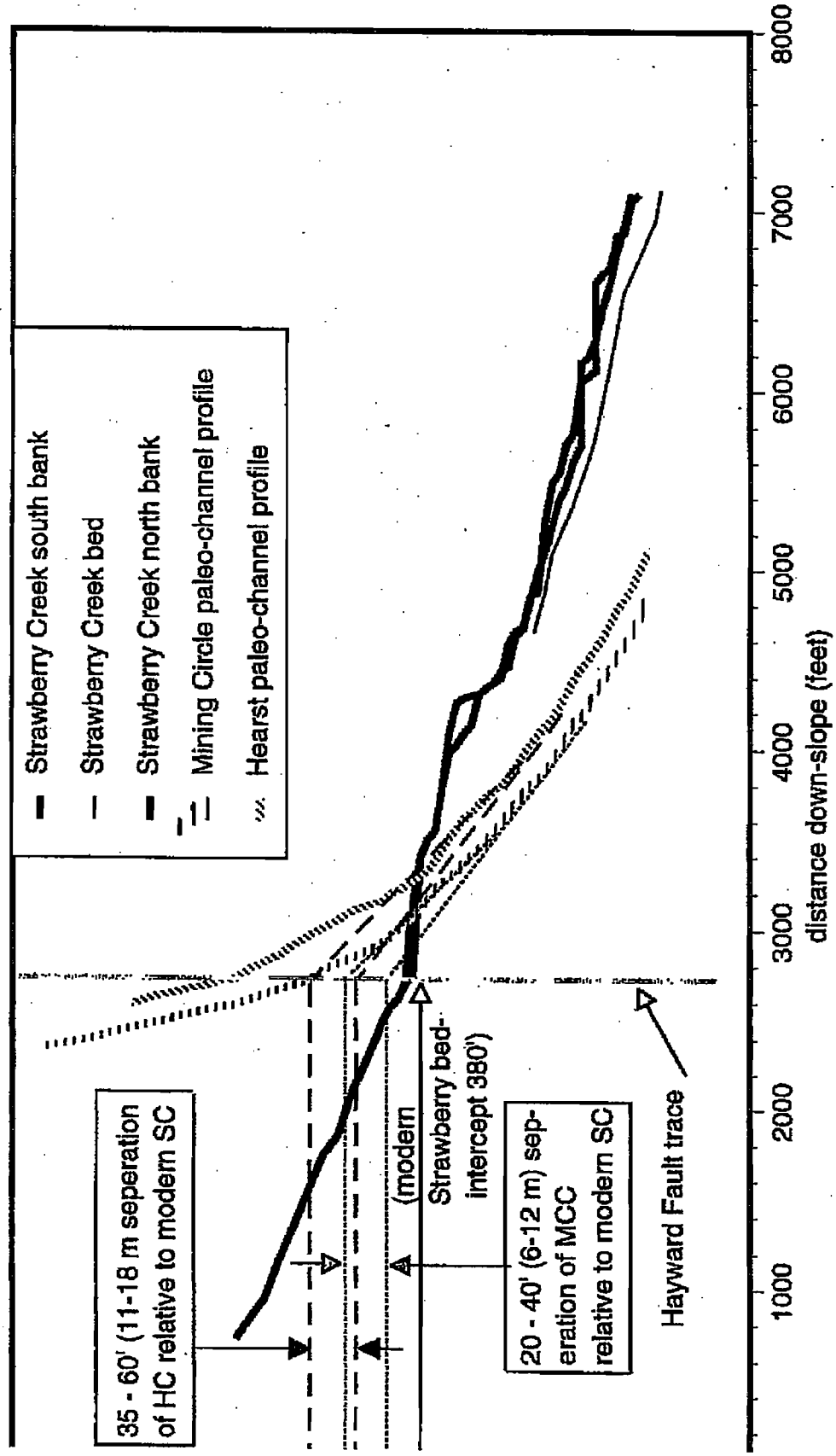

Figure 4. Channel and Bank Profiles: active and paleo-channels of Strawberry Creek, aligned on the Hayward Fault. Vertical seperation of Strawberry and Mining Circle channel is 6 to 12 m; Vertical seperation of Strawberry and Hearst channels is 11 to 20 m; Flattening of strawberry Creek profile below the fault, along the length of the shutter ridge, results from tectonic lengthening of the channel by fault offset. The primary control on beheaded vs. modern channel profiles appears to be base-level, with the paleochannels graded to glacial sea-level.

Figure 4. Channel and Bank Profiles: active and paleochannels of Strawberry Creek, aligned on the Hayward Fault. Ranges of vertical separation across the fault are noted graphically. Indicated are at least 10 but no more than 18 m of uplift of the Mining Circle channel. Also indicated are at least 12 but no more than 30 meters of Hearst channel uplift. Flattening of the active Strawberry Creek profile below the fault, along the length of the shutter ridge, results from tectonic lengthening of the channel by fault offset. The drop in the channel at the northern end of the shutter ridge was called "the falls". The much greater steepness of the paleochannels is attributed to control by much lower glacial base level. The Strawberry profile was made gentle by agradataion as base-level rose. The wider morphology of the modern channel is indicative of valley filling.

Non-technical Project Summary

Offset and abandoned channels of Strawberry Creek have been shown to record the vertical and lateral motions of the northern Hayward fault at Berkeley. Geological features of the western Berkeley Hills are consistent with rapid and recent uplift to the west of the fault. Analysis of two offset channels of Strawberry Creek indicates up-to-the-west uplift across the Hayward fault at a rate of approximately 0.5 mm/yr. If this rate is steady, and extends along the 20-kilometer-body of the western Berkeley Hills, the interpreted 120 m uplift of the Hills occurred during the past about 250,000 years. With these interpretations, a "characteristic" northern Hayward fault rupture is implied to be accompanied significant compressional shortening along the western Berkeley Hills and thus probably can produce a larger moment-magnitude earthquake than previously estimated. Rapid uplift of the Hills also has important implications for the geotechnical stability of significant portions of the East Bay Hills.

The Hayward Fault: Will it trigger the next quake:

What to do if it does

April 10, 1992

Editor's note: LBL geologist Pat Williams examines the probability that the nearby Hayward Fault will produce a major earthquake, and discusses how we can prepare for that possibility, both at work and at home.

By Pat Williams

One day in the future; while many or most of us are still employed at LBL, there will be a catastrophic earthquake in the Bay Area. Many earthquake researchers believe that our very close neighbor, the northern Hayward Fault, is the top candidate to produce the area's next major shock. Modest preparations at home and at work will make a tremendous difference in our comfort, safety, and peace of mind in the aftermath of this event.

Long-term earthquake forecasting leans heavily on history for evaluating earthquake occurrence probabilities. This method relies on three pieces of information: 1) the fault's long-term rate of slip, 2) the time elapsed since its last rupture, and 3) the offset expected in a "typical" fault rupture.

Surprisingly, little of this information can be determined by classical seismological techniques. Earthquake science now relies heavily on geological and historical investigation of past fault behavior. Geological fault studies search for ancient evidence of slip rate, the size of past offsets, and the times of past ruptures.

Investigators scan old newspapers to learn the extent and size of historical ruptures. Studies of the Hayward Fault have provided the following clues: its average slip rate is about 9 mm/yr (0.35 in/yr); the latest rupture of its southern segment (Fremont to San Leandro) occurred in 1868; and rupture of the northern section (San Leandro to Pinole) probably occurred in 1936. Earthquake forecasters estimate an average earthquake recurrence interval of 167 years. Other concepts, particularly the idea that strain of the earth's crust in the Bay Area has slowly "recharged" after being greatly relaxed by the 1906 San Francisco earthquake, suggest that new Hayward Fault earthquakes are likely during the period of the next few years to decades.

LBL's Exploratory Research and Development Fund enabled a direct study of the Hayward Fault's earthquake history. Current results of that study indicate that the fault's past ruptures occurred, on average, every 150-250 years. This appears to support the 167- year average recurrence estimated by earthquake forecasters.

Following a large earthquake, the greatest concern we will probably have, after our personal safety, will be the safety and whereabouts of our families. Due to heavy damage to the transportation infrastructure at the Lab and in the Bay Area, it is likely that most of us will have to leave the site under our own power in order to reunite with our families. This will be more difficult for those of us who live very far from the Lab.

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Lab roads will probably be closed by landslides and ground rupture along faults. The accompanying figure shows that ground rupture on the Hayward Fault is likely to close both Centennial Drive and Cyclotron Road for some period of time. Roads closed by fault breaks may be made passable by the Lab's own crews within a few hours. Roads closed by landslides are generally more difficult to repair, and are likely to remain impassable for days to weeks. Even after Lab roads are made passable, use will generally be restricted to emergency vehicles only. Lab earthquake procedures (located on the inside-back cover of the LBL telephone directory) instruct us **not** to leave the Laboratory by car.

After a major seismic event in the Bay Area, bridges and rail systems are likely to remain closed for a few hours to a few weeks while they are inspected, and if necessary, repaired. Those of us who used bridges and rail transit to commute to work may be stranded away from home for a day or more, and when we do go home, we are likely to cover most of the distance on foot.

Reasonable preparations for a long walk home include keeping sturdy shoes, a jacket, a hat, and a backpack, containing some high-energy nonperishable food, a water bottle, and a flashlight, at your work place and/or in your car. Additionally, it is essential that we **write down** a family earthquake plan and in it include as participants teachers, friends, neighbors, and relatives who can help us in reuniting our families and whom we can help during the crisis.

In the plan: 1) make a school/daycare evacuation plan; 2) choose a primary and an alternate family meeting site: 3) identify some person(s) outside the area to coordinate family messages (long distance lines will be the first to be reestablished; and 4) include someone in the plan would could care for your children if the family is separated during an earthquake. Store adequate food, water, batteries and other supplies to last three or more days after the earthquake. Be sure that both the structural and non-structural elements of your residence are earthquake safe. The telephone white pages contain an excellent summary of earthquake emergency information. By preparing for future Bay Area earthquakes, we acknowledge the potency of the active faults of this region, we contribute to our own peace of mind, and we set the stage for a more rapid post-earthquake recovery of LBL and the community.

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Studies show 1868 quake larger than earlier thought

A reoccurrence would cause much greater damage than current models project

By Julie Sevrens Lyons, MEDIANEWS STAFF
Inside Bay Area

Article Last Updated:02/07/2007 02:40:08 AM PST

Scientists have long known a big earthquake on the Hayward Fault — which runs through some of the most densely populated parts of the Bay Area — could kill hundreds, destroy tens of thousands of homes and close more than a thousand roads.

But new research suggests that may be an underestimate.

After looking at historical records of a huge quake that occurred on the fault more than 135 years ago, a Bay Area scientist has concluded that it was bigger than the one the region has been preparing for.

While it may not sound like a huge difference — a magnitude 7.0 quake vs. a magnitude 6.7 — it is. With the way quakes are measured, each increase by a full number, 6.0 to 7.0, for instance, the power of the quake is increased by a factor of 10, which translates into much more damage.

Assessing the 1868 quake is important because a repeat of that quake is considered the most likely and devastating scenario for the 'Big One' in the Bay Area. In fact, it was known as the "great San Francisco earthquake" until the 1906 temblor came along, and it's the only major quake on the fault in historical times. Scientists estimate there is a 27 percent chance a quake of magnitude 6.7 or greater will occur on the Hayward Fault by 2032.

"The Hayward Fault stands out as the most likely fault in the Bay Area to do lots of damage," said Jim Lienkaemper, a geophysicist at the U.S. Geological Survey. "It's going through the most populated areas that have a lot of weak structures. That's its claim to fame."

The early-morning earthquake of Oct. 21, 1868, killed 30 people and toppled homes, church turrets, water towers and courthouses from San Jose to Suisun City, then a sparsely populated landscape of small towns, farms and ranches.

Jack Boatwright, a geophysicist at the USGS in Menlo Park, mapped the damage in meticulous detail, identifying about a dozen cracked homes and fallen edifices that had not been previously mapped and plotting their locations using old atlases. His new map shows the intensity of shaking felt between Santa Rosa and Gilroy.

"The 1868 earthquake gives us an idea of what may well be the next large earthquake in the Bay Area, and it's something we should focus our planning for," he said. "The 1868 quake was twice as big as the standing model we had of it."

As bad as the 1868 quake was, it could have been much worse. Only a portion of the fault ruptured at that time. Scientists are concerned that the whole thing could go at once, creating even more devastation.

In his assessment, Boatwright drew from the earlier work of Tousson Toppozada, a researcher who combed through old newspapers and personal correspondence to find mentions of the quake.

In San Jose, "buildings and trees seemed to pitch about like ships in a storm at sea," recounted the Oct. 22 edition of the San Jose Mercury. "Fire walls and chimneys were thrown down, in all parts of the city."

For each of more than 125 sites where damage occurred, Boatwright determined the intensity of shaking according to the Mercalli scale, which ranges between 1 (not felt) to 10-plus (extreme). When shaking hits around 7, chimneys start to fall down. With 8s, poorly built buildings collapse, Boatwright said.

In 1868, Fremont, San Leandro, Hayward and Oakland all ended up with 8s and 9s, violent shaking that caused heavy damage. Most of San Jose was an 8 — severe shaking and moderate-to-heavy damage. Even outlying areas like Livermore, Redwood City and Santa Cruz sustained a fair amount of damage, and experienced more intense shaking than they did during 1989's Loma Prieta earthquake.

Surprisingly, Mission San Jose and Oakland weren't rocked as hard as researchers thought they would have been, and Boatwright isn't sure why. But points in between fared much worse. The Sacramento-San Joaquin River Delta experienced considerable shaking, indicating that the area's levees, which protect much of the state's fresh water supply, are at even greater risk than previously thought.

"I think these pieces of information are extremely valuable," said seismologist Mary Lou Zoback, vice president of earthquake risk applications for Newark-based Risk Management Solutions. "They will contribute more to our better understanding of future earthquakes and how shaking varies."

The problem researchers have when gauging the size of historical earthquakes is that modern instruments were not around then. So there is no way to know an old quake's exact magnitude.

"The reality is that no one was sitting around with seismographs in 1868, so there is a range" of magnitudes that could be considered most likely or accurate, said David Schwartz, chief of the San Francisco Bay Area Earthquake Hazards Project at the USGS.

Given that the Bay Area was sparsely populated then, scientists have had a difficult time determining the damage in some regions, such as the Evergreen area of San Jose.

In 2003, a team of scientists put together their best predictions for a "Big One" on the Hayward Fault, figuring it could range from magnitude 6.4 to a 6.9. The average estimate, 6.7, has been extensively used in disaster planning.

Analysts at the Association of Bay Area Governments, for instance, anticipate 1,100 road closures and 94,000 destroyed homes and apartment units from a magnitude 6.7 quake, said Jeanne Perkins, an earthquake and hazards specialist. With the new research suggesting the quake could be even bigger, those figures could grow considerably.

"It would be devastating to people's lives, not only in the short-term, but in the months and even years it takes to get the housing back to near-normal," she said. "All people have to do is remember Hurricane Katrina and they've got a mental image of the length of time it takes for the recovery of a community."

Boatwright used the same method in 2006 to plot shaking from the 1906 San Francisco earthquake, and other researchers believe his estimates for that event are on the mark. Although scientists would prefer to have quantitative information gleaned from sophisticated instruments, his method appears to work, Zoback said.

"It's another tool in our toolbox that is turning up extremely useful," she said. "This is an incredible bonus for us as scientists — the fact we can extract very useful information out of basically newspaper reports or personal letters people had written."

But Schwartz said he thinks too much emphasis is being placed on the quake's magnitude, which he deems uncertain. The real issue is where the shaking occurred, how strong it was and what that say about future quakes on the fault, he said.

"Whether it was 6.7, 6.8, 6.9, 7.0, we know it was large and it did damage," he said. "It did damage in San Francisco. It did damage in the East Bay."

If anything, the new research should serve as a reminder to be prepared for a major earthquake, said Arrietta Chakos, president of the Northern California chapter of the Earthquake Engineering Research Institute.

"There's an annual survey done to ask Californians what are their top issues in the state. I don't think earthquake preparedness has made the top 20. It's not been a terribly popular topic," Chakos said.

"One of the things that happens between big earthquakes is people forget, or they don't want to think about them. This report brings it back to the front burner for a lot of us."

Contact Julie Sevrens Lyons at jlyons@mercurynews.com or (408) 920-5989.

Hank Gehman, March 22, 2007 (Comment Letter P)

Response P-1

Please refer to the response to Comment C-22. In the event of an earthquake or other catastrophic event, LBNL would control ingress and egress from the hill site. The DEIR states on page IV.F-37, "Under the 2006 LRDP, EOC measures would not allow uncontrolled vehicle evacuation of the site if conditions did not warrant this. During or after a catastrophic event, the Lab's perimeter gates would be controlled. For example, gates may be closed to all vehicles except for emergency services, as warranted by the EOC. Any decision to evacuate would be coordinated through EOC command, including with the UC Berkeley Police Department, City of Berkeley Police Department, Alameda County Sheriff's Department, and the California Highway Patrol to ensure an informed and coordinated response. Uncontrolled evacuation by vehicle, particularly during a wildland fire and on roads that would affect constricted areas such as the Panoramic Hill neighborhood, would not be permitted." The ground disturbance caused by an earthquake and the resulting damage cannot be predicted and identifying the alternative emergency routes in the EIR would be premature and somewhat speculative. In the event of an earthquake or other emergency situation, LBNL emergency response staff would, as they would do currently, assess the situation and determine the best course of action, which may include the opening or closing of roads for emergency ingress and egress. Mitigation measure GEO-1 (DEIR, page IV.E-21) takes into account the standard emergency procedures and protocols in place at LBNL and that is why the emergency ingress and egress routes are not provided.

As noted in the above discussion, the Lab currently has emergency and earthquake procedures in place, along with access and egress routes. It also has its own emergency services on site. Under the 2006 LRDP, future buildings and population increases may drive new or updated emergency response and evacuation plans. It is appropriate to tailor such future emergency plans to the new conditions being specifically planned and proposed at that time. Accordingly, Mitigation Measure GEO-1 on DEIR p. IV.E-22 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:

> Seismic emergency response and evacuation plans <u>shall be prepared</u> for <u>each new project at</u> LBNL <u>that is developed pursuant to the 2006 LRDP. These plans</u> 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.

Impact HAZ-5 of the Hazards and Hazardous Materials section of the DEIR (pages IV.F-32 – 39) discuss the likelihood for catastrophic events to occur, the direct and evacuation impacts of such events, and whether the implementation of the LRDP could increase exposure of people or structures to the associated hazards. In response to the commenter's concern for health and safety in the event of an earthquake and fire, the preventive measures and procedures that would be carried out by the LBNL emergency services during such an event are presented in bullets below. The current emergency procedures and protocols at LBNL coupled with the measures proposed

under the LRDP would adequately protect life and safety in the event of a large earthquake. Mitigation Measure GEO-1 is a small part of the overall emergency management planning.

- All new structures built on the LBNL main site would include installation of automatic fire-sprinkler systems.
- LBNL's main gas lines would be protected by automatic shut-off valves. With loss of system continuity or pressure occurring from a breach, this system would shut off and prevent an uncontrolled release of natural gas.
- Many older buildings built to less stringent standards would be replaced under the 2006 LRDP. This would remove people and property from structures that are potentially less able to withstand seismic events.
- LBNL would continue to provide for an on-site Alameda County fire station, which provides fire and emergency medical response.
- LBNL would continue to maintain its own medical clinic, which is staffed by doctors and other trained medical personnel during business hours.
- Construction under the 2006 LRDP would comply with requirements of the latest California Building Code, University of California seismic design safety policies, federal standards, and LBNL's lateral force design criteria. Such construction would help to minimize the potential injuries, damage, and subsequent fire that could result from a seismic event.
- LBNL would continue to maintain and update its Master Emergency Program Plan (MEPP), which establishes policies, procedures, and an organizational structure for responding to and recovering from a major disaster at LBNL.
- LBNL would continue to maintain its three 200,000-gallon emergency water tanks, which are spaced strategically throughout its site. These are designed to maintain pressure and supply of emergency water even in the event of loss of water supply from external sources.
- Hazardous materials emergency response (HAZMAT) services would continue to be provided by LBNL's on-site Alameda County fire station, which maintains an "around-the-clock" engine company staffed by four HAZMAT-certified firefighters. HAZMAT automatic aid is offered through the Berkeley Fire Department, when available, and the Alameda County Fire Department. Depending on the magnitude of an incident, additional HAZMAT response support is available through the formal Fire Mutual Aid Plan, which the Alameda County Fire Department coordinates. Additionally, the Lab has an "around-the-clock" contract with a private vendor for HAZMAT clean-up.

Response P-2

The Geology and Soils section as a whole (including the setting and impact analysis) provides sufficient information to assess the geologic hazards and seismic risks at the LBNL Hill Site (Also refer to the responses to Comments C-23 and C-24). The comment apparently misinterpreted the information presented in the Geology and Soils section of the DEIR. Contrary to the comment, the DEIR does not assume that an earthquake with an expected earthquake magnitude of 6.7 or greater would impact the site. The 6.7 magnitude figure has been put forth by

the U.S. Geological Survey and the Working Group on California Earthquakes Probabilities in its conclusion as to the size of the next major earthquake to affect the Bay Area. As discussed in the DEIR, page IV.E-3 and IV.E-23, the U.S. Geological Survey and Working Group conclude that a 6.7 **or greater** magnitude earthquake will strike the Bay Area in the next 30 years. The magnitude used to assess seismic response at the LBNL site is the maximum moment magnitude of 7.1, as shown in Table IV.E-1 and discussed on pages IV.E-3 through 7. The maximum moment magnitude is derived by the California Geological Survey and U.S Geological Survey and provides a measure of the size of a faulting event based on the size of a fault. The DEIR uses the U.S. Geological Survey/Working Group conclusion to present the reader with a reasonable estimation of the likelihood of an earthquake. The EIR uses the 7.1 magnitude figure to assess earthquake hazards and risks. Jack Boatwright's article of February 7, 2007, discusses the 1868 earthquake on the Hayward fault, which was thought to be a magnitude 6.7 event but Mr. Boatwright has estimated it was actually larger, approaching 7.0. As discussed above, the U.S. Geological Survey and California Geological Survey assume the Hayward fault could generate a magnitude 7.1 event.

The article written by Patrick Williams was not deliberately and "completely" ignored in the EIR. Mr. Williams is a well respected seismologist and has conducted several very noteworthy and comprehensive studies. Although the EIR analysis may not have cited Mr. Williams' study, the consultants preparing the EIR considered a number of similar studies that reach similar conclusions.. The findings of Mr. Williams' study do not change the conclusions of the EIR analysis, which is based on an assumption that a sizeable event of the Hayward fault will produce substantial ground shaking and will likely generate landslides and other secondary ground failures.

Response P-3

Please refer to comment responses C-23 through C-24.

Concerning existing building codes, LBNL disagrees with the commenter's suggestion that such codes are "seismically obsolete." Current applicable building codes represent California-specific versions of commonly accepted codes that are the industry standard and that incorporate specific provisions to provide maximum feasible protection against seismic risks. It is true that, as more is learned about ground motion and earthquake effects, the seismic criteria in the California Building Code are adjusted and updated; that is the function of the California Building Standards Commission. It would be speculative to try to predict future changes in building codes, although it can be stated with reasonable certainty that the seismic design criteria will not be relaxed in the future. Finally, it is not necessarily the case the buildings must always be demolished. Some buildings can be renovated and upgraded to meet newer seismic standards. During the lifetime of the proposed 2006 LRDP, some existing buildings at LBNL would be demolished, while others would be renovated, as stated in DEIR Chapter III, Project Description.

Response P-4

Please see the response to Comment C-58, in which Berkeley Lab has committed to work with the City of Berkeley and, where necessary, UC Berkeley, to minimize construction-related traffic impacts.

Concerning cumulative construction-period impacts involving both the LBNL LRDP and UC Berkeley's SCIP project, the 10,000 one-way truck trips cited by the commenter represent the DEIR's projection of the maximum annual number of truck trips resulting from construction and demolition activities that could be undertaken pursuant to the LRDP, assuming overlapping construction and/or demolition activity occurring on more than one project during a given year (DEIR page IV.L-38). As further stated on page IV.L-38, "The peak annual truck traffic volume would average approximately 40 truck trips per day, based on a five-day work week, over the course of a peak construction year. Based on the EIR for a recently proposed building at LBNL, truck traffic could be concentrated on "peak-peak" days during periods when, for example, excavated soil might be removed from the LBNL site; in such instances, there could be times when as many as 65 one-way construction truck trips might be made to and from the LBNL hill site daily [reference omitted]. However, even such levels of truck activity (i.e., up to one truck every 6.5 minutes between 9:00 a.m. and 4:00 p.m.), which would not be expected to last for more than a few weeks at a time, would not cause significant traffic delays, and the number of construction trucks would be too small to result in any adverse change in off-peak levels of service. The primary impacts from construction truck traffic would include a temporary and intermittent reduction of roadway capacities due to the slower movements compared to passenger vehicles."

As stated in the Draft EIR on pages IV.L-39 – 40, under Best Practice TRANS-6b, all construction trucks would be required to use approved routes and would not be permitted to deviate (unless required by extraordinary circumstances, like detours, accidents, etc.). This system has long been in place at LBNL and is successful. Further, Best Practice TRANS-6c states, "LBNL shall manage project schedules to minimize the overlap of excavation or other heavy truck activity periods that have the potential to combine impacts on traffic loads and street system capacity, to the extent feasible."

Generally, trucks for LBNL construction and demolition activity would be expected to reach the Lab hill site via University Avenue, Oxford Street, and Hearst Avenue. LBNL construction trucks would be unlikely to travel on Gayley Road through the UC Berkeley campus. As a result, LBNL construction traffic would not aggregate with truck traffic from the proposed SCIP construction activities, which would occur on the opposite side of the UC Berkeley campus. While there could be overlap between LBNL trucks and SCIP trucks on major routes such as University Avenue, the LBNL LRDP's contribution to construction truck traffic (no more than one truck every 6.5 minutes) would not be "considerable" in the context of a high-capacity roadway like University Avenue, and therefore would not result in a significant cumulative impact related to construction traffic.

Both the LBNL LRDP EIR and the SCIP EIR identify best practices during construction, such as use of designated truck routes, potential limitations on construction hours and on peak-period truck trips, and parking management for construction workers. In addition, each EIR includes a best construction practice such as the LRDP DEIR's Best Practice TRANS-6a, which states, "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." All of the above construction-period best practices would serve to limit potential construction-period traffic impacts.

Comment Letter Q

1

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Public Hearing
Monday, February 26, 2007

SPEAKER CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

Speaker Name: Tom Kelly

Email: kystousa@sbcglobal.net

Comment Letter Q

Public Hearing

Monday, February 26, 2007

COMMENT CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Comments: Climate change + all new development Q-1

Name: Tom Kelly Date: 2/26/07

Address: 1609 San Ramon Ave. Berkeley 94707

Phone No.: Email: kyotousa@sbcglobal.net

*Optional

Tom Kelly, February 26, 2007 (Comment Letter Q)

Response Q-1

Please see Response A-4 for discussion regarding climate change.

Comment Letter R

From Jeff Philliber <JGPhilliber@lbl.gov>
Sent Friday, March 30, 2007 9:23 am
To Katherine V Behrend <KVBehrend@lbl.gov>
Subject [Fwd: [Fwd: LBNL LRDP draft EIR comments]]

----- Original Message -----
From "Therese (Terry) Powell" <TPowell@lbl.gov>
Date Mon, 26 Mar 2007 14:01:56 -0700
To Jeff Philliber <JGPhilliber@lbl.gov>
Subject [Fwd: LBNL LRDP draft EIR comments]

FYI - these comments arrived on 3/23/07

-------- Original Message --------
Subject:LBNL LRDP draft EIR comments
Date: Fri, 23 Mar 2007 16:51:11 -0700 (PDT)
From:merrilie Mitchell <merriliem@sbcglobal.net>
To:lrdp@lbl.gov

lrdp@lbl.gov March 23,2007

To: Lawrence Berkeley National Laboratory Long Range Development Plan and DEIR

From: Merrilie Mitchell, 1612 Delaware St., Berkeley, CA, 94703 **{510}-549-1840

Re: Draft EIR for UC Lawrence Berkeley National Laboratory and its LRDP

Your plans are not right or honest in presenting the whole of your intentions and impacts.

Here is a short list of suggestions re obvious problems with your plans:

- We must not venture into new planet- endangering projects like this "Bioenergy Research", especially not one like this project which is gigantic and rushing in disastrous directions for profit, politics, growth, and which uses concepts that have already brought us to the edge of extinction. We must all begin to do everything we can to ameliorate damage to our Planet and to heal and protect our natural environment to stop destroying our earth. **We must clean up our act.**

- The original Charter for the UC Labs was for research in electricity and energy efficiency. This relatively benign research has been wonderful and seemed safe enough to conduct near the University and a dense population. But radiation, nanotech, synthetic biology research and so forth, should not occur near the University or populated areas. On an earthquake fault zone is unbelievable.

- It is time for "Less is More!" Time to downsize. We can't be planning to grow corporations, Universities, or populations. That is Madness, Selfishness, and Greedy. **But we can clean up our act and there is huge profit in it! And Brilliance, Benevolence, Survival, and Nobel Prizes too!!!**

- The Helios Computer should stay in Oakland where it is wanted and needed. Moving it to Strawberry Canyon will pollute the air with diesel and other toxic particulates while moving, demolishing, and redeveloping. Moving it to Berkeley would pollute your own nest, the UC campus area. The move would pave the earth in a delicate environmentally sensitive zone, and deforest in a wooded canyon at a time when our earth needs the cooling effects of every tree.

R-1

Comment Letter R

- The UC Lawrence Berkeley Labs should not do this BP/ DOE, Synthetic Biology / commercial venture in Strawberry Canyon or a*ny* populated or large-scale area. Yet your planning is already underway for huge wet labs, dry labs, and offices *all over Berkeley,* and beyond! It is wrong to completely overwhelm a small city like this, and unbelievably wrong for powerful people with shortsighted plans to be fiddling with nature when they know our Planet is beginning to burn. R-1

--
Therese (Terry) Powell <TPowell@lbl.gov>
Community Relations Officer
Lawrence Berkeley National Laboratory
One Cyclotron Rd, MS 65, Berkeley, CA 94720
tel:510-486-4387 - fax: 510-486-6641

Merrilie Mitchell, March 23, 2007 (Comment Letter R)

Response R-1

This comment is directed at the merits of the LRDP and various projects undertaken to carry out LBNL's research mission, rather than environmental issues evaluated in the EIR. This comment will be part of the overall record considered by LBNL and by the Regents in determining whether to proceed with adoption of the LRDP.

Comment Letter S

Public Hearing
Monday, February 26, 2007

SPEAKER CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

Contact Information:
Email: lrdp@lbl.gov

Speaker Name: Phil Price

Email: pnprice@lbl.gov

BERKELEY LAB

Contact Information:
Email: lrdpe@lbl.gov

Public Hearing
Monday, February 26, 2007

COMMENT CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

Comments:

S-1 (1) Very significant increase in impervious surfaces, which will lead to runoff into creeks and storm drains. Are implications (erosion, downstream flooding, etc.) adequately addressed?

S-2 (2) LBNL plans bigger increase in personnel than in parking, implying more use of shuttle buses etc. But the lab just reduced shuttle service to the north part of the lab, and bike commuters are now frequently "shut out" by lack of slots on shuttle bike racks. Given that the Lab is not currently meeting the demand for shuttle slots, is it reasonable to expect that these needs will be met in the future?

Name: Phil Price Date: 2/26/07

Address: 2249 Glen Ave, Berkeley CA 94709

Phone No.: 486-7875 Email: pnprice@lbl.gov

*Optional

Phil Price, February 26, 2007 (Comment Letter S)

Response S-1

Impervious surface area would increase by approximately 10 acres as a result of the Project. The implications of the increase were adequately addressed in the DEIR. Please see Response J-5.

Response S-2

LBNL has not reduced shuttle service, although shuttle bus routes have been revised based on user needs and ridership patterns. As part of LBNL's TDM Program (see Appendix B of this document), LBNL would continue to study and assess the efficacy of its shuttle service routes and schedules and adjust them as appropriate. Such adjustments would include provision of more bicycle racks or services. Please see also the response to Comment I-14 concerning future improvements to shuttle service.

Comment Letter T

Public Hearing
Monday, February 26, 2007

SPEAKER CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Speaker Name: Matthew Taylor

Email: bikewithme@gmail.com

Comment Letter T

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Public Hearing
Monday, February 26, 2007

COMMENT CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

Earth, plants, & natives are subaltern & will speak.

T-1

Comments: This plan represents continued genocide of Native Americans, & ecocide of ~~[illegible]~~ planet.
BP → genetically modified organisms bad, greenwashing of British Petroleum problematic.
Canyon should be preserved. UC is not trustable given its role in nuclear weapons.

Name: Matthew Taylor Date:

Address: 2135 Cedar St. Berkeley CA 94709

Phone No.: 510 841 4061 Email: [redacted]

brkewithme@gmail.com

*Optional

Matthew Taylor, February 26, 2007 (Comment Letter T)

Response T-1

This comment is directed at the merits of the LRDP, rather than environmental issues evaluated in the EIR. The comment will be part of the overall record considered by LBNL and by the Regents in determining whether to proceed with adoption of the LRDP. LBNL disagrees with the comment that the LRDP represents continued genocide of Native Americans. The EIR discusses Native American resources both regionally and with respect to the LBNL site. Site surveys have not revealed artifacts or other indicia of Native American use of the site, the site is generally considered to have low to moderate potential for such artifacts, and the EIR includes mitigation to ensure that impacts to cultural resources are less than significant. With respect to genetically modified organisms and the commenter's general reference to that issue, please see the response to Comment O-2.

Comment Letter U

Janice Thomas

Allen House
37 Mosswood Road
Berkeley, CA 94704

March 23, 2007

Jeff Philliber
Environmental Planning Group
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90J-0120
Berkeley, CA 94720

Re: Comments on the LBNL 2006 LRDP DEIR

Dear Mr. Philliber,

The administrative arm of the Lawrence Berkeley National Laboratory (LBNL) would seem to be confused. On the one hand, the administration proposes to expand its operations at this beautiful location on the ridge between Strawberry and Blackberry canyons, while on the other hand trying to keep the Berkeley Lab sequestered and out of reach of the public. Since the devastating terrorist attack at the World Trade Center and the well known security threats to our country, the Berkeley Lab now excludes the public in ways previously unknown to me. This is a policy that has changed throughout various time periods at this federal laboratory and was exemplified recently when I was unable to hand-deliver comments to the Berkeley Laboratory. This as policy was not directed to me as an individual but to the public at large as Blackberry Gate would not receive packages, envelopes, or pages of public comments, and there was otherwise no means of hand delivery.[1]

At the outset, therefore, I would ask that the Berkeley Lab study the impacts to public safety from not only continuing operations at the existing hill site location but also from expanding operations at the existing hill site location. This inquiry should include not only the proximity to an urban area, but also the controversial nature of the research being pursued by this laboratory. U-1

I would caution you against using the past as the sole predictor of future public safety issues. In the past, the public has been largely somnolent with respect to laboratory activities. But this can hardly be true of the future as there is a greater and easier flow of information to masses of people. Just last night, there was an event hosted by the Sierra Club and held at the Hillside Club in Berkeley. With very little lead time, an event was

[1] Telephone conversation with Jeff Philliber, 3/23/07.

organized in which four panelists and approximately one hundred people listened to contrasting points of view about the Energy Biosciences Institute. Over time I would expect more awareness of laboratory research as people are increasingly interconnected electronically. You should plan for the eventuality of a sea change of public opinion against the Berkeley Lab that can no longer be contained by occasional "open house" events and the charm of carefully chosen and placed public relations officers.

In the old days when the Berkeley Lab was known as the Radiation Laboratory, and colloquially known as the Rad Lab, it remained largely out of sight and therefore out of the public's mind. These days are over as the Berkeley Lab leaves the ridge and encroaches into Strawberry Canyon.

The Molecular Foundry, i.e. the nanotechnology research facility, is the first building to encroach with such boldness. It is prominent in the valley floor and can be seen from the California Memorial Stadium, Witter Rugby Field, and other public vistas.

The Molecular Foundry did not comport to the mitigations laid out in the LRDP from which it was tiered. Now this building is used as justification for locating other buildings nearby. The lab is compounding its errors. U-2

The extant development philosophy will bring more scrutiny to this national laboratory. At a time when open space is becoming increasingly scarce, the Berkeley Laboratory unwisely makes itself both more physically prominent in terms of its built environment while also reducing the area which would support diverse flora and fauna and aesthetic interests.

Because of the nature of the research of this federal facility, there are fences around Lawrence Berkeley National Laboratory that create a barrier to wildlife. The effect of fencing in the area has not been studied pursuant to CEQA. As an existing condition, please clarify whether or not the linear feet of perimeter fencing would be increased. U-3

Because of the disaster which would ensue from a conflagration at the Berkeley Lab, vegetation management at the laboratory has been vigorous. Although there have been environmental impacts from aggressive vegetation management, to my knowledge, the vegetation management program was not studied pursuant to CEQA. What therefore are the environmental impacts on biological resources from vegetation management practices at LBNL? What are the baseline impacts and what would be the impacts from expanding the footprint of the managed area? U-4

As is well-known, the Berkeley Lab hill site is far removed from commercial corridors. There is no way out of the lab or to the lab that does not include travel upon streets which are heavily residential. Even though some of the streets are also commercial (e.g. part of Hearst Avenue) or institutional (e.g. Gayley Road), a concentration of residents lives along the corridors which carry hazardous materials. U-5

Implementation of the LRDP will degrade the level of service at the intersection of Centennial Road and Stadium Rim Way and at the intersection of Panoramic Way at Canyon Road. It is unreasonable to assume the level of service will remain stable. Please spell out the constraints on use of Centennial Road and whether or not commuters will access the lab from Centennial Road. The routing of commuter traffic is related to traffic impacts. U-6

Because of the outward growth of the lab's hill site development, the proposed 2006 LRDP will impact cultural resources at the UC Berkeley Hill campus. One of these cultural resources is the historic Stephen Mather Redwood Grove. In addition to possible impacts to this cultural resource, will there be air quality impacts and noise impacts to people who are visiting the area? Or is it assumed that brief exposure would not be harmful? Will the Stephen Mather Redwood Garden be physically degraded in any way by implementation of the LBNL LRDP?

Another cultural resource is the Botanical Garden. By intensifying industrial development near the Botanical Garden, the Botanical Garden is further isolated from the natural landscape and made to seem as if it were an installation in a museum rather than part of a more naturalized canyon landscape. Will implementation of the LBNL LRDP degrade the Botanical Garden as a cultural resource? U-7

Eight story buildings are contrary to the cultural landscape of the Berkeley hills in general and not just Strawberry Canyon in particular. Design Guidelines should be retooled to protect the cultural landscape of an area imprinted in our minds albeit unconsciously.

For decades there are has been a more or less stable balance between land uses in Strawberry Canyon: Part of UC Berkeley's Ecological Study Area is located in Strawberry Canyon and serves as an open space reserve for research and education. The Panoramic Hill neighborhood was developed starting at the end of the 19th century and is located on the southern slope of Strawberry Canyon. The neighborhood has been maintained as a stable, low-density residential community, and the Panoramic Hill Historic District is now listed on the National Register of Historic Places. Until the nanotechnology facility known as the Molecular Foundry, the Berkeley Lab followed a pattern of development in Strawberry Canyon which kept development largely out of visual range. The effect of this pattern of development and the imposition of the human footprint on a natural landscape was created by three communities (Berkeley residents, UC Berkeley, LBNL). That landscape, the Strawberry Canyon landscape, is likely eligible as a cultural landscape. U-8

It is most curious to me that these two siblings, i.e. UC Berkeley and the Lawrence Berkeley National Laboratory, would appear to be unsupervised in their joint planning efforts. They each expand their playground into the Berkeley foothills yet fail to coordinate an environmental review of their long range development. This is not ignorance but rather willful defiance of the intent and purpose of the California Environmental Quality Act's meaning of cumulative impacts. There are cumulative U-9

impacts which could be identified, and could have been mitigated, had these entities engaged in a joint planning process in light of the unique location of both projects in the Berkeley foothills.

The uniqueness of the site is well-established as it is one of a kind in terms of the confluence of hazards. This includes, but is not limited to, proximity to an active fault, steep terrain, inaccessibility of site, distant from a commercial corridor, proximity to a critical fire zone, location in a landslide area, proximity to residential neighborhoods, etc. Moreover, there is an intimate physical relationship to UC Berkeley so much so that UC Berkeley has in the past transferred some of its land to LBNL to assist LBNL in its vegetation management of fire fuel. U-9

There would seem to be competition for space between these two siblings and that the mediating influence of the parents (the University of California Office of the President and the Regents of the University of California) is largely absent, How else to explain the astonishing fact that top tier UC Berkeley athletes (13 intercollegiate teams) have been brought into a seismic hazard area in advance of retrofitting the stadium, and yet in close range of undiscovered scientific research and the corollary, which is, unknown health impacts. How can the existing health risk assessment possibly gauge the range of environmental impacts from an evolving scientific research agenda? Will future research be stopped if impacts exceed those identified in the 2006 LRDP? How will health-related impacts be monitored?

In general, impacts have been underestimated by isolating impact areas rather than studying impacts synergistically. For example, there is no map which illustrates overlapping land features, e.g. soil/groundwater contamination, creeks, faults, and landslide areas. As a result of not studying the interaction of impacts, impacts as a whole and across areas are underestimated. U-10

In light of these various concerns, I would suggest LBNL move. If the Richmond Field Station (RFS) cannot be preserved for open space and restored environmentally, then I would suggest that it take some load off the LBNL hill site and instead be used for the LBNL expansion. The RFS is already developed as an industrial site, and the available acreage at the site is sufficient to contain the new development proposed here. U-11

There are some troubling assumptions which are guiding the expansion at the LBNL hill site. My fear is that the administrative leadership is operating out of some naïve beliefs that result from a lifestyle of self-imposed segregation from the general public.

I would counsel you that what has worked in the past will not work in the future. Distrust of government is no longer solely a minority value but is like a malignant cancer which has metastasized to the body politic. Aside from whether or not the lab's science mission is acceptable to the Berkeley populace, the population expansion, the increase of car trips, the enlargement of the built environment, the loss of vegetation and wildlife habitat are increasingly unacceptable to more people.

In short, my sincere hope is that the administrative decision makers have not chosen this site because of the panoramic views of the San Francisco Bay, Mt. Tamalpais, the Golden Gate Bridge, San Francisco and other cities. The hill side is glamorous and undoubtedly seductive. Program objectives do not adequately explain the decision and so reasonable people are left wanting. U-12

I hope you will see the benefits of considering other alternatives which would continue the practice of keeping the lab under the collective radar. I implore you, therefore, to choose another alternative and reject the preferred alternative in its current form.

In closing, this opinion is not meant to be adversarial. After all, the Berkeley Lab's lifespan, and perhaps the LRDP lifespan, will exceed mine. I suggest that the decision-makers likewise think beyond their tenures and give due regard to the long-term future of the laboratory and whether it is well-served by expansion at this location.

Sincerely,

Janice Thomas

Janice Thomas, March 23, 2007 (Comment Letter U)

Response U-1

The DEIR addresses public safety impacts for both continuing and expanding operations at the existing hill site location. These impacts were found to be at a less-than-significant level (see DEIR Section IV.K, Public Services and Recreation).

Response U-2

Adequate environmental review under CEQA and NEPA was conducted for the Molecular Foundry. An Initial Study/Mitigated Negative Declaration, which was tiered from the 1987 LRDP EIR, as amended, fully analyzed potential environmental impacts of the Molecular Foundry project and was circulated for public review between December 10, 2002, and February 5, 2003, prior to approval of the Foundry project in 2003. The Initial Study/Mitigated Negative Declaration included applicable mitigation measures from the LRDP EIR, as amended, along with project specific mitigation measures. The building was completed in 2006 and is now operational.

Response U-3

Regarding the Lab fence line, Footnote 14 on DEIR p. III-13, states, "As occurred under the 1987 LRDP, it is possible following adoption of the 2006 LRDP that there might be changes in operational and jurisdictional control over some parts of the Berkeley Lab site; for example, it is possible that a facility might be proposed to be jointly operated by UC Berkeley and the Lab. If such changes are proposed, the location of boundary and security fencing may change accordingly. No such joint operations or changes are currently proposed, although it is possible that joint operation will be proposed for the Helios Research Facility." There are currently no increases (in linear feet) of the perimeter fence line anticipated as part of the 2006 LRDP. Effects of the existing fence are part of the environmental baseline conditions against which the EIR evaluates potential changes due to the proposed project. While the existing (cyclone) fence may interfere with the movement of common mammals, the biological resources analysis in DEIR Section IV.C identified potential special-status species, including several birds and insects and the Alameda whipsnake whose movement is unlikely to be affected by such fencing.

Response U-4

The landscape management program proposed under the LRDP and analyzed in the Draft EIR is described in the Draft EIR project description (page III-34). As the vegetation management program is an explicitly identified component of the "project," it is carried forward throughout the Draft EIR analysis. Biological impacts resulting from these practices were specifically addressed in the DEIR. Impact BIO-6 stated that project activities allowed under the LRDP, including vegetation management activities in designated Perimeter Open Space, could result in the take of special-status plant species. In addition, vegetation management activities could have the potential to disturb or result in mortality of these species or eliminate their habitat (see page IV.C-54).

Implementation of Mitigation Measures BIO-6a and BIO-6b would reduce these potential impacts to less-than-significant levels.

Existing landscape management activities have previously been analyzed pursuant to CEQA in the 1987 LRDP EIR, as amended. However, to be conservative, the 2006 LRDP EIR analyzes not just any projected change in activities, but the continuation of the entire program. The "footprint of the management area," however, is not proposed for expansion in this LRDP.

Response U-5

As stated in Section IV.F, Hazards and Hazardous Materials, page IV.F-29, LBNL is required by the Department of Energy (DOE) to minimize hazardous waste production, and to detail waste minimization efforts in annual reports. Also, future operation of LBNL's Hazardous Waste Handling Facility would continue to be subject to applicable California Department of Toxic Substances Control (DTSC) and DOE regulations and reporting requirements, as well as Department of Transportation hazardous materials regulations. For a detailed accounting of Berkeley Lab's environmental performance in regard to the handling, storage, and transport of hazardous waste and low-level radioactive waste, please refer to Berkeley Lab's Annual Site Environmental Report (and related reports) at: http://www.lbl.gov/ehs/esg/tableforreports/tableforreports.htm. In addition, LBNL regularly reports to the City of Berkeley on the types and quantities of such materials stored and used at the Lab in its annual Hazardous Materials Business Plan.

LBNL currently complies with measures identified in the 1987 LRDP EIR, as amended, to ensure that hazardous materials and wastes are stored, used, and generated at the site in a manner that minimizes potential exposure of individuals and the environment to hazardous conditions. These would be continued under the new LRDP. Continued compliance with these measures, and with applicable laws, regulations, and policies, would reduce impacts to less-than-significant levels.

In addition, the commenter's assertion that "there is no way out of the lab or to the lab that does not include travel upon streets which are heavily residential" is not supported. Two of the major routes connecting Berkeley Lab to surrounding highways include University/Oxford/Hearst to the west and Centennial/Grizzly/Highway 13 to the east.

Response U-6

The commenter is incorrect. Both intersections were evaluated in the DEIR and would have no change in level of service as a result of the project. The DEIR thus found that no significant impact would result. Specific analysis for safety and emergency access was conducted for the Panoramic Way/Canyon Road-Stadium Rim Way Intersection. It was determined that the project would not result in a significant effect on this intersection (see pages IV.L-29 through IV.L-31). Please see also the response to Comment L-1.

Centennial Drive may be used by Lab employees traveling to and from Contra Costa County via Wildcat Canyon Road and Grizzly Peak Boulevard. However, use of this route would not affect

the intersections noted by the commenter, as this route does not pass along Centennial Drive below the Grizzly Peak Gate.

Response U-7

Please see the response to Comment E-2 concerning effects on the UC Berkeley Botanical Garden. Also please see the response to Comment C-21, concerning Strawberry Canyon in its entirety as a cultural landscape.

Response U-8

Please see the response to Comments C-21 and E-4.

Response U-9

Please see the response to Comment C-2 concerning the preparation of separate Long-Range Development Plans by Berkeley Lab and UC Berkeley. Concerning cumulative impacts, please see also the response to Comment C-68. Concerning the health risk assessment, please see the response to Comment I-7, where it is stated that the health risk assessment accounts for anticipated future development at the Lab. The assumptions relied upon in the health risk assessment represented the best available information at the time the assessment was conducted.

Response U-10

The commenter's concern regarding proper study of impact interaction is noted. Each of the areas addressed by the commenter was properly analyzed in Sections IV.D, IV.E, and IV.F of the DEIR. LBNL disagrees with the commenter's statement that impacts have been underestimated. Project-specific and cumulative impacts have been evaluated and mitigation identified, where applicable.

Response U-11

The commenter is addressing the use of the Richmond Field Station, which would occur under the Off-Site Alternative. Please see the response to Comment C-69 for discussion regarding this alternative.

Response U-12

The Berkeley Lab site was originally selected as a suitable site for the 184-inch cyclotron and to expand Ernest Lawrence's work, which had outgrown its accommodations on the UC Berkeley campus. The laboratory facilities expanded rapidly during the 1940s in response to national defense needs during World War II and the Cold War. The site in the Berkeley Hills was chosen not for its views of surrounding amenities, but for its separation from developed areas yet proximity to the UC Berkeley campus and its researchers, faculty, and staff.

Comment Letter V

From Jeff Philliber <JGPhilliber@lbl.gov>
Sent Friday, March 30, 2007 9:23 am
To Katherine V Behrend <KVBehrend@lbl.gov>
Subject [Fwd: [Fwd: BP and the Energy Biosciences Institute: Hope Springs Eternal!]]

----- Original Message -----
From "Therese (Terry) Powell" <TPowell@lbl.gov>
Date Mon, 26 Mar 2007 14:39:53 -0700
To Jeff Philliber <JGPhilliber@lbl.gov>
Subject [Fwd: BP and the Energy Biosciences Institute: Hope Springs Eternal!]

Jeff,
it's not clear that this is a comment on the Draft EIR for the LRDP, but please take a look at the P.S.
Terry

-------- Original Message --------
Subject:BP and the Energy Biosciences Institute: Hope Springs Eternal!
Date: Fri, 23 Mar 2007 08:37:13 -0700
From: Mike Vandeman <mjvande@pacbell.net>
To:lrdp@lbl.gov

March 9, 2007

Re: BP and the Energy Biosciences Institute: Hope Springs Eternal!

To the Editor:

Humans have a large capacity for hope, and it's a good thing. But along with hope comes a tendency for self-deception. It is fascinating to watch people struggle to deal with this actually very simple issue!

We need to immediately reduce the burning of carbon-based fuels to a minimum. That is crystal clear. There are only three possible sources of energy large enough to replace petroleum: coal, natural gas, and nuclear energy. Burning coal or natural gas pollutes our air and causes global warming. Since natural gas is relatively clean, it should be reserved, if it is to be burned at all, for heating our homes. Nuclear energy is expensive, and unsafe in many ways, including the risk of radiation poisoning, genetic damage, and of course atomic warfare.

That leaves energy conservation (reducing energy consumption) as the only viable alternative. And we know how to do it: public transit, bicycling, and walking. So why to we need BP and an Energy Biosciences Institute to tell us these obvious facts?

V-1

Sincerely,

Mike Vandeman, Ph.D.

P.S. Growing biofuels (and constructing buildings in UC's Strawberry Canyon) destroys wildlife habitat. We have ALREADY lost far too much habitat to protect all existing native species. The BP project ignores this issue.
===
I am working on creating wildlife habitat that is off-limits to humans ("pure habitat"). Want to help? (I spent the previous 8 years fighting auto dependence and road construction.)

Please don't put a cell phone next to any part of your body that you are fond of!

http://home.pacbell.net/mjvande

--
Therese (Terry) Powell <TPowell@lbl.gov>

Comment Letter V

Community Relations Officer
Lawrence Berkeley National Laboratory
One Cyclotron Rd, MS 65, Berkeley, CA 94720
tel:510-486-4387 - fax: 510-486-6641

Mike Vandeman, March 9, 2007 (Comment Letter V)

Response V-1

This comment is directed at the merits of the LRDP and various projects undertaken to carry out LBNL's research mission, rather than environmental issues evaluated in the EIR. This comment will be part of the overall record considered by LBNL and by the Regents in determining whether to proceed with adoption of the LRDP. With respect to climate change issues, please see the response to Comment A-4. With respect to biological impact issues, the Draft EIR included a full evaluation of biological impacts and the potential loss of habitat, and based on site surveys and analysis, and the imposition of mitigation measures, the Draft EIR concluded that there would be no significant impacts.

Comment Letter W

Public Hearing
Monday, February 26, 2007

SPEAKER CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Speaker Name: Jane Whites

Email: jane@archives.org

Comment Letter W

BERKELEY LAB

Contact Information:
Email: lrdp@lbl.gov

Public Hearing
Monday, February 26, 2007

COMMENT CARD

Draft Environmental Impact Report
Long Range Development Plan
Lawrence Berkeley National Laboratory

Comments: The people that caused global warming should not be allowed to determine the research agenda to solve it with GMO centric solutions

W-1

Name: Jane White Date:

Address: 2014 Rose St. Berkeley

Phone No.: 524-2883 Email: jane@archive.org

*Optional

Jane White, February 26, 2007 (Comment Letter W)

Response W-1

Please see the response to Comment A-4 for discussion regarding global warming.

PUBLIC HEARING FOR THE

DRAFT ENVIRONMENTAL IMPACT REPORT

FOR THE LAWRENCE BERKELEY NATIONAL LABORATORY

2006 LONG RANGE DEVELOPMENT PLAN (LRDP)

FEBRUARY 26, 2007

REPORTER'S TRANSCRIPT OF PROCEEDINGS
BY: JOANNA BROADWELL, CSR 10959

CLARK REPORTING

2161 SHATTUCK AVENUE, SUITE 201

BERKELEY, CALIFORNIA 94704

(510) 486-0700

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3 INTRODUCTION: TERRY POWELL

4 PROJECT DESCRIPTION: JEFF PHILLIBER
AND CEQA ENVIRONMENTAL
5 PROCESS

6 PUBLIC COMMENTS TERRY POWELL

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1 BE IT REMEMBERED that on Monday, February 26, 2007,
2 commencing at the hour of 6:38 p.m. at the North Berkeley
3 Senior Center, 1901 Hearst Street, Berkeley, California,
4 JOANNA BROADWELL, a duly qualified Certified Shorthand
5 Reporter, License No. 10959, in and for the State of
6 California, reported the following proceedings.
7 --o0o--
8 PROCEEDINGS
9 MR. POWELL: Good evening. I am Terry Powell. I
10 am the community relations officer for Lawrence Berkeley
11 National Lab. I want to welcome you here tonight for the
12 Draft Environmental Impact Report public hearing, Lawrence
13 Berkeley National Lab's Long-reach Development Plan. As
14 mentioned, in the notice of availability that was published
15 on January 22nd, copies of the draft EIR and LRDP are
16 available on line at the Lab's website and at
17 www.lbl.got/lrdp and are also available in the Berkeley
18 Public Library, downtown central branch, at the second
19 floor reference desk. As you probably remember, the review
20 of comments period extends from January 22nd to March 23rd
21 of this year.
22 For your general information, I think most of you
23 have probably been here before. The bathrooms are out and
24 down the hall and on the left. The purpose of this meeting
25 is to receive your comments and questions. The meeting

1 provides you with an opportunity to ask questions or make
2 comments on the draft EIR for the proposed LRDP. In most
3 cases, the Lab staff will not give responses to your
4 questions and comments tonight with some minor exceptions
5 that Jeff Philliber will explain in just a moment.
6 Responses will be included in the final EIR.
7 A court reporter, Joanna -- I'm sorry, I forgot
8 your last name -- is present and will prepare a transcript
9 of this meeting. Please give your full name for the record
10 when you speak, and please speak clearly so that our court
11 reporter can hear you. You will have three minutes to
12 start, so please keep your questions or comments to that
13 time, three minutes. When I call your name, please step
14 forward to the podium or over to our microphone here to
15 make your comments.
16 Beverly Harris is sitting in the back and has a
17 timer. And the timer will buzz when three minutes are up.
18 So this will be your signal to let the next speaker start.
19 After everyone has had a chance to speak, if there is time
20 available and you would like to ask additional questions or
21 make additional comments, please do so.
22 Several materials are available on the entrance
23 table including -- here it is -- this light blue speaker
24 card on one side or comment card on the other side, our
25 agenda, some LRDP information, and mailing request forms if

1 you would like them. You may write your comments on the
2 light blue cards provided and put them on the table or give
3 them to Jeff Philliber and I, who will be sitting here at
4 the end of the evening.
5 Please feel free to write your comments and hand
6 them in tonight or to send them directly to the Lab in care
7 of Jeff Philliber, the NEPA CEQA Environmental Coordinator.
8 The agenda lists his full name and address. We are using
9 this audio system, and if you do not hear something or
10 would like it to be adjusted, please let us know.
11 If you would like to receive future notices of
12 environmental reviews, please fill out one of the cards at
13 the table. And finally, if you would like a personal copy
14 of the LRDP or draft EIR, please request a CD from one of
15 the Lab's planning staff tonight. The agenda for tonight's
16 meeting, which is up on the entrance table, includes the
17 introduction, a project description, the CEQA Environmental
18 Process by Jeff Philliber, our NEPA CEQA environmental
19 planning coordinator and your comments. The meeting will
20 then end promptly at 9:30.
21 Thank you. Now we are going to ask Jeff to give
22 you a brief overview.
23 MR. PHILLIBER: Thanks, Terry. My name is Jeff
24 Philliber. I am the Lab's environmental planner. I am
25 responsible for the Environmental Impact Report, but I am

1 also going to talk tonight a little bit about the
2 long-range development plan to provide some context.
3 The process for both right now is, as many of you
4 know, started with the revised preparation in October of
5 2003. We are currently in the middle of a public response
6 review and response period, which ends January 3rd. And we
7 are expecting to go to the Regents for approval of both
8 documents this summer. Terry just mentioned previously
9 about the availability of documents. And, again, please
10 see us if you have trouble getting your hands on the
11 document.
12 The long-range development plan of 2006 for the Lab
13 will replace the 1987 long-range development plan. And it
14 will guide development and growth of the Lab for the next
15 20 years. Development and growth at the Lab are driven
16 mainly by scientific priorities and directions as well as
17 the state of our facilities. And currently about
18 50 percent of our facilities aren't really suitable to take
19 us into the future to get our scientific needs.
20 The LRDP has three major components. It has
21 ceilings, growth ceilings for space, population and
22 parking, it has a land use map, and it articulates the
23 values, policies, and guidelines for growth at the Lab. In
24 October of 2003, we issued a notice of preparation for the
25 EIR. These were the numbers we were working with back at

1 that time. So you can see, rolling them up, there was
2 about 800,000 square feet of net new construction or space,
3 1150 new people, and 600 new parking spaces over the
4 20-year period. We'll come back to these numbers in a
5 second.
6 This is the land use map that is presented in the
7 long-range development plan of 2006. As you can see, the
8 green areas represent open space generally restricted from
9 development. The blue and gold areas are generally
10 developable areas. Late in the process, and as a result of
11 the Lab's interactions with the City of Berkeley, with the
12 public, and with regulatory agencies and in discussions
13 amongst ourselves, it was decided by the Lab director to
14 reduce the size of our project and the scope.
15 So, as you can see on this table, the top numbers
16 represent what we started our analysis with in 2003. And
17 at the 11th hour, actually, in December or thereabouts of
18 2006, the decision was made to reduce the number so you can
19 just -- as a general comparison we went from 800,000 gross
20 square feet of net new space to 660,000. We dropped from
21 1150 new people to a thousand, and we dropped from 600
22 parking spaces to 500 parking spaces at the Lab because we
23 are a controlled restricted access site. It will be
24 determined in traffic for us.
25 By reducing the numbers we were able to capture

1 that in the long-range development plan. We were also able
2 to successfully capture that in all the qualitative parts
3 of the Environmental Impact Report. What wasn't so easy to
4 do was to try to revamp the entire quantitive analysis in
5 the EIR and meet a reasonable schedule to give this
6 Environmental Impact Report out to the public.
7 So the quantitative -- some of the quantitative
8 elements of the EIR still look at these larger previous
9 numbers that we did in the analysis that took years to do.
10 That makes it a more conservative analysis in those
11 respects. It does make us look better, but, again, it
12 completely covers the project. It just gives a more
13 conservative EIR analysis to present to the Regents. What
14 we will be asking the Regents to approve are the numbers in
15 yellow, both for the EIR and LRDP.
16 This environmental impact report is organized
17 conventionally. It is a programmatic EIR. That is, it
18 looks at the overall 20-year program, and it looks at it in
19 a very general way, which is what programmatic EIRs do.
20 It's organized conventionally. It has an introduction,
21 summary of project description chapter. It has an analysis
22 chapter that looks at impact and mitigation measures. We
23 have an alternative section, other CEQA Sections and
24 appendices.
25 In the "analysis" section, we focus on these areas

1 for our analysis. These are the areas that are -- each of
2 these represents a section within that, and each one
3 represents an area that is analyzed. The project, which is
4 the LRDP, again, the reduced numbers that are shown in the
5 2006 LRDP, the project is analyzed in each of these areas
6 in the EIR. And, again, that project is represented by the
7 space population parking ceilings, by the land use map, and
8 by our design guidelines and goals and policies.
9 In addition to that, we have done something a
10 little unconventional. We have added a second thread of
11 analysis through all of these sections. Again, through the
12 sections you will see what is called the project variant.
13 The project variant looks at a scenario where if we were to
14 bring -- we have about 375 people in off-site lease space
15 currently. And those numbers can fluctuate. So this
16 project area looks at the same project with the addition of
17 bringing 350 of those off-site people who lease the space
18 up to the hill. So we have parallel analyses running
19 through each of these sections.
20 Here is where we start to become a bit of an
21 unconventional EIR, when we do a programmatic EIR, when we
22 look at just the LRDP as a project, we can't get very
23 specific because the LRDP is not a specific document. It
24 has aggregate numbers. It has a generalized land use map.
25 It doesn't tell you where buildings are going to go. It

1 doesn't tell you what exactly is going to be built. That
2 is fine for traffic analyses, but it doesn't help for
3 things like human health risk assessment. It doesn't help
4 us to look at visual impacts or look at a number of things
5 we wanted to look at very quantitatively.
6 So we devised what we call an illustrative
7 development scenario -- and there will be better figures in
8 a second -- to address that. So the illustrative
9 development scenario is a -- it's a conceptual presentation
10 of the numbers and the LRDP applied to a map of our site.
11 In other words what we have done is we've said let's see
12 what would happen if today we were just to speculate to
13 plan out all the new buildings, the 800,000 new square feet
14 of construction, 440 square feet of demolition, those sorts
15 of things, and find specific -- I will give you a better
16 portrayal of that -- put them on specific locations on a
17 map.
18 What is important about this is to understand that
19 we are not saying this is how the Lab is going to look in
20 20 years. It is impossible for anyone to know what the Lab
21 will look like in 20 years because, again, we are driven
22 month to month by things beyond our control in terms of
23 scientific needs and funding and that sort of thing. This
24 is, again, an exercise to take the numbers in the LRDP to
25 apply them to the site as best we can today in the moment

1 so we can do some quantitative analyses as well as
2 qualitative.
3 This also allows us to look at some other things we
4 don't normally see really fleshed out in the program EIR.
5 For example, we are able to get quantitative to a degree
6 for construction activities, demolition, renovations,
7 excavation, and some of the other activities one doesn't
8 normally find addressed very well in the programmatic
9 document. In the project description of the EIR, and the
10 accompanying illustrative development scenario you see
11 several see tables and text that carry this exercise
12 through.
13 For example, the table corresponds to the diagram
14 you saw previously. Each of these new buildings has a
15 number. When you come to this table you can see what we
16 have portrayed as the size of the building, the use, the
17 number of people, the square footage, the size of the
18 footprint, the number of stories and that sort of thing.
19 In addition, we have looked at new parking
20 structures and surface parking lots, again, so we can
21 really analyze hydrological impacts of putting in new
22 asphalt, new surface, that sort of thing. All of these are
23 incorporated into the IDS. Whereas it would be impossible
24 to just look at those in just a programmatic EIR looking at
25 the LDRP. We have also a diagram that shows new road

1 segments. We have tables that talk about construction, how
2 much excavation we would do, how that all translates into
3 truck trips to the Lab.
4 Similarly we look at demolition, how many concrete
5 blocks would we move out in 20 years. Of course, these are
6 estimates, but, again, we want to roll these numbers up and
7 do some really number crunching and analysis in this IDS.
8 The illustrative development scenario enables us to do
9 that. In addition, the illustrative development scenario
10 allows us to do other analyses that we would otherwise not
11 be able to do.
12 For example, if we took the planning exercise,
13 which is the IDS, and placed these buildings on the map and
14 turned it into a three-dimensional set of visual
15 simulations, again, not so that we can tell you what the
16 Lab is going to look like in the next 20 years, but rather
17 so we can better understand the relationship of masking
18 forms to our physical site.
19 For example, in the EIR we have viewpoints, medium
20 and short-range viewpoints, taken from all directions.
21 We'll walk through the first one. I can't get up there but
22 it is from the Lawrence Hall of Science parking lot. This
23 is a baseline, which is a 2003 shot looking at the Lab from
24 uphill to the Lawrence Hall of Science, so that if you
25 apply the illustrative development scenario to this

1 viewpoint you can see masking forms that represent the
2 buildings in the IDS.
3 There is a further graphic for each of the
4 viewpoints which keys to the IDS table. Each number
5 represents one of the buildings on the table so, again, you
6 can look through the document and understand what you are
7 looking at. Again, this is not so much us saying we would
8 build this way. We would actually try to not build this
9 way. This tells us, again, how to build or how not to
10 build or not build but the plan for the future.
11 I want to say just one more thing about the
12 illustrative development scenario. It's a very
13 conservative analysis. As we said when we started out, the
14 director reduced the project by 20 percent, approximately.
15 The IDS represents the numbers we had previously, so this
16 is already larger than what the Regents would approve. In
17 addition, since we started the analysis in 2003 and
18 established that as a baseline year, everything that has
19 happened at the Lab between 2003 and 2007 which was covered
20 under our 1987 LRDP, it is also covered in the 2006 LRDP.
21 In other words, we've double-counted against
22 ourselves. So we subtracted buildings that were built in
23 2003-2006, both from the '87 LRDP and from this current
24 LRDP. So if we were to start out with 800,000 square feet,
25 and we take 20 percent of that and we're down to about

1 660,000 square feet, we then start subtracting further.
2 The Foundry, which is the building depicted in yellow, is
3 96,000 square feet and was constructed in the last couple
4 of years and was approved under the '87 LRDP as 96,000
5 gross square feet that we also subtracted from the 660,000
6 in this LRDP.
7 The animal care facility is about 7,000 square
8 feet. That is under construction right now. That was also
9 covered under the '87 LRDP. We are also subtracting it off
10 of our numbers here as well because it was established
11 after the 2003. The user support building, which was just
12 approved, is not constructed yet but it was tiered for the
13 '87 LRDP. That is about 30,000 square feet that is further
14 subtracted from those totals.
15 We also had several new buildings. We were
16 thinking about that, depending on timing and circumstances,
17 we would either try to tier them off on the '87 LRDP or we
18 might have them stand-alone projects or we would tier them
19 off for 2006 LRDP if it is available. And those include
20 the following: From left to right, the CRT building,
21 computation, research and theory building is a large
22 160,000 square foot computer lab with office space. The
23 skinny S5 building right there is the user guest house,
24 which would provide temporary lodging for visiting
25 scientists. That's about 25,000 square feet in the IDS.

1 And S9 and S12, which are down in the lower right hand
2 corner, those are two place-holders for the building we
3 would call Helios. You probably heard about that with the
4 VP award recently. Either of those two projects might
5 represent that building.
6 There are also buildings here that, while we have
7 depicted them in the IDS, we don't really expect to build
8 them, but we wanted to analyze them just in case funding
9 ever became available. For example, in the two sort of
10 corners of the Lab you see PS1 in the one corner and PS2 in
11 the opposite corner. Those are two parking structures we
12 probably have no way of ever funding, but we wanted to
13 analyze them because parking structures are desirable
14 because they give you a high amount of parking with a low
15 amount of impervious surface.
16 So we've analyzed them, but we don't expect to
17 build them. So when you see what is left, considering this
18 is 20 percent still over what we ask the Regents, it is not
19 a huge project. We just want to point out that this is a
20 very conservative EIR. Again, this IDS follows along that
21 pattern.
22 We have a cumulative impacts analysis, a cumulative
23 framework, a cumulative context for that that includes the
24 2001 City of Berkeley General Planning EIR, the 2020 U.C.
25 Berkeley LRDP EIR, U.C. Berkeley's southeast or southeast

1 corridor integrated projects EIR, and the nexus EIR as well
2 as ongoing projects at the Lab. And we have an alternative
3 section. The alternative section includes a no-project
4 alternative. We also look at no-growth from no-project,
5 two reduced-growth alternatives, the historical
6 preservation alternative, an on-site alternative, and
7 several other ideas that we are investigating but have not
8 analyzed fully because they didn't meet our objectives.
9 So, in sum, this programmatic EIR, in our attempt
10 to be as quantitative as possible, has the following
11 strains of analysis running through it: The project, the
12 project variant, the illustrative development scenario, the
13 cumulative impacts and alternatives.
14 Before I finish, I would like to say a few words
15 about our process. After both -- after the NLP was issued
16 in 2003 we listened to the City of Berkeley, to the
17 regulatory agencies, and the public. And we also conducted
18 these analyses which helped to inform us about impacts.
19 And we responded -- we feel we listened and we responded in
20 several ways, and we would like to share those with you
21 tonight, some of those ways.
22 With the LRDP we lowered our project parameters,
23 instituted new design guidelines. In addition to that we
24 have a new design and review process which the City of
25 Berkeley has a seat on, which is the first time that has

1 ever happened at the Labs. We also have instituted
2 sustainability as a key provision in the LRDP, and we have
3 green building policies as well that are very aggressive.
4 In the EIR, as we just mentioned, we have a
5 conservative multi-tiered analysis that allows both
6 quantitative as well as qualitative assessment of impacts.
7 And again, unlike most programmatic EIRs, we feel we can
8 really address things like demolition and construction
9 activities. For air quality, we have conducted what is
10 probably one of the most comprehensive site-wide air
11 quality human health risk studies ever conducted for a
12 project of this nature.
13 It is also very conservative. Just as an example
14 of that, when we closed the National Tritium Labeling
15 Facility a few years ago, the fact that we closed it could
16 have boosted or reduced our emissions number to a degree,
17 that this project would have come off looking good in our
18 risk assessment. But we chose not to include the NTLF in
19 our risk assessment. We chose to be more conservative than
20 that. We took it out of the baseline and the project, so
21 we didn't give ourselves credit for closing the NTLF. The
22 risk assessment shows, and you can see this in the air
23 quality section of the EIR, that our air emission-related
24 risks are very low. And, in addition, about 90 to
25 95 percent of that risk is as a result of mostly diesel

1 exhaust from engines such as our shuttle buses and
2 emergency standby generators. So what we have done in
3 response to that is to convene a working group to try to
4 further lower our diesel emissions at the Lab.
5 The biological resources we have in the land use
6 section -- I am sorry Phil is gone because we're finally
7 hitting his area -- we put together in the latest map in
8 the LRDP the ponds and streams and riparian areas and all
9 of the perennial, intermittent, and streams at the Lab as
10 well as our associated riparian areas are protected in the
11 land use map. And if I could go up and point, I will have
12 to wave my hand at this. Those are areas of open space
13 that we wouldn't be developing.
14 We also have for the first time set aside -- you
15 can see it -- it is also reflected in the land use map --
16 species areas where we protect special status species. So
17 I am going to use this. This corner of the Lab here, this
18 is officially recognized by the U.S. Fish and Wildlife
19 Service as habitat for the Alameda whipsnake, which is a
20 threatened species on the federal list. Another part of
21 the Lab up here, which is also protected from development,
22 is a known area for the micro (inaudible). That is a rare
23 spider. That is also restricted from development. In
24 addition, we have extensive mitigation measures in the
25 biological section that really, and I think you will see

1 this when you look at it, set aside programs for various
2 species that we haven't looked at as closely before, for
3 example, raptors and bats and even botanical species as
4 well.
5 Under "Cultural Resources," we embarked through
6 this process on a site-wide historical evaluation program.
7 And that will be completed in probably a couple of years.
8 At the end of the process we will, hopefully, have a
9 cultural resources management program that will cover all
10 of the buildings at the Lab in conjunction and in close
11 coordination with the State Historic Preservation Office.
12 In our "Hazards and Hazardous Materials" section of
13 the EIR you will see a few things. We will continue to
14 maintain our vegetation management program so that the Lab
15 serves as a natural fire break between the upper wildlands
16 and the urbanized areas below. We address catastrophic
17 impacts in this report, including terrorist events, and we
18 know there is a great deal of concern in the Panoramic
19 neighborhood about access and egress, particularly during
20 catastrophic events. And that is addressed as well in this
21 document.
22 For hydrology and water quality, as we mentioned,
23 streams are protected. The LRDP has limited development to
24 ten acres of new impervious surface, and in addition, we
25 have committed to no adverse impacts below on the storm

1 water drainage system through use of things like vegetative
2 swales, on-site retention, and other means. The "Land Use"
3 section, the land use map, again, preserves this buffer
4 area between the Lab and many of the residential areas
5 surrounding us.
6 In public services, we will continue to maintain
7 our on-site fire station, our three 200,000-gallon water
8 emergency fire water tanks and several other measures.
9 Just as an example, you can see on this map our on-site
10 fire station which is here, provides primary response not
11 only to the Lab but also to the campus and the City around
12 us. This sort of tan or brown area shows primary response.
13 The green area shows our secondary response. And we will
14 maintain that through this program.
15 The traffic and transportation, which we know is a
16 number one issue for many people in Berkeley, the LRDP and
17 the EIR provide many things. First, as we mentioned, we
18 reduced parking trips as a result of lowering the numbers.
19 We have also -- the EIR has mitigation measures to restrict
20 construction truck traffic from peak commute hours. We
21 have instituted a very aggressive new transportation demand
22 management plan and we are working at having it in close
23 coordination with the City of Berkeley.
24 We have conducted a wear and tear analysis for City
25 roads which, again, is something that one doesn't often

1 find in an EIR. And we have committed to fair-share
2 mitigation measures for the unavoidably significantly
3 impacted sections of Berkeley.
4 In "Utilities," there is one major area that we
5 think Berkeley is vulnerable to, and that has to do with,
6 at least as far as the Lab's impact might be concerned, and
7 that is some downstream sanitary sewer sub-basement,
8 particular 17-503 for anyone writing these things down.
9 And we have committed to divert our flows in the eastern
10 areas of the Lab from that sub-basin. So, again, it is a
11 major -- it will take a major effort on the Lab's part, but
12 it's a commitment we made in this EIR, again, so that we do
13 not exacerbate a bad situation that way.
14 So is that the end of my comments. Thanks for the
15 remarks on the EIR and LRDP. I hope you have a better
16 understanding of how to navigate through the documents. We
17 won't be able to answer any questions unless they are
18 purely administrative questions, for example, if you want
19 to know what chapter you find the alternatives in or
20 something like that. Otherwise we record your questions
21 and comments and address them all in writing in the final
22 EIR "response to comments" document. This is also the
23 location of the transcript. The transcript will show up in
24 this document as well. Thank you very much. Without
25 farther adieu, I think we will turn it over to Terry and we

1 will start the comments.

2 MR. POWELL: I have a favor to ask of you. We have

3 moved the microphone over, and, Jeff, if you would be so

4 kind as to collect cards, I have only two cards from people

5 who wish to speak. And so if there are other people, there

6 are blue cards over on the entrance table for any

7 late-comers.

8 UNIDENTIFIED SPEAKER: I have an administrative

9 question. Why aren't we allowed to ask questions? X-1

10 MR. POWELL: You are, absolutely encouraged to ask

11 questions. What Jeff and I both said is that we are

12 limited in our ability to respond. The responses are

13 required to be in a written form in the final EIR. If

14 there are -- Jeff, give us some examples. Somebody might

15 want to know where a specific issue is discussed, that kind

16 of question.

17 UNIDENTIFIED SPEAKER: Why is it that you don't

18 take more general questions a propos to, perhaps,

19 earthquake analysis, or are you subject to the Seismic X-2

20 Hazardous Mapping Act or things like that?

21 MR. PHILLIBER: Probably not the best person to

22 answer this, but CEQA requires that we hear your questions,

23 record them, publish them in the final EIR. We could try

24 to take questions tonight. One of the problems is that I

25 am not an expert in all of the different areas. And these

are important questions that we want to answer them as accurately and fully as we can. And that wouldn't be accomplished if I tried to answer them. It would also probably take away time or the ability of everyone to do what CEQA requires us to do, which is give everybody a chance to ask questions on the final EIR. We understand it is frustrating, and sometimes it is frustrating for us because sometimes the questions are like softballs floating over the plate, but we really can't swing at them.

MR. POWELL: We have two cards to begin. I assume there will be some others. Tom Kelly, do you want to start our comments?

MR. KELLY: I just wanted to make a comment about something that actually is not included in the EIR but I think is an issue that has to be taken very seriously by the Lab and the University and the City. And that is that, you know, we are facing a global crisis with climate change and global warming. And as a result, the State of California has made a commitment to reduce its greenhouse gas omissions by 80 percent by the year 2050. And the City of Berkeley has embarked on Measure G, which is a very similar effort to try and get the City's municipal operations and all of the surrounding emissions from the University and residential users and also from the Lab to also commit to fairly significant reductions.

X-3

1 And when I see your plan I realize that, you know,
2 there is going to be -- there are going to be many more
3 buildings on that site, and there are also going to be more
4 automobiles, which at least for the short-term are going to
5 be fueled by fossil fuels of some kind. And I think the
6 Lab has to somehow or another figure out a way to mitigate
7 its new emissions, the ones that will be created by the new
8 construction, the construction itself but also the
9 buildings as they exist in the future and the
10 transportation or issues that come up as a result of people
11 moving up and back to the Lab.
12 And for me it sort of boils down to all of us, you
13 know, are making our own personal efforts to try and
14 address climate change. Many of us feel that we don't
15 really have much time left before things get so bad that
16 change will be almost irreversible. But as we are doing
17 what we can individually or as a city, it would be just so
18 disheartening to have the Lab's emissions wind up actually
19 overwhelming the reductions that we have been able to make
20 through our own efforts.
21 So, you know, in a perfect world I wish that canyon
22 was not developed. I wish we had had some heroes back
23 in -- like Muir who saw the beauty of the area and tried to
24 protect it. But we don't live in that world, but I think
25 it is important for us and our children and our

X-3

1 grandchildren and all future generations for the Lab and
2 the University and City do everything they possibly can to
3 mitigate the production of greenhouse gases.
4 And if that means making buildings platinum, lead
5 standards, and eliminating all parking in that area and
6 bringing people up by bus and other means, whatever it is
7 that we have to do, that has to be on the list of things we
8 do.

X-3

9 MR. POWELL: Maureen Daggett?
10 MS. DAGGETT: I am Maureen Daggett. Not amazingly,
11 he went over practically every point that I have on my
12 card. And I have exactly the same concerns about
13 transportation, about using, for instance, solar energy. I
14 don't see anything. I downloaded to a PDF folder, and I
15 looked through the design. I don't see utilization of the
16 kinds of things that we are concerned about doing in our
17 city and in our world, being, you know, put into this
18 construction. And this construction is for the study of
19 the environment. It is really peculiar to me. I have
20 questions written here, and now I am exactly on the same
21 topics that were just covered. Thank you.

X-4

22 MR. POWELL: Thank you. L.A. Wood?
23 MR. WOOD: I would like to make a couple of
24 sobering comments about this 20/20 plan. It's clear when
25 you look at the development that is going on in the canyon

X-5

1 and the proposed development in the canyon that the LBNL is
2 turning the canyon into an industrial park. And the way
3 you do that is you simply cut away all of the vegetation.
4 And I recognize that, as I believe the Lab does, that there
5 is a difficulty with regard to fire.
6 In 1993 Cara Gates, the fire chief for the City of
7 Berkeley, said if there was ever a fire there bringing
8 trucks up and down through Centennial would be problematic
9 and/or if an earthquake happened that would be problematic.
10 What I see going on in this particular area is if we cut
11 all the trees down, we could eliminate the fire issue, but
12 we also do a devastation to the environment and, also, to,
13 you know, our protection of the environment and sustaining
14 anything that exists up there.

X-5

15 On my left side I have a photograph of the -- 1965
16 photograph of the canyon, and it is amazing since 1965 how
17 much LBNL has impacted the canyon and literally cut it up.
18 We lost a couple of creeks up on the hill and we had a
19 number of buildings go in that have had very, very little
20 review. And, unfortunately, I think today we are all
21 facing that reality that we are not going to be having any
22 kind of real serious review.

X-6

23 I think the Lab needs to remember a couple of
24 things, one that with science comes contamination, and with
25 contamination should come cleanup. But in last year the

X-7

1 Lab has gone to the Regents asking for deed restrictions
2 with groundwater. We are not cleaning up our past errors
3 environmentally, so who is to suspect we are going to do
4 any better in the future.

X-7

5 For the issue of air quality, all I can say is
6 there is a reality up on the Lab, and that is the Lab
7 doesn't have a buffer to our community. It is one of the
8 few Labs in the country that does the kind of radiation
9 work that it does and doesn't have any buffer. And I
10 believe that is a serious concern. And the concern is over
11 what one would call normal monitoring of a site.

X-8

12 You know, you hear them talk about impervious
13 surface. What are we going to do? Are we going to do a
14 flood control project like we did in (inaudible) for the
15 Albany Village? I think that you need a hundred-year flood
16 control. When you start putting in impervious surfaces
17 that you plan up there you are also going to have to figure
18 out how to put in drains up there also. Because that's
19 always been a serious, serious problem for the Lab, and all
20 you have to do is stand in just a moderate rain event and
21 stand down in Strawberry Creek to realize how serious that
22 threat is for those of us downstream. I think that aspect
23 of the Lab's development is absolutely irresponsible. I
24 know David Bauer --

X-9

25 MR. POWELL: Do you want to wind it up?

1 MR. WOOD: I will, hopefully, be able to say
2 something more.
3 MR. POWELL: Mark McDonald.
4 MR. MCDONALD: Hi. My name is Mark McDonald. And
5 I have lived and worked in the City of Berkeley for about
6 32 years. I was just doing the math. The things I am
7 concerned about, and I apologize, I am not through reading
8 all of the information on this project. We lost power
9 today so I am a little bit behind. But I am concerned
10 about the level of development that is being presented
11 here.
12 It is not like I expect Berkeley to be the same
13 forever, but I kind of liked Berkeley as a balance between
14 workers and students and researchers and small shops. And
15 it was kind of the eclectic mix that I liked. And I am
16 beginning to feel like I am being pushed out of the town
17 with the awesome power of the federal government with its
18 ability to not have to pay any attention to the local, you
19 know, laws in terms of development and stuff like that and
20 the negative declarations on all of these projects and also
21 the University of California as big guys shouldering us out
22 of town. I am speaking more to the character of the town
23 which I have always liked and I want to preserve a little
24 bit.
25 I am very concerned about truck trips. They are

X-10

1 starting to get to me. We had two fatalities last year,
2 runaway trucks, steep hills, you know the routine here.
3 And I don't think anybody has done a comprehensive truck
4 analysis here. In other words, the Bevatron alone is 4700
5 truck trips maximum asbestos, low-level rad waste, other
6 types of there stuff. How many truck trips can our little
7 streets take? Is there a contribution to keeping the
8 streets up?
9 We really have a small town. I will go to this
10 meeting and then a school board meeting and a library
11 meeting. We are a small town, really. So I am kind of
12 concerned about this level of projects. And I hope to have
13 more specific comments when I do a written comment. But I
14 would like to see particularly a state and federal entity
15 prepare some kind of comprehensive truck analysis because
16 it is really becoming a very visible issue. Thank you.

X-10

17 MR. POWELL: Nancy Delaney.
18 MS. DELANEY: Hi. I am Nancy Delaney. I have
19 lived here 40 years and went to nursery school here,
20 actually, and I then I returned 40 years ago, and I call it
21 home. And I was just thinking about how I am starting to
22 realize that part of the situation, this thing that we
23 revisit periodically, is a conflict between people who are
24 seeking to advance their job and people who are hoping to
25 keep their health while they live here, and that those

X-11

1 things seem to come into conflict partly because a lot of
2 the plans are made by somebody who is not either of those
3 people, neither people who are trying to keep their jobs
4 here nor people who are trying to keep their health, their
5 lives while they live here in their homes, and rent here
6 and go to school here or work here, or come here and do
7 other kinds of work.

X-11

8 And I just -- a lot of this is brand-new to me.
9 One of the concerns that I heard when you were talking is
10 you were saying you guys had listened to the City of
11 Berkeley. But there were a lot of people who were very
12 concerned about the Bevatron. And you might have listened
13 but apparently did not hear, and we all know what asbestos
14 does to our lungs. We know about what PCB can do to our
15 brains, lead, mercury, beryllium, these are things we don't
16 really need in our biological physiological realities --
17 and yet there is going to be a lot of it released into our
18 air and going down University.

X-12

19 And you might have listened, but the plan here is
20 to break this thing down and expose it to our air. I had
21 no idea that a GMO was going in up there. So when you
22 speak of green building and sustainability, that is kind of
23 meaningless to me because my understanding of how GMOs
24 affect the other kinds of vegetation is that we don't even
25 know what the effects are going to be.

X-13

I am also concerned about the bacteria and the viruses from the nanoparticle things that you are doing. I am also concerned about the soil there at Building S8 and S4. I am concerned about the fact that there his no details in the EIR about this GMO plan. There is -- let's see, I have some other notes. X-13

The earthquake faults are not completely delineated in your report. I mean, this is really bizarre for me, impervious surfaces. I am wondering what it even is and I share Mark McDonald's feeling about we really do live in a small town, and I understand a lot of people who work up there may not live there. But I want to be able to live here for a long time in a healthy way. And I wonder who is going to be watching out for my health when the University is doing what it is doing. X-14

MR. POWELL: Do I have any other speakers who would like to come forward? Why don't I call Lisa. If you turn your cards over, one side is the speaker and the other the comment. So you can both speak and comment or just -- so, Matthew, why don't you start? Is that comfortable for you?

MR. TAYLOR: So on my way over here I passed by Ohlone Park and a saw an inscription of the Ohlone Park mural that said the Ohlone people welcomed the Europeans, the white man into this world. I would like to invite everyone to just go back in time and imagine the point when X-15

1 the Native Americans were here and none of us were here and
2 think about what they might have to say if at that point in
3 time there was a public comments session on what is about
4 to take place.
5 I would like us to just think about what we have
6 done to this planet and what we have done to the United
7 States since we colonized it, and we committed genocide and
8 we committed ecocide. And we are on the verge of
9 completely, utterly ruining the plant and destroying it.
10 And that is what global warming is sending us to as well as
11 the destruction of the species and the pollution of the
12 seas and all of the other terrible things. X-15
13 This process is part of that project. We are
14 engaged in the project of modernity which is sending all
15 life on this planet over a cliff. And the University of
16 California, although its slogan is, "Let there be light",
17 is now the University of death and it has been for many
18 decades. It is involved in nuclear weapons development,
19 which is a tool that can destroy life on this planet. And
20 I quite frankly -- and I don't know if I am the only
21 student in this room -- I have zero trust for the
22 University of California as long as it is engaged in the
23 nuclear weapons project.
24 And I think the whole mentality -- not just the
25 specifics of this project are very problematic, but the

1 whole mentality behind the project is problematic, the
2 mentality that we can keep on building and keep on building
3 and who cares what happens to the beautiful meadows and the
4 countryside and canyons and the wildlife.
5 So I would like us to just step back and think
6 about what we are doing and what is going on here. I also
7 think the British Petroleum deal is quite ill advised.
8 Number one, it creates an opportunity for British Petroleum
9 to cover up all of the horrible things it is doing in the
10 world and to create a public relation coup for itself.
11 Two, it completely and totally compromises the academic
12 integrity of this university, and, third, it unleashes the
13 horrible genie of genetically modified organisms which
14 can't be put back in the bottle once it is unleashed. I
15 know I only have three minutes up here, but I would like to
16 incorporate by reference all of the negative comments about
17 genetically modified organisms presented in the film "The
18 Future about Food." And yeah, I think also (inaudible)
19 Spivak talks about how the sub-altered cannot speak when
20 she reviews widows in India and how they were represented
21 by the (inaudible) authorities of Britain.
22 We often hear the comment in the enviromental
23 struggles well, can the tree speak and can the earth speak
24 and can the animals speak. Yes, they can, and some of us
25 are trying our best to listen to them, and I would invite

X-15

1 everyone to try to listen to the trees and to the animals
2 and to the earth. If we can't hear them now, we will be
3 hearing them in 20 or 30 or 50 years. Thank you.

X-15

4 MR. POWELL: I need your full name for the card.
5 MR. TAYLOR: Can I type something up for you?
6 MR. POWELL: If you get the notice of availability
7 sheet, there is an address to which you can send it. Thank
8 you. Doug Buckwald.
9 MR. BUCKWALD: Hi. I am Doug Buckwald. I am a
10 27-year resident of Berkeley. I was just at a meeting with
11 Vice Chancellor Nathan Brostrum, who is one of the key
12 people helping to put forth the southeast campus integrated
13 projects as well as the destruction of the oak grove to
14 build the training center. There is also Carl Pfister,
15 there who is former chancellor of U.C. Santa Cruz, also
16 involved heavily in shaping that project and putting it
17 forward.
18 And the issue came up of adequate public
19 participation in U.C.'s planning processes. My point was
20 this. First of all, it's never your first choice as
21 somebody who wants to make social change to go up and sit
22 in a tree for 90 days in the middle of winter in the cold
23 and the rain and the wind. That's never your first choice.
24 The is absolutely the last choice when all avenues have
25 been closed off to you.

X-16

1 So I made a point, and I said these kind of public
2 processes are just dog and pony shows. They are just so
3 U.C. Berkeley can list all of these public events they have
4 had and put forth the sham argument that they have had
5 adequate public participation. It was really interesting.
6 Carl Pfister, after I made the comment, even though there
7 were Shirley Dean in the room, with lots of experience in
8 the City with participation, Sylvia McLaughlin, the
9 co-founder of Save the Bay, and Betty Olds, who has lots of
10 experience here. He didn't ask them or me if we really
11 felt there was adequate public participation.
12 He turned to Jennifer McDougal and said, Jennifer,
13 has there been adequate public participation? And she
14 said, "Absolutely there has. It's been just fine." Then
15 she said about me, "Well, Doug Buckwald doesn't even like
16 the three-minute limit for comments." I don't think three
17 minutes is adequate for a lot of reasons. Also the state
18 legislative analyst didn't agree that there was adequate
19 public participation in a recently released report, a
20 scathing criticism of U.C. Berkeley's process, in
21 particular in things exactly like are happening tonight.
22 We don't talk amongst ourselves. We don't get to
23 have topics organized so that people can actually build on
24 arguments. We don't have people respond to a single thing
25 we say. They sit there. They might as well be statues

X-16

1 right there. All they say is, "Thank you. Very good.
2 Your time is up. Next." They might as well be animated
3 Disney figures up there because they don't interact. This
4 is absolutely completely inadequate. And it amounts to a
5 big lie as U.C. represents this as public process. It is
6 absolute nonsense.

X-16

7 MR. POWELL: Phil Price.
8 MR. PRICE: Thank you very much. Which mike do I
9 speak into?
10 MR. POWELL: Both. The higher one is the most
11 important.
12 MR. PRICE: My name is Phil Price. I work at the
13 Lab. I also am on the Parks and Recreation Commission, and
14 I was on the City of Berkeley Police Task Force speaking as
15 an individual. But I have learned some things from all
16 three of those experiences. So one -- I have to confess, I
17 have only leafed through the report literally, the draft as
18 it exists so far. But I am concerned. An issue I want to
19 make sure is adequately covered is the effect of impervious
20 surface on runoff into Berkeley's streams and culverts and
21 so on.
22 There are lots of places in the City where culverts
23 are under-sized, streams are eroding, et cetera. Obviously
24 increasing the surface up there means more runoff faster
25 and means the already inadequate infrastructure including

X-17

1 the natural infrastructure, will be so burdened. I want to
2 make sure that is adequately discussed.
3 The other thing is I bike to LBL. Actually, I bike
4 to the shuttle stop and take the shuttle to LBL. I note
5 that a lot of people do that and the Lab intends that that
6 will stay that way. The growth in the number of people is
7 anticipated to be bigger than the number of parking spaces.
8 You are obviously expecting more people to use the shuttles
9 and so on.
10 But the shuttle source was just cut to the north
11 part of the hill, at least, and as a biker I have noticed
12 that I and other people are shut out of the shuttles more
13 than we used to be because the bike rack on the shuttle is
14 full. So I sort of question, you know, the Lab says, "Oh.
15 we'll increase the shuttle service and so on to meet the
16 needs," but if they are not doing it now, why do we expect
17 they would do it in the future? So I think that is it for
18 me. Thank you.

X-17

19 MR. POWELL: Lisa Thompson?
20 MS. THOMPSON: My name is Lisa Thompson. Some
21 people mentioned mitigation measures to the buildings that
22 are going up in this plan that are proposed. And I just
23 strongly say that that is not enough. That will be what we
24 would ask if there were no new buildings going up because
25 we are all being called upon now to do more. And I feel

X-18

1 that the University -- I know that they have exemptions to
2 what kind of things they are allowed to do that the rest of
3 us, we may not have those exemptions. And is that written
4 into our state law.
5 But I feel that we need to hold the University
6 accountable if they are saying that they are thinking about
7 the public good, which is a public university's job, then
8 they have to do more than the rest of us. They have to
9 hold an example for us. And we need to hold them
10 responsible for doing that, for being better than we have
11 been.
12 And this is no place to be putting in another
13 million square feet of buildings. It is a pristine place
14 in the world or -- it is not, but it is already a damaged
15 place, but it is one of the few places we do have left.
16 And here in this area it is so important to the people who
17 live here. I am also deeply concerned about prior
18 contamination and future contamination. I know that there
19 are waste products on that land. And I wonder, will that
20 be cleaned up? What will happen to those in this new
21 building process?

X-18

22 And I am also concerned about future contamination,
23 especially genetically modified organisms, which are the
24 thrust of this new deal and which we really have no idea
25 what they will do when they get out into the environment.

X-19

1 These things are driven with viruses and bacterium that
2 allow these genetically modified organisms for one thing to
3 move into another. And we don't know how those things will
4 react when they get out. And they surely will. And they
5 are very close to where we live. So I would like us all to
6 take a deeper look at this. Thank you.

X-19

7 MR. POWELL: Jane, right?
8 MS. WHITE: Hello. Thank you. My name is Jane
9 White. I am a resident of Berkeley. My kids went to
10 Berkeley High. I have lived here for a long time in this
11 place. But right now I am really concerned about the
12 University and what is going on there. $500 million is a
13 lot of money. I work in global -- to stop global warming.
14 I am really steeped in this 24/7. Of course if there was a
15 magic bullet that we could just eradicate that I would be
16 all for it. And of course if the University had a large
17 sum of clean money to do that, I would be like -- that
18 would be a different situation.
19 I would still be maybe against the size of this
20 institution, but I think that the University needs to be
21 reminded about it, and this goes back to maybe some things
22 that Lisa was talking about, about the public good and what
23 is in the public good. We are basically accepting -- and I
24 say we because it is a public institution, so it is our
25 institution. We are accepting the people that caused the

X-20

1 problem, that is oil companies, now being allowed to set
2 the agenda of how we are getting out of it.
3 So here are these guys that for the last, you know,
4 hundred years have been doing all of this without
5 thinking -- they have had a very narrow box. Identify
6 where the oil is, extract the oil, and sell it. That was
7 some kind of, you know, straight-up process they were
8 doing, never thinking of the real impact of what that
9 process entailed.
10 Now they were, "Oh, wow, I see. We made a big
11 mistake. Al Gore gets the movie. Maybe the Nobel Peace
12 Prize and the Academy Awards. Oh, there is a problem. X-20
13 $500 million is such a small percentage of their profits
14 that they are now going to -- it's such a green-washing
15 opportunity for them. And we are being asked to
16 rubber-stamp it by saying, "Wow, isn't that cool? It's our
17 great university. Go Bears. We are going to be behind
18 it." No. It is a cheap, cheap attempt on their part,
19 especially with the kind of research agendas that they are
20 doing.
21 One of the most important things is not to have
22 genetically modified foods and organisms unleashed in this
23 community. Europe isn't into it. The United States,
24 through Arthur Daniel Midland and now, of course, all of
25 the oil companies, are going to get right on this because

1 they think we can cut down more rain forests and in
2 particular start growing these things. This is not
3 something we can allow to have happen. Thank you very
4 much.

X-20

5 MR. POWELL: Janis Thomas.
6 MS. THOMAS: Well, I think this is a really bad
7 idea for you all to pursue research that is becoming
8 increasingly controversial and in this particular location
9 in this part of the country where there are so many
10 concerned attentive brilliant minds.
11 This is a mistake. You can get away from the
12 radiation research you did back in the '40s, before the
13 internet, before people were as hooked into each other as
14 they are now. So I think this is a mistake. I think this
15 is a mistake, too, because the zeitgeist in Berkeley is to
16 be really annoyed with construction trucks and demolition
17 trucks and commuter vehicles going all through our city
18 using our city streets as arterial. We are really sick of
19 that.
20 And you all -- you said this is a restricted access
21 site, and yet you are expanding. Now I know you didn't
22 expand as much as you planned to expand. Good. I like
23 that, you know, but what, 10 percent? That is not good
24 enough. I really am -- I just don't think it is wise. I
25 think that the Lab should be thinking about different -- I

X-21

1 don't like this research -- some of the research, great,
2 fine, Berkeley-friendly, but this GMO movement, bad. You
3 totally snuck in the nanotech facility, way stealth
4 maneuver, new City Council, new mayor, no public hearing. X-21
5 That was really bad. I know you know what I am talking
6 about. You can't do that anymore.
7 People are really paying attention. I think you
8 ought to think about complete infill. No additional
9 buildings on open space, period. And I want you all to X-22
10 look at that alternative and find that alternative in your
11 comments to the draft EIR. Okay. So thank you.
12 MR. POWELL: Any other comments? Jim Sharp.
13 MR. SHARP: Jim Sharp. I have been a resident of
14 Berkeley for quite a few years, and I haven't got much to
15 say. I was told long ago that if you haven't got anything
16 good to say, you shouldn't say anything at all. Well, I do
17 have something good to say, that we won't have to do this
18 again until about maybe 2025, 2030. I don't know.
19 What is interesting to me is the long gestation
20 period on this LRDP because you probably recall, if you
21 were here then, that in October 2000 we had a notice of
22 preparation. And here we are in 2007. I think, though, X-23
23 what is -- and I -- I'll confess, I haven't read it in
24 depth. But I think what has happened here is that the Lab
25 has given birth to a mouse, although it is a big mouse, and

1 I would say it is a big green mouse. It is a big kind of
2 green fuzzy mouse.
3 This is one of several documents incorporated in
4 that. And I don't think it addresses some of the issues
5 that some of my neighbors are concerned with and we are
6 concerned with, such as legacy contamination of which there
7 is a lot. And I know I am kind of curious. If there had
8 been an LRDP back in year 2000 or 2001, what would have
9 happened regarding the Molecular Foundry. What would have
10 happened regarding Building 49 and the cafeteria creek
11 parking lot?
12 Now that was incredible, you know. The Lab was
13 ready to go down -- they were going to cover this riparian
14 area with asphalt. What would have happened regarding the
15 Bevatron demolition? What would have happened most
16 recently with the Building 10 that just flew up in
17 December, then the -- finally the DTSC that Department of
18 Toxic -- the State, looking at the hazardous waste-handling
19 facility, they approved an operating permit. It was in
20 December. It flew by along with everything else.
21 I think a lot of people were kind of exhausted from
22 the University LRDP, from the -- skip the southeast
23 quadrant stuff, and they kind of let this -- didn't notice
24 this stuff. I am wondering where this is going. What I
25 would like to see -- you know, I am concerned -- this is

X-23

kind of chronic piece-mealing, as I see it. Is this one minute? X-23

MR. POWELL: That is three minutes. Do you want to wrap it up? You will have another chance.

MR. SHARP: I would like to see a lot more stewardship on the part of the Lab. I loved the (inaudible) the little arachnid there, and focus on the resources that are there and try to protect them in a more holistic way. Thanks. X-24

MR. POWELL: Are there other speakers? The next speaker will be Pamela Sihvola.

MS. SIHVOLA: Good evening. My name is Pamela Sihvola. For the past ten years the Committee to Minimize Toxic Waste and the Alliance to Preserve Strawberry Creek Watershed, we have followed the Laboratory's characterization of the site with regard to legacy radioactive and chemical contamination.

I was extremely disappointed to read the draft EIR with respect to the areas that are concerned with toxics. Indeed, there was no mention of the areas of radioactive contamination in the soil. You did have a map that showed some of the underground contamination plumes, but there was very deficient information regarding the projected movement of these plumes along the watersheds, potentially old creek beds. X-25

1 This is a map. If you -- any of you, when you look
2 at the EIR and specific figures, this particular -- you
3 won't see anything like this. Everything that is in black
4 indicates both radioactive contamination of the soil, which
5 are these areas here. This is a Beryllium 234 accident
6 that occurred some years ago. And this area here is
7 radioactive hydrogen tritium, which covers a very large
8 eucalyptus grove just south of the Lawrence Hall of
9 Science.
10 This is a fire threat. It is one of the last large
11 eucalyptus groves, but it can't be cut down or it can't be
12 even thinned because the trees have taken up the tritium
13 from the soil and they are transpiring it and, according to
14 the Laboratory, they have enough tritium in them so that
15 they can't be disposed of as anything else but radioactive
16 waste. So the full grove stands here.
17 And then there this is the tritium in the
18 groundwater, and it is following the Chicken Creek. This
19 is the old creek bed of the Chicken Creek, which I
20 understand this Chicken Creek Basin will become the new
21 site, potentially for the British Petroleum Biofuels
22 Institute, this particular area here.

X-26

23 Everything in red indicates earthquake faults. The
24 whole canyon was considered as the Hayward fault zone, but
25 when you look at the EIRs, you will only see very scant

X-27

1 representation of the Hayward fault itself, and absolutely
2 nothing in the canyon, especially in the east canyon,
3 regarding the fault lines.
4 MR. POWELL: Pamela, just a minute. Are there any
5 other speakers at the moment? Then would you continue?
6 MS. SIHVOLA: The faults can be acting as conduits
7 for contamination. It is also possible that faults that
8 the laboratory claims are inactive can become active. I
9 think it is imperative that this national laboratory,
10 Department of Energy's national laboratory with all of
11 their scientists, their geologists, that they could
12 contribute something to this EIR with respect to specifics
13 about the canyon.

X-27

14 Everything in blue indicates the old watershed
15 course-ways. This is 1875 (inaudible) map. Although some
16 of these creeks have been put underground, they are in
17 culverts, but they do continue to exist. And, as we know,
18 many of them are contributing to, for instance, landslides.
19 I mean, this is another issue that the EIR did not address
20 properly. The water runs, and of course this fault zone is
21 also a landslide zone.
22 And I have some other maps, if you don't mind I
23 will show, and then these would be more specifically
24 included in the written comments. This is a map that
25 shows -- this is a compilation of all of the landslides

X-28

1 that have been mapped in the Strawberry Creek watershed.
2 This includes historic landslides as well as current
3 landslides. You will not see anything like this in the
4 EIR's slope stability figure. Indeed, there are just a
5 couple of areas where they considered it medium or low
6 risk.
7 And these buildings, the reason we are here, the
8 Laboratory's new development, the buildings in black, are,
9 indeed, proposed for a very, very treacherous area, really,
10 with regard to all of the fault lines, all of the creeks,
11 all of the landslides. And none of this really was
12 analyzed in detail in the EIR. So I ask the Laboratory to
13 cover these areas specifically, much more in detail, when
14 they prepare the final EIR. Thank you.

X-28

15 MR. POWELL: There were a few people who weren't
16 quite finished when their three minutes came. L.A. Wood is
17 one. Would you like to continue?
18 MR. WOOD: I would like to say one more thing. I
19 think one of the things that bothers me about this is we
20 are only talking about the hill. And most of us recognize
21 that the Laboratory, LBNL, has a major presence on the
22 Berkeley campus. I learned that as a student going there.
23 Donner Lab, Melvin Calvin, that was going to be torn down
24 but now is going to be used temporarily. And it was a
25 couple of years ago when they proposed the Northeast

X-29

1 Quadrant Science and Safety Project, that I raised this in
2 the scoping process and in the environmental documents
3 about the University. I said, well, what about LBNL, who
4 seems to always be hiding or being obscured by the
5 University's activity?
6 And so we know that if DOE has a presence down on
7 the main campus that those people, those students that are
8 associated with LBNL and its work -- I think it's 600 grad
9 students -- we know they all go up onto the hill. So
10 logically, we know that the activities on the campus have a
11 reflection on the hill, on the hill project, on the
12 traffic, and on the occupation of the hill. Where is that
13 in this whole scoping process?
14 I don't see it there at all, and I know they are
15 going to say, well, they are only talking about the hill.

X-29

16 And Jim Sharp said we are piecemealing. The second thing I
17 want to make clear when I was talking about impervious
18 surface, I know in 1995 and '96 the Lab -- I read an
19 article that said that many of their buildings, 60-some
20 percent of their buildings, for national facilities are
21 substandard.
22 So we know not only are the buildings substandard,
23 and we appreciate the fact you might try to upgrade some of
24 those projects, but we know the infrastructure around those
25 buildings, the storm drains and the sewers, are a serious

X-30

1 problem.

2 So when I project the development in the canyon,

3 when I project the impervious surface, I see a major water

4 project. That means going in and setting major drains and

5 storm drains and sewer drains if the Lab is responsible in

6 this kind of huge development. And so where is all of

7 that? Where is a discussion about what is going to happen

8 when you have to go up and do that kind of project. You

9 just simply stop using water and saying we are going to

10 conserve water, so we are not going to use the system

11 because we know that historically that many of the storm

12 drains were fractured. We have contamination in the creek,

13 we have had in the past.

X-30

14 So this is a historic problem that has been well

15 delineated but isn't delineated in the project. As I said,

16 that, to me, is another major concern. And someone else

17 said something about the Bevatron. I recently filed an

18 application for a landmark for the Bevatron with Pamela

19 Sihvola. And we know that there is a serious problem. The

20 Lab proposed to take down the building, did a demolition,

21 did a scoping, did this kind of process that we are here,

22 and then we get the notice that they are probably going to

23 do it quick and dirty. They are going to implode the

24 building, knock the building down quickly so they can get

25 on with this because, as every federal facility is subject

X-31

1 to funding and getting the money, so we know there is going
2 to be a quick and dirty. And there are many, many concerns
3 overall of the air quality problems.

X-31

4 And what I would like to see the Lab commit itself
5 to is if we are going to tear down all these damned
6 buildings up there, you had better start putting monitors
7 through Berkeley. I live off of Hearst. I live next door
8 here, and these trucks are going to be coming down here. I
9 would be able to hit them with a rock, they are so close to
10 me.
11 It is a terrible concern of mine, the asbestos, the
12 low-level radiation, and all of the other cocktail of
13 hazardous materials up there that are all going to be
14 spread across the community. You need to commit yourself
15 to that. You need to also commit yourselves in the process
16 to protecting the community by guaranteeing that you are
17 going to cover the trucks. There is not a truck in
18 Berkeley that runs through here and covers itself. We
19 don't have time to do that. That is a serious, serious
20 concern for most of us.
21 We all know the City of Berkeley said we should
22 keep things in place, contained. If you have a problem you
23 should have it contained. We have World War II legacy
24 waste that we are not even -- many of us weren't in
25 Berkeley when the Lab took on that responsibility of

X-32

1 contaminating the community. And so now we are going to
2 have to put up with the idea that now you have to do it.
3 You have to clear the space, and you need to look seriously
4 with some of the buildings, like the tritium grove, and
5 recognize that they are a problem. And maybe some of these
6 things are best left contained. And maybe what you need to
7 be doing is replacing the buildings, is that you need to do
8 something less aggressive than what you are proposing, and
9 especially with the Bevatron. It has a lead roof on it, X-32
10 and, I mean, across a 220-foot span.
11 And you go up there and you recognize the problem,
12 that huge problem up there. It is outrageous that the Lab
13 would be so cavalier as to want to tear it down and run it
14 through town. You have already contaminated the property.
15 Now you want to contaminate Berkeley. As I said, we need
16 to be seriously concerned about the air quality, as I and
17 many of the community are, and that we are going to be
18 impacted in a very, very adverse way.
19 MR. POWELL: Would you like to continue speaking?
20 Would you site your name?
21 MS. DAGGETT: Maureen Daggett. I would like to
22 remind us back in '83, when so many people went to jail,
23 then in Livermore, and the University was denying that X-33
24 there was any radioactive activity in the groundwater, and
25 so many people in the community were coming down with

1 cancer and their children were being born with their
2 hand -- a hand coming out of the shoulder, and there were,
3 you know, vast problems. And they kept running tests and
4 saying the water was fine until we came along and paid for
5 tests and proved and went through court for five years with
6 people like Linus Pauling coming in to help, lots of people
7 coming in the help.
8 We ran the case, and we won, and they made a
9 Superfund. They don't care. The University will not care.
10 They will lie. They will take tests, and the tests will be
11 wrong. We will have to pay for our own tests. We ought to
12 start testing right now, testing the water now, testing the
13 groundwater now, because we need to fight this, or our
14 community is going to get sick.
15 Maybe the reason that some people are getting sick
16 right now, maybe the incidence of breast cancer has to do
17 with what is already going on.

X-33

18 MR. POWELL: We have other speakers. Nancy
19 Delaney. Would you state your name again?
20 MS. DELANEY: My name is Nancy Delaney. And I am
21 reminded in August of 2003, that I did contract breast
22 cancer, and I live a very healthy life, and I walk a lot in
23 town. And the thing is that a lot of people are getting
24 cancer, and it is your decisions, and it is your life work,
25 you know, your livelihood and the choices that you are

X-34

1 making to keep your livelihood in the way that you are
2 doing it. It is responsible for that. There are some
3 effects on a person's soul as well as their heart.
4 And, you know, I mean, it is difficult that we are
5 in a time like this. We are having to make choices like
6 this. But what the human mind can do -- it can only
7 incorporate so much understanding of the implications of
8 what we are able to do now scientifically. What we already
9 know about is what is happening with the GMOs, up in
10 Canada, in the mid west, about how in Mexico how, you know,
11 it just takes like -- it catches one kernel of corn, and
12 then it is lost, you know. That particular species is X-34
13 lost.
14 With the GMOs -- and I am thinking about how so
15 many people in Berkeley love to garden. We love to
16 landscape the fronts of our houses. That is why it is so
17 lovely to walk in Berkeley, because there are so many
18 people who do little enterprises around their homes. What
19 is going to happen when the GMO kind of sifts out? And
20 accident could happen. I mean, we are human, and so
21 accidents do happen. And when we are playing with things
22 as extensive as we already know these things are, we really
23 need to be much more careful, and especially scientists
24 should know the most.
25 And so it makes me wonder, you know, someone was

1 saying, well, we need to be more holistic, that holistic
2 thinking for the campus seems to be too complicated. They
3 don't seem to be bright enough to think that way.
4 MR. POWELL: Jim, did you have more? Yes. If you
5 could site your name again, please, Doug.
6 MR. BUCKWALD: My name is Doug Buckwald. I have
7 here a book that was used by U.C. Berkeley in the
8 Environmental Design Library at Woerster Hall. So lest
9 some people think that the criticisms of this kind of
10 process are held by a very small minority, this book is
11 called The Practice of Local Government Planning. It is
12 published in conjunction with the American Planning
13 Association. It is a very legitimate planning group.
14 And they have a section here called, "Traditional
15 Citizen Participation. The Trouble with Public Hearings."
16 It is actually a very good section to read. I will just
17 read a couple of parts of it.
18 "Most federal programs that require planning also
19 require evidence of an open participatory process which has
20 traditionally meant holding a public hearing. But the old
21 style processes of involving the public, particularly such
22 public hearings, often result in perfunctory, stilted 'go
23 through the motions' styles of engagement. By any stretch
24 of the imagination, these practices rarely provide
25 meaningful public participation or engagement. Typically,

X-34

X-35

1 they are organized and run from the top down" -- as we see
2 here -- "and if citizens come at all" -- and that is one of
3 points I want to make tonight. "If citizens come at all,"
4 there aren't a lot of people here because, frankly, lots of
5 people have just given up on this kind of process. People
6 don't take the time to show up for these things. This is
7 evidence right here today. This is a major series of
8 projects you are planning in a watershed canyon that has
9 already been damaged enough and should not have any other
10 construction in it.
11 And if people thought this process would have any
12 impact on halting you, they would be here in numbers.
13 Anyway, getting back to this very good book, it is not like
14 one of my humorous things. This is real. "If citizens
15 come at all, they often leave the hearing feeling
16 ineffectual, co-opted or manipulated. They often leave
17 believing the fix was in." That's something you hear
18 around town a lot these days.
19 "Old style hearings fail as a medium for full
20 citizen participation for a number of reasons. In many
21 cases they involve experts explaining or seeking support
22 for a completed or nearly completed plan." That is what we
23 get just about all the time from U.C. Berkeley. "Planning
24 is done to or for the public, not with the public." That
25 is what we get all the time from U.C. Berkeley. They don't

X-35

1 join with us as partners to plan anything. "Citizen
2 participation is pursued more to grease the skids for
3 ultimate public acceptance of the project than to inform
4 the substance of the plan." That is true here.
5 The last paragraph in this section, "Traditional
6 public hearings do little to foster consensus." That is a
7 very good word, "consensus." And that is -- that is what
8 the process they recommend in this book, is a
9 consensus-building process. "Traditional public hearings
10 do little to foster consensus because there is seldom an
11 opportunity for citizens to discuss and debate the issues
12 between themselves. The typical format offers the public
13 the opportunity to testify one after the other before the
14 board or commission holding the hearing with little or no
15 facilitation or topical organization." In short, the
16 old-style public hearings meant -- the old-style public
17 hearing mentality often represents a form of public
18 engagement is that too little and too late.
19 I think this is a very good book. It is written
20 very carefully. I have read a lot of the other sections as
21 well. I really take those comments to heart. We do not
22 have a planning process here that is legitimate. The only
23 reason U.C. Berkeley goes through these kind of processes
24 is so they can list events and try to prove to people that
25 they have had adequate public involvement. And it is

X-35

1 simply a lie. And I think they should stop lying about it.
2 It is an entirely illegitimate process the way it is set up
3 now and I hope they will change it. Thanks.

X-35

4 MR. POWELL: Jim, your full name for the court
5 reporter.
6 MR. CUNNINGHAM: My name Jim Cunningham. I have
7 lived in Berkeley since 1968, and I am a retired professor
8 at the University. I said to someone a couple of years
9 ago, "The last time we closed the place down was in the
10 '70s during Vietnam." And I said, "Until we get people out
11 to do that again, nothing is going to happen." I also said
12 to someone that, "You need -- you know, we need to do that
13 again." And I said to a friend of mine, I said, "You know,
14 we need to get Betty Olds up in the tree." And, my God,
15 two weeks later she was up in the trees.
16 What I am really saying is I think that what is
17 going on up on the hill is horrendous, and the proposed
18 building is horrendous. If we do not see the relationship
19 between the state and development, the Lab development, the
20 University development and what our federal government is
21 doing in the Middle East, we are not thinking. If we don't
22 see the difference between big and small, big meaning the
23 Regents, the legislators in California, and our legislators
24 in Washington, D.C., we are not getting the point. If we
25 do not see the privatization of the public university, we

X-36

are not seeing what is happening. X-36

MR. POWELL: Yes. Matthew? Of course. Would you state your name again?

MR. TAYLOR: My name is Matthew Taylor. I am going to follow up on something Doug Buckwald said. He was talking about what is wrong with the process now, and how it could be different. I would like to talk about what is wrong with the University structure and how it can be different, specifically as it applies to these laboratories. If University of California were to fully demilitarize itself, which is a moral imperative for everyone associated with this university, again, if this university were to fully demilitarize itself, it would have acres and acres and acres of buildings available immediately in which to conduct research that could actually benefit humanity and this planet. It could do research on wind and solar and tidal and other clean renewable green sources of energy that could be used to avert the climate crisis that we all face. And it could do so with the academic integrity and honesty and clean public money that it should be utilizing. Thank you. X-37

MR. POWELL: If there are no more speakers, I think this public hearing is over. Thank you very much.

(The hearing adjourned at 8:12 p.m.)

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1 REPORTER'S CERTIFICATE

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5 I, Joanna Broadwell, Certified Shorthand Reporter No.

6 10959 in and for the State of California, hereby certify

7 that the foregoing is a full, true and correct transcript of

8 the proceedings to the best of my ability.

9

10

11

12 Date:_____ _____

Joanna Broadwell CSR # 10959

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Public Hearing, February 26, 2007, Comments from various speakers (Comments Lettered "X-1 through X-41")

Response X-1

As noted in the response given at the public hearing, the public was encouraged to ask questions at the hearing, and was advised that the responses to such questions would be included in this Final EIR. This Final EIR responds to all of the questions and comments that were raised relating to environmental issues.

Response X-2

As stated at the Public Hearing, the purpose of the hearing was for the Lab to briefly present the EIR and to then receive questions and comments on the merits of the EIR in a public forum. Questions posed by commenter's were carefully recorded and then responded to in the Final EIR. The Public Hearing would not have been an appropriate forum for discussion or debate of various issues pertaining to the EIR, the project, or other projects at LBNL or the University. One reason is that complete, accurate, and fully considered answers could not be provided at such a limited forum – many of these questions would require deliberation and input from various technical experts. Another reason is that open-ended, two-way discussions on various issues would likely distract the meeting from its required purpose; to provide an opportunity for every person present to have their comments aired, recorded for the record and responded to in the Final EIR.

Response X-3

Please see Response A-4 for discussion regarding greenhouse gas emissions.

Response X-4

The 2006 LRDP is consistent with the University's Presidential Policy for Green Building Design and Clean Energy Standards, adopted in July 2003 (amended October 24, 2003), which seeks to minimize the University's impact on the environment and to reduce the University's dependence on non-renewable energy (see page III-35). Alternate forms of transportation were also addressed in the DEIR, including the increased use of alternate modes of transit through improvements to the Laboratory's shuttle bus service (see page IV.L-24).

In addition, the Helios Research Facility (which would incorporate the EBI program; see Response F-8), is a project that would be completed pursuant to the 2006 LRDP EIR. The goal of the Helios project is to accelerate the development of renewable and sustainable sources of energy using sunlight by developing fundamentally new and optimized materials for use in collectors, efficient processing steps, and energy handling. It is currently anticipated that a tiered CEQA review for this facility would be conducted in 2007. (See page III-19 and Appendix D).

Response X-5

The DEIR found that based on the current and expected demand for fire protection services and discussion with the Alameda County Fire Department, it is not anticipated that implementation of

the 2006 LRDP would result in the need for new facilities, staff or equipment to provide adequate fire protection and the impact would be less than significant (page IV.K-17).

In addition, as described in Section IV.C, Biological Resources, LBNL actively manages vegetation over the entire site to minimize fire damage in the event of a major wildland fire. The Lab's vegetation management program integrates aesthetic, view, horticultural, and fire safety factors. Site-wide, vegetation, or wildland fire fuel, is managed to protect the Lab's buildings and workspaces during a worst-case Diablo wind-driven fire (winds similar to the 1991 Oakland Hills Fire) and any lesser wildland fire.

Response X-6

The commenter's discussion regarding development since 1965 is noted. Recent development at LBNL has all undergone CEQA review, including tiered reviews based on the 1987 LRDP EIR, as amended. In those instances where less review was undertaken, (such as a tiered negative declaration rather than a separate EIR); it was because the project was within the parameters of the 1987 LRDP EIR. CEQA includes a number of provisions allowing lead agencies to tier their environmental reviews so that issues evaluated in a planning EIR (such as the 1987 LRDP EIR), do not need to be re-evaluated when particular projects consistent with that plan are considered.

Response X-7

The DEIR, page IV.F-5 states that all areas of soil contamination have been cleaned up to levels consistent with Berkeley Lab operations (designated as institutional land use) and acceptable to regulatory oversight agencies.

Currently, there are about 150 groundwater monitoring wells at LBNL, with an additional groundwater monitoring well located off-site. In addition, remediation and monitoring of non-radioactive contamination in groundwater is being conducted under the Resource Conservation and Recovery Act of 1976 Corrective Action Program, while monitoring of a tritium plume in groundwater is being conducted under the Atomic Energy Act.

Site cleanup activities are coordinated closely with the regulatory oversight agencies. LBNL submits quarterly progress reports to these agencies and meets with them periodically to review the status of these activities. Progress has also been reviewed by the City of Berkeley Community Environmental Advisory Commission and members of the community. Plans and reports of this project are maintained at the Berkeley Public Library and are available at the following LBNL web site: http://www.lbl.gov/ehs/erp/html/documents.shtml (see page IV.F-8).

Deed restrictions are generally a requirement of remediation activities, as noted by the commenter. Once clean-up has occurred to the required level, deed restrictions are imposed as a precautionary measure to prevent potential exposures from particular sensitive future uses.

Response X-8

As stated on page IV.B-41, a human health risk assessment was prepared to identify risks resulting from the implementation of the LRDP. The health risk assessment examined total lifetime excess risk (cancer and non-cancer) 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.

The health risk assessment concluded that cancer risk and non-cancer hazard for off-site receptors, including residential receptors, resulting from air emissions from LBNL emission sources would not be significant relative to generally accepted regulatory thresholds. The majority of the risk and hazard are, and would continue to be, due to emissions of diesel particulate matter, which is a ubiquitous pollutant in the Berkeley and greater Bay Area. Furthermore, LBNL has already taken steps to help reduce diesel particulate emissions from the Laboratory, including use of a bio-diesel fuel in diesel combustion sources (mobile and stationary, as practicable) and the addition of control devices (i.e., catalytic oxidation units, diesel particulate filers) on new emergency back-up electrical generators, both of which reduce emissions of diesel particulate matter and other toxic pollutants. Further, the area subject to the modeled exceedance of health risk will decrease substantially in the future, and this decrease will occur with or without the project. For on-site (worker) receptors, one location was identified where the increase in lifetime cancer risk would exceed the 10-in-one-million threshold, resulting in a significant impact. Implementation of Mitigation Measure AQ-4a, as set forth in the DEIR on page IV.B-46, would reduce the impact to a less-than-significant level. The impact of non-cancer hazard to on-site receptors would be less than significant.

Response X-9

The increase in impervious surface area was adequately addressed in the DEIR. Please see Response J-5 for further discussion.

Response X-10

The DEIR, in Impact TRANS-7 (page IV.L-41), evaluated potential effects of truck traffic on local streets in Berkeley and determined that the effect would be less than significant. Specifically, the analysis considered truck traffic anticipated to result from implementation of the draft LRDP (including traffic resulting from the Building 51/Bevatron demolition project) and found that “an asphalt overlay over the current roadway would likely not be needed in order for the streets analyzed to accommodate the additional truck traffic resulting from LRDP-related construction.”

With specific regard to the proposed Building 51/Bevatron demolition project, the Draft EIR for that project (available on the Berkeley Lab website at: http://www.lbl.gov/Community/ERD-DEIR-bldg-51.html) analyzed accident potential on several roadways leading to and from Berkeley Lab and found that the Bevatron demolition “would neither change the physical characteristics of the street network serving the site, nor generate traffic that is incompatible with

existing traffic patterns [and that it] would be unlikely that the rate of motor vehicle accidents (i.e., accidents per number of vehicles) would increase as a result of the project."[13]

Response X-11

Please see Response X-8. In addition, commenter is concerned with the Lab's continued operation in proximity to residential uses. LBNL is an existing operation, not resulting in any land use change. For further discussion, please see Section IV.H in the DEIR.

Response X-12

Please see Response J-3.

Response X-13

Please see Response O-2 for discussion regarding GMO's and biohazards. In regard to nanotechnology, please see Response H-1.

Response X-14

With regard to impervious surfaces, please see Response J-5. For discussion regarding earthquake risks, please see Response C-23, as well as Section IV.E of the DEIR.

Response X-15

Commenter's opinions are noted. Please see Response T-1.

Response X-16

LBNL disagrees with the comment about the adequacy of the public participation process. This process included substantial consultation with the public and with the City of Berkeley, which went beyond the legal requirements of CEQA. CEQA does not require any public hearings, however LBNL scheduled one to take additional comments on the EIR.

The three-minute time limit imposed at the hearing is consistent with time limits often imposed at public hearings. That time limit is important so that no one speaker monopolizes a public hearing. Speakers at the hearing were also allowed to present additional comments at the end of the hearing. In addition, anyone who wished to submit more lengthy comments was able to do so by submitting written comments, which many members of the public did.

Response X-17

Please see Response J-5.

Response X-18

Please see Response S-2

[13] LBNL, *Demolition of Building 51 and the Bevatron Draft EIR*, page IV.K-16.

Response X-19

This comment is directed at the merits of the LRDP and various projects undertaken to carry out LBNL's research mission, rather than environmental issues evaluated in the EIR. This comment will be part of the overall record considered by LBNL and by the Regents in determining whether to proceed with adoption of the LRDP.

Response X-20

Please see Response O-2.

Response X-21

For discussion on global warming, please see Response A-4. For discussion regarding GMO's, please see Response O-2.

Response X-22

The commenter is apparently addressing the proposed cooperative research agreement between the University of California and BP, and the commenter's opinion is noted. The comment does not address the environmental review of the proposed LRDP. Under CEQA, no further response is required.

Response X-23

In addition to the Project itself, the DEIR included a range of project alternatives, in compliance with CEQA. A substantial portion of the proposed development under the draft LRDP does consist of infill within the already developed areas of the Lab's hill site, including the potential demolition of outdated buildings and construction of new buildings in their stead. As stated in the Project Description, DEIR page III-31, "Most new buildings would be located on infill sites and/or adjacent to existing facilities, resulting in a higher density of development within each cluster and retention of more undeveloped space between clusters." DEIR page III-30 states further that areas of the Lab designated Perimeter Open Space on the land use map (DEIR Figure III-3) "would encompass areas set aside due to constraints that require that minimal intrusion or activity occur, and other areas that are intended to remain primarily as open space because they enhance the visual image of the Lab from within and outside the site."

Moreover, the draft 2006 LRDP itself includes numerous goals and policies aimed at minimizing loss of open space areas on the Lab's hill site. Among the strategies in the draft LRDP, as set forth in DEIR Appendix B, are the following, which speak to clustering of development outside of open space:

- Protect and enhance the site's natural and visual resources, including native habitats, riparian areas and mature tree stands by focusing future development primarily within the already developed areas of the site
- Configure and consolidate uses to improve operational efficiencies, adjacencies and ease of access

- Minimize the visibility of Laboratory development from neighboring areas
- Increase development densities within areas corresponding to existing clusters of development to preserve open space, enhance operational efficiencies and access
- To the extent possible, site new projects to replace existing outdated facilities and ensure the best use of limited land resources
- To the extent possible, site new projects adjacent to existing development where existing utility and access infrastructure may be utilized
- Preserve and enhance the native rustic landscape and protect sensitive habitats
- Maintain and enhance tree stands to reduce the visibility of Laboratory buildings from significant public areas in neighboring communities

As stated in response to Comment D-2, Chapter V of the DEIR found that cumulative impacts related to air quality and noise would remain significant and unavoidable even with implementation of the No Project Alternative, because the contribution to cumulative air toxics impacts from continued operation of Berkeley Lab (even without implementation of the 2006 LRDP) would remain significant and unavoidable, and because future redevelopment on the hill site pursuant to the existing 1987 LRDP EIR, as amended, would result in temporary contributions to cumulative noise impacts related to construction and demolition activities. Likewise, an alternative in which all new buildings were constructed at the locations of existing buildings or other existing development (e.g., roads, parking areas) would not avoid these cumulative significant impacts, nor would it avoid the project's cumulative traffic impacts, nor the project-specific impacts of the proposed LRDP related visual quality, temporary construction noise, or traffic, assuming the general intensity of development were the same. Therefore, such an alternative would not reduce or eliminate any of the project's significant, unavoidable impacts. In addition to the Project itself, the DEIR included a range of project alternatives, in compliance with CEQA. A substantial portion of the development does consist of infill, and of construction of new facilities on sites where unsuitable facilities are to be removed. Construction of new facilities only as infill would not provide Berkeley Lab the planning flexibility it needs to meet its project objectives (Draft EIR p. 20), and which may be needed to support alternatively financed and collaborative projects such as Helios and CRT.

Response X-24

The commenter is incorrect regarding the inexistence of a LRDP in the years 2000 and 2001. LBNL's existing LRDP and EIR were approved in 1987. The EIR was updated by a Supplemental EIR in 1992 and an Addendum in 1997. These projects were tiered from the 1987 LRDP, as amended.

The project involves the adoption and implementation of the proposed LBNL 2006 LRDP. The Draft LRDP was published concurrently with this EIR in January 2007 and is incorporated by reference into the EIR. The proposed 2006 LRDP has been publicly circulated with the EIR.

Response X-25

Commenter's opinion regarding stewardship on the part of the Lab is noted. The comment does not specifically address the DEIR and thus, no further response is required.

Response X-26

Please see Response F-6.

Response X-27

Please see Responses F-4 through F-7.

Response X-28

Please see Response F-17.

Response X-29

Please see Response F-13.

Response X-30

The Project Description specifically notes the interrelation between the UC Berkeley campus and the Lab. The DEIR both acknowledges and discloses this joint interaction.

Response X-31

Please see response J-5.

Response X-32

Please see Responses C-9 and J-3.

Response X-33

Packaging and labeling of hazardous and radioactive materials is discussed in Chapter IV.F, Hazards and Hazardous Materials. DOT requirements for the transportation of these materials in commerce are specified in Title 49 of the Code of Federal Regulations (CFR), Subchapter C. Where any material meets the DOT definition of hazardous or radioactive, it would be transported in compliance with these requirements. This may or may not require the use of specified packaging, depending on the potential for dispersion of the material during transit. Materials that are not defined as hazardous or radioactive in accordance with DOT regulations have no specified packaging requirements. There are numerous other basic transportation requirements that govern the transportation of all materials in commerce. For example, loads must be secured using DOT-approved hold down devices which would ensure that materials do not fall from a vehicle during transportation. Where small objects or debris which cannot themselves be adequately secured to a vehicle are transported, such materials would be packaged in a "strong, tight" package which is designed to contain materials during all conditions incident

to normal transportation. Examples of such containers include metal boxes or covered roll-off containers. General non-hazardous construction debris or soil which would be transported in a dump truck must conform to requirements for a cover on the load to prevent release of materials to the roadway or otherwise endanger other vehicles while in transit. Transportation of demolition debris would be conducted in compliance with all applicable Federal, State, and local regulations. LBNL intends to use only transportation companies that are fully licensed and registered for commercial transportation activities

Response X-34

Please see Response G-6 regarding groundwater contamination.

Response X-35

Please see Response O-2.

Response X-36

As stated in Response X-16, LBNL disagrees with the statements that the public participation process for this EIR was inadequate. The evolution of this LRDP from what was originally proposed contradicts the commenter's criticism that the participation process was simply to clear the way for a project that was already finalized or completed. Here, in contrast, the scope of the proposed LRDP was substantially revised in response to the consultation process, in particular the consultation with the City of Berkeley.

Response X-37

This comment is directed at the merits of the LRDP and various projects undertaken to carry out LBNL's research mission, rather than environmental issues evaluated in the EIR. This comment will be part of the overall record considered by LBNL and by the Regents in determining whether to proceed with adoption of the LRDP.

Response X-38

The comments regarding "demilitarization" of the University are noted. LBNL does not perform military research. Much of the ongoing research at LBNL that will be facilitated by implementation of the LRDP will be research on renewable energy sources and related fields.

CHAPTER V
Mitigation Monitoring and Reporting Program

The California Environmental Quality Act (CEQA) requires that a Lead Agency establish a program to monitor and report on mitigation measures adopted as part of the environmental review process to avoid or reduce the severity and magnitude of potentially significant environmental impacts associated with project implementation. CEQA (Public Resources Code Section 21081.6 (a) (1)) requires that a Mitigation Monitoring and Reporting Program (MMRP) be adopted at the time that the agency determines to carry out a project for which an EIR has been prepared, to ensure that mitigation measures identified in the EIR are fully implemented.

The MMRP for the LBNL 2006 Long Range Development Plan (LDRP) is presented as a table that includes the full text of the mitigation measures identified in the Final EIR.[14] The Lab may modify the means by which it will implement a mitigation measure, as long as the alternative means ensure compliance during project implementation. The MMRP describes implementation and monitoring procedural guidance, responsibilities, and timing for each mitigation measure identified in the EIR, including:

Significant Impact: Identifies the Impact Number and statement from the Final EIR.

Mitigation Measure: Provides full text of the mitigation measure as provided in the Final EIR.

Monitoring Responsibility / Action: Designates responsibility for implementation of the mitigation measures and when appropriate, summarizes the steps to be taken to implement the measures.

Mitigation Timing: Identifies the stage of the project during which the mitigation action will be taken.

Monitoring Schedule and Reporting Procedure: Specifies procedures for documenting and reporting mitigation implementation.

The responsibilities of mitigation implementation, monitoring and reporting extend to several LBNL departments and offices. The manager or department lead of the identified unit or department will be directly responsible for ensuring the responsible party complies with the

[14] Note that table headings may be adjusted in project level MMRP's to reflect the particular circumstances of the project.

mitigation. The Planning, Design and Construction Department is responsible for the overall administration of the program and for assisting relevant departments and project managers in their oversight and reporting responsibilities. The Department is also responsible for ensuring the relevant team understands their charge and completes the required procedures accurately and on schedule.

MITIGATION MONITORING AND REPORTING PROGRAM

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Aesthetics and Visual Quality				
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 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.	Facilities Planning Shall oversee compliance with design guidelines, LRDP policies, and LRDP EIR.	Project design and review process	Confirm and document during design approval.
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 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.	Facilities Planning Shall oversee compliance with design guidelines, LRDP policies, and LRDP EIR.	Project design and review process	Confirm and document during design approval.
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.	**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.	Facilities Planning Shall oversee compliance with design guidelines, LRDP policies, and LRDP EIR.	Project design and review process	Confirm and document during design approval.
	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).	Facilities Planning Shall oversee compliance with design guidelines, LRDP policies, and LRDP EIR.	Project design and review process	Confirm and document during design approval.
	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.	Facilities Planning Shall oversee compliance with design guidelines, LRDP policies, and LRDP EIR.	Project design and review process	Confirm and document during design approval.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
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.	**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.	See individual components below.		
	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.	PD&C Shall include applicable air emission and dust control standards in contractor specifications and will monitor / inspect project sites.	-Contract specifications prior to project bidding process. -other measures during construction period for all applicable projects under 2006 LRDP.	Record in contract specifications; project managers / inspectors shall periodically conduct physical monitoring at project sites during construction period for all subsequent projects and document results in project file.
	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.			

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
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.	PD&C Shall include applicable air emission and dust control standards in contractor specifications and will monitor / inspect project sites.	-Contract specifications prior to project bidding process. -other measures during construction period for all applicable projects under 2006 LRDP.	Record in contract specifications; project managers / inspectors shall periodically conduct physical monitoring at project sites during construction period for all subsequent projects and document results in project file.
	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.	PD&C Shall include applicable air emission and dust control standards in contractor specifications and will monitor / inspect project sites.	-Contract specifications prior to project bidding process. -other measures during construction period for all applicable projects under 2006 LRDP.	Record in contract specifications; project managers / inspectors shall periodically conduct physical monitoring at project sites during construction period for all subsequent projects and document results in project file.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
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. • For all construction projects of more than 10 days' duration, LBNL shall designate and have on-site during construction a qualified air quality manager to oversee the implementation of construction air quality mitigation measures. Alternatively, LBNL may direct the construction contractor(s) to employ and have on site a construction air quality manager acceptable to LBNL.	PD&C Shall include applicable air emission and dust control standards in contractor specifications and will monitor / inspect project sites.	-Contract specifications prior to project bidding process. -other measures during construction period for all applicable projects under 2006 LRDP.	Record in contract specifications; project managers / inspectors shall periodically conduct physical monitoring at project sites during construction period for all subsequent projects and document results in project file.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Air Quality (cont.)				
AQ-1 (cont.)	• Idling time of diesel powered construction equipment shall be limited to three minutes. • All diesel engines used by LBNL construction contractor(s) at the site, or for on-road hauling of construction material, shall be post-1996 models. • On-site power shall be used to minimize reliance on portable generators. • Offer incentives to encourage construction workers to carpool or employ other means of transportation. The incentives shall include, but are not necessarily limited to, preferential onsite parking and substantial assistance with transportation costs (gas cards, FasTrak toll passes, public transit passes, etc.); charging for parking as a disincentive shall also be explored. • All construction diesel engines, which have a rating of 100 hp or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless certified by the on-site construction air quality manager that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road equipment larger than 100 hp, that equipment shall be outfitted with a Tier 1 engine. In the event a Tier 1 engine is not available for any off-road equipment larger than 100 hp, that equipment shall be outfitted with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers or the on-site construction air quality manager that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is “not practical” if, among other reasons: (1) There is no available soot filter that has been certified by either the California Air Resources Board or U.S. Environmental Protection Agency for the engine in question; or			

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Air Quality (cont.)				
AQ-1 (cont.)	(2) The construction equipment is intended to be on-site for ten (10) days or less. The use of a soot filter may be terminated immediately if one of the following conditions exists, provided that LBNL is informed within one (1) working day of the termination: (1) The use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in backpressure. (2) The soot filter is causing or is reasonably expected to cause significant engine damage. (3) The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public. (4) Any other seriously detrimental cause which has the approval of LBNL prior to the termination being implemented. Relief may be granted from this requirement if the construction air quality manager can demonstrate to LBNL that a good faith effort has been made to comply with this requirement and that compliance is not possible. • Include the specifications in this measure in the construction bid documents and contracts.			
AQ-4: Implementation of the proposed 2006 LRDP would expose people to toxic air contaminants.	**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.	PD&C Shall plan, design, and implement projects such as PS-1, and is also in charge of implementing equipment modification in consultation with EH&S.	Prior to construction of parking structure PS-1 or similarly configured building.	Approval process for PS-1 or similarly configured building shall include implementation plan for this measure. Considered complete upon documentation of modification of rain cap on generator near Building 90.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Air Quality (cont.)				
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 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.	See below for TRANS-1c.		
Biological Resources				
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.	**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 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, 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.	Facilities Planning Shall engage a qualified wetlands biologist or other qualified professional to conduct an initial survey and prepare a report on the findings thereof.	Project design and review process	Document in project file at project approval

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
BIO-2 (cont.)	**BIO-2b:** Any unavoidable loss of jurisdictional waters shall be compensated for through the development and implementation of a project-specific Wetlands Mitigation Plan.	Facilities Planning Where applicable, to provide project-specific Wetlands Mitigation Plan in coordination with LBNL EH&S and relevant regulatory and overseeing agencies.	During project design and review process and environmental review and approval process.	-Successful completion as required to secure necessary agency permits -Mitigation Plan measures will be inspected, where applicable, during and after implementation of subsequent projects. Results will be documented in project file.
	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,	Facilities Planning Mitigation Plan to applicable regulatory agencies for review and approval.	During project design and review process and environmental review and approval process.	Considered complete upon approval by applicable regulatory agencies of the Wetlands Mitigation Plan and submittal of documentation to these agencies of successful implementation of Plan and completion of monitoring for the agency-prescribed period.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
BIO-2 (cont.)	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. 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.	PD&C Shall schedule construction projects accordingly, when feasible.	Project design and review process, and during construction for all projects under 2006 LRDP.	Considered complete upon documentation of construction scheduling.
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.	**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 EIR 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.	Facilities Planning Where construction is scheduled during breeding season (February 1 through July 31), shall engage a qualified wildlife biologist to conduct pre-construction survey(s) and identify appropriate treatment in accordance with the procedures delineated here for Pre-Construction Special-Status Avian Surveys and Subsequent Actions. The wildlife biologist shall prepare a report upon the completion of surveys (if no nets of special-status birds are present or nests are inactive or potential habitat is unoccupied) or upon completion of construction activity that could disturb special-status birds that are present. The biologist shall have the authority to initiate protective action in accordance with the procedures described herein.	Prior to construction for all applicable projects under 2006 LRDP.	Considered complete upon receipt by LBNL of biologist's final report.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
BIO-3 **(cont.)**	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: 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.			

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
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.	**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 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:	Facilities Planning Where construction is scheduled during breeding season (February 1 through July 31), shall engage a qualified wildlife biologist to conduct pre-construction survey(s) and identify appropriate treatment in accordance with the procedures delineated here for Pre-Construction Special-	Prior to construction for all applicable projects under 2006 LRDP.	Considered complete upon receipt by LBNL of biologist's final report.
	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).	Status Bat Surveys and Subsequent Actions. The wildlife biologist shall prepare a report upon the completion of surveys (if no nets of special- status birds are present or nests are inactive or potential habitat is unoccupied) or upon completion of construction activity that could disturb special-status birds that are present. The biologist shall have the authority to initiate protective action in accordance with the procedures described herein.		

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
BIO-4: (cont.)	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. 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.	**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.	Facilities Planning Where whipsnake(s) are found, shall engage a biologist qualified to relocate whipsnakes. The biologist shall prepare a report regarding any relocation.	When (and if) Alameda whipsnakes were found during construction projects under 2006 LRDP.	Considered complete upon receipt by LBNL of biologist's final report.
	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.	Facilities Planning Where applicable, shall engage a biologist qualified to survey for whipsnakes. The biologist shall prepare a report regarding any relocation.	Prior to the start of construction of applicable projects under the 2006 LRDP.	Considered complete upon receipt by LBNL of biologist's final report.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
BIO-5 (cont.)	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.			
	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	Facilities Planning Where applicable, shall engage a monitor trained to survey for the presence of Alameda whipsnakes. If warranted, a biologist shall prepare a report regarding any relocation.	During construction of applicable projects under the 2006 LRDP.	Considered complete after construction and/or upon receipt by LBNL of biologist's final report.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
BIO-5 (cont.)	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.	Facilities Planning Where applicable, shall engage a qualified trainer to instruct work crews who may encounter whipsnakes.	Prior to the start of construction of applicable projects under 2006 LRDP.	Considered complete upon receipt by LBNL of trainer's documentation.
	BIO-5e: Hours of operation and speed limits shall be instituted and posted. 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.	PD&C Where applicable, shall instruct construction crews regarding construction hours and speed limits, and shall document violations.	Prior to and during construction activities of applicable projects.	Considered complete upon completion of each project and documentation by LBNL Project Manager of construction crew compliance.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
BIO-5 (cont.)	**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.	PD&C Shall oversee project site vegetation management and laydown activities.	Prior to and during construction activities of applicable projects.	Considered complete upon documentation by Project Manager.
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	Facilities Planning -Where applicable, shall engage a qualified plant biologist to conduct an initial floristic survey. The biologist shall prepare a report documenting the survey findings. -Shall engage a qualified plant biologist to conduct site-specific surveys of development sites prior to the start of construction and of vegetation management areas where the potential for special-status plants is documented in the initial survey. -Shall engage a qualified plant biologist to conduct directed studies every five years.	-Baseline survey at beginning of 2006 LRDP period. -Site specific surveys during project design and environmental review process. -Periodic surveys every five years in April / June beginning five years after initial baseline survey.	Considered complete upon receipt by LBNL of survey(s).

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
BIO-6 (cont.)	Space areas where ongoing vegetation management (i.e., active vegetation removal to minimize potential wildland fire 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.	Facilities Planning Where special-status plants are found at development sites, shall	When applicable, based on surveys detailed in BIO-6a.	When applicable, considered complete upon receipt by LBNL of final transplantation and monitoring report.
	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	engage a qualified plant biologist or other professional to undertake transplantation. This professional shall prepare a report upon the completion of such activities and any required monitoring.		

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Biological Resources (cont.)				
BIO-6 (cont.)	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.			
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.	**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.	Facilities Planning In the event that historical resource(s) are proposed for demolition, shall engage a qualified historical consultant and shall initiate consultation with the SHPO.	When applicable, prior to the start of any demolition or other physical alteration of the resource.	Considered complete upon completion of MOA.
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.	**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.	Facilities Planning Upon discovery of archaeological resource(s), shall promptly engage a qualified archaeologist, who shall inspect the resource(s), identify appropriate treatment, and prepare a report.	When applicable during construction, excavation, or ground disturbance.	When applicable, considered complete upon receipt by LBNL of archaeologist's final report.
CUL-4: Implementation of the proposed 2006 LRDP could disturb human remains, including those interred outside of formal cemeteries.	**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:	Facilities Planning Upon discovery of human skeletal remains, shall promptly report findings as directed by this measure.	When applicable, upon discovery.	Considered complete upon contact with coroner and, where applicable, with Native American Heritage Commission and/or most likely descendent.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Cultural Resources (cont.)				
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.			

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Geology and Soils				
GEO-1: Future construction projects within the Alquist-Priolo Zone could expose people or structures to surface fault rupture.	**GEO-1:** Seismic emergency response and evacuation plans for LBNL 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.	EH&S Shall prepare plans.	Prior to project approval of new 2006 LRDP projects.	Documented in Project file and in Berkeley Lab emergency plans. Information will be shared with City of Berkeley / City of Berkeley Fire Department.
GEO-2: Implementation of the LRDP would expose people and structures to seismic hazards such as groundshaking and earthquake-induced landsliding.	**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 EIR 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	PD&C Shall engage a qualified geotechnical engineering consultant and shall follow the recommendations of the consultant's reports in implementing all subsequent projects.	During project design phase, and prior to the start of excavation or other construction activities for all applicable projects.	Considered complete upon construction in compliance with consultant's report for each subsequent project.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Geology and Soils (cont.)				
GEO-2 (cont.)	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.			
GEO-3: Implementation of the LRDP would result in construction on soils that could be subject to erosion and instability.	**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.	PD&C Shall prepare and implement construction BMPs and erosion control plans.	During project design phase, and prior to the start of excavation or other construction activities for all applicable projects.	Considered complete upon documentation of compliance with erosion-control best management practices.
	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.	PD&C	Following ground-disturbing activities for all applicable projects.	Considered complete upon completion of revegetation for all subsequent projects.
Hazards and Hazardous Materials				
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.	**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. In addition, LBNL prepares an annual Site Environmental Report that describes the environmental activities noted above. Implementation of this measure would ensure that the information in the LBNL Self-Assessment and Site Environmental Reports continues to be collected, reviewed, and provided.	EH&S	Annually	Documented in annual reports throughout the lifetime of the 2006 LRDP.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Hazards and Hazardous Materials (cont.)				
GEO-2 (cont.)	**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.	EH&S	Prior to shipping hazardous materials.	Verification of DOE Order 435.1 throughout the lifetime of the 2006 LRDP.
	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.	EH&S	Prior to shipping of hazardous waste.	Throughout the lifetime of the 2006 LRDP.
	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	EH&S	Annually, or as appropriate.	Throughout the lifetime of the 2006 LRDP.
	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. • 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.	EH&S	As appropriate.	Throughout the lifetime of the 2006 LRDP.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Hazards and Hazardous Materials (cont.)				
HAZ-3 (cont.)	**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.	EH&S	Annually.	Throughout the lifetime of the 2006 LRDP.
HAZ-4: Implementation of the LRDP would involve the handling of hazardous materials and wastes within one-quarter mile of an existing school.	See Mitigation Measures HAZ-3a through HAZ-3f, above.	See above for HAZ-3a and 3f.	As appropriate.	See above for HAZ-3a and 3f.
Noise				
NOISE-1: Development under the proposed LRDP would result in temporary noise impacts related to construction and demolition activities.	**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:	PD&C shall include required noise control standards in contractor specifications, and shall include implementation of noise control measures in project planning, as applicable. LBNL shall	-Contractor specifications prior to project bidding process. -Planning prior to final project approval. -Monitoring during project construction period.	Throughout the lifetime of the 2006 LRDP, and specifically, during construction period for all subsequent projects. Considered complete upon
	• 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).	conduct period physical monitoring for violations.		documentation of compliance in project file for each subsequent project.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Noise (cont.)				
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	PD&C Shall engage a qualified noise consultant, consistent with this mitigation measure. Where applicable, LBNL shall implement the consultant's recommended noise reduction measures and, if recommended, conduct noise monitoring. The consultant shall prepare a report stating, as applicable, that no measures are required, that measures have been implemented and will reduce noise sufficiently, or that measures have been implemented and the results monitored during demolition and/or construction.	Prior to the start of demolition or construction activities on all subsequent development projects.	Considered complete upon receipt by LBNL of consultant's report and implementation, if applicable, of recommended noise control measures.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Noise (cont.)				
NOISE-1 (cont.)	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. • 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-4: Continued operation of the LBNL hill site facility would result in a long-term increase in ambient noise levels.	**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	PD&C Shall direct architects, mechanical engineers, and other design professionals to ensure that new buildings and facilities employ maximum feasible noise controls for mechanical equipment.	During the design of all subsequent projects.	Considered complete upon documentation of implementation of maximum feasible noise controls in building mechanical equipment.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Noise (cont.)				
NOISE-4 (cont.)	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.			
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.	See above for NOISE-1a and 1b.	See above for NOISE-1a and 1b.	See above for NOISE-1a and 1b.
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. 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. 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	Facilities Planning In conjunction with the City of Berkeley and UC Berkeley, shall prepare additional studies through TDM Plan process and continue to monitor intersection level of service. Upon a determination that the signal warrant is met, the three entities would work to implement installation of a traffic signal and/or undertake alternative mitigation strategies.	-Additional studies will begin following finalization of TDM Plan. -Additional mitigation will be implemented, as warranted, under the TDM Plan process.	Throughout the lifetime of the 2006 LRDP, at least until such time as the signal warrant is met. Considered complete upon signal installation or upon installation of alternative mitigation strategies.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Transportation/Traffic (cont.)				
TRANS-1 (cont.)	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-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. 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	Facilities Planning In conjunction with the City of Berkeley and UC Berkeley, shall monitor intersection level of service. Upon a determination that the signal warrant is met, the three entities would work to implement installation of a traffic signal and/or undertake alternative mitigation strategies.	-Additional studies will begin following finalization of TDM Plan. -Additional mitigation will be implemented, as warranted, under the TDM Plan process.	Throughout the lifetime of the 2006 LRDP, at least until such time as the signal warrant is met. Considered complete upon signal installation or upon installation of alternative mitigation strategies.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Transportation/Traffic (cont.)				
TRANS-1 (cont.)	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-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	Facilities Planning Shall prepare an annual report on the implementation of its Transportation Demand Management Program.	Annual reporting throughout the lifetime of the 2006 LRDP.	Reports shall be made available to the City of Berkeley and Public via Lab's website. The report may be prepared in conjunction with ongoing LBNL reporting activities.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Transportation/Traffic (cont.)				
TRANS-1 (cont.)	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 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			

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Transportation/Traffic (cont.)				
TRANS-1 (cont.)	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-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.	Facilities Planning Shall prepare an annual report on the implementation of its Transportation Demand Management Program.	Annual reporting throughout the lifetime of the 2006 LRDP.	Reports shall be made available to the City of Berkeley and Public via Lab's website. The report may be prepared in conjunction with ongoing LBNL reporting activities.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Transportation/Traffic (cont.)				
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 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.	See above under TRANS-1a.	See above under TRANS-1a.	See above under TRANS-1a.

MITIGATION MONITORING AND REPORTING PROGRAM (Continued)

Significant Impact	Mitigation Measure	Monitoring Responsibility / Action Notes	Mitigation Timing	Monitoring Schedule / Reporting Procedure
Utilities, Service Systems, and Energy				
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.	**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.	PD&C Shall develop appropriate engineering solutions for new east canyon projects, in consultation with the City of Berkeley and UC Berkeley, as applicable.	-Engineering solutions planning prior to approval of east canyon projects that would affect constrained subbasin. -Construction / implementation of engineering solutions complete in time to avoid significant impact to constrained subbasin.	After mitigation is triggered by East Canyon projects, LBNL shall prepare a report on the progress made in accommodating additional wastewater flows of new east canyon projects and shall submit this report to the City of Berkeley and make it publicly available on the Lab's website. The report may be prepared in conjunction with ongoing LBNL reporting activities..
UTILS-4: On-site construction due to development proposed under the 2006 LDRP would generate construction waste and debris.	**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.	PD&C In coordination with EH&S, shall develop plans to minimize the amount of construction and demolition debris sent to landfills	Annually, if applicable, and throughout the lifetime of the 2006 LRDP.	LBNL shall report on its progress in implementing this measure as part of ongoing LBNL reporting activities.

APPENDICES

A. Revised EIR Hydrology and Water Quality Section (Section IV.G)
B. Revised Draft Transportation Demand Management Program (Appendix F)

APPENDIX A

Revised EIR Hydrology and Water Quality Section (Section IV.G)

IV.G. Hydrology and Water Quality

IV.G.1 Introduction

This section discusses existing surface water and groundwater conditions at LBNL and analyzes the potential for the project to alter drainage patterns, increase stormwater runoff rates, adversely affect ground or surface water quality, or decrease groundwater recharge rates to an extent that the groundwater table is lowered. These factors were analyzed based on existing conditions within the Strawberry Creek Watershed and at the site, the extent and nature of proposed development, and future operation of the proposed facilities.

IV.G.2 Setting

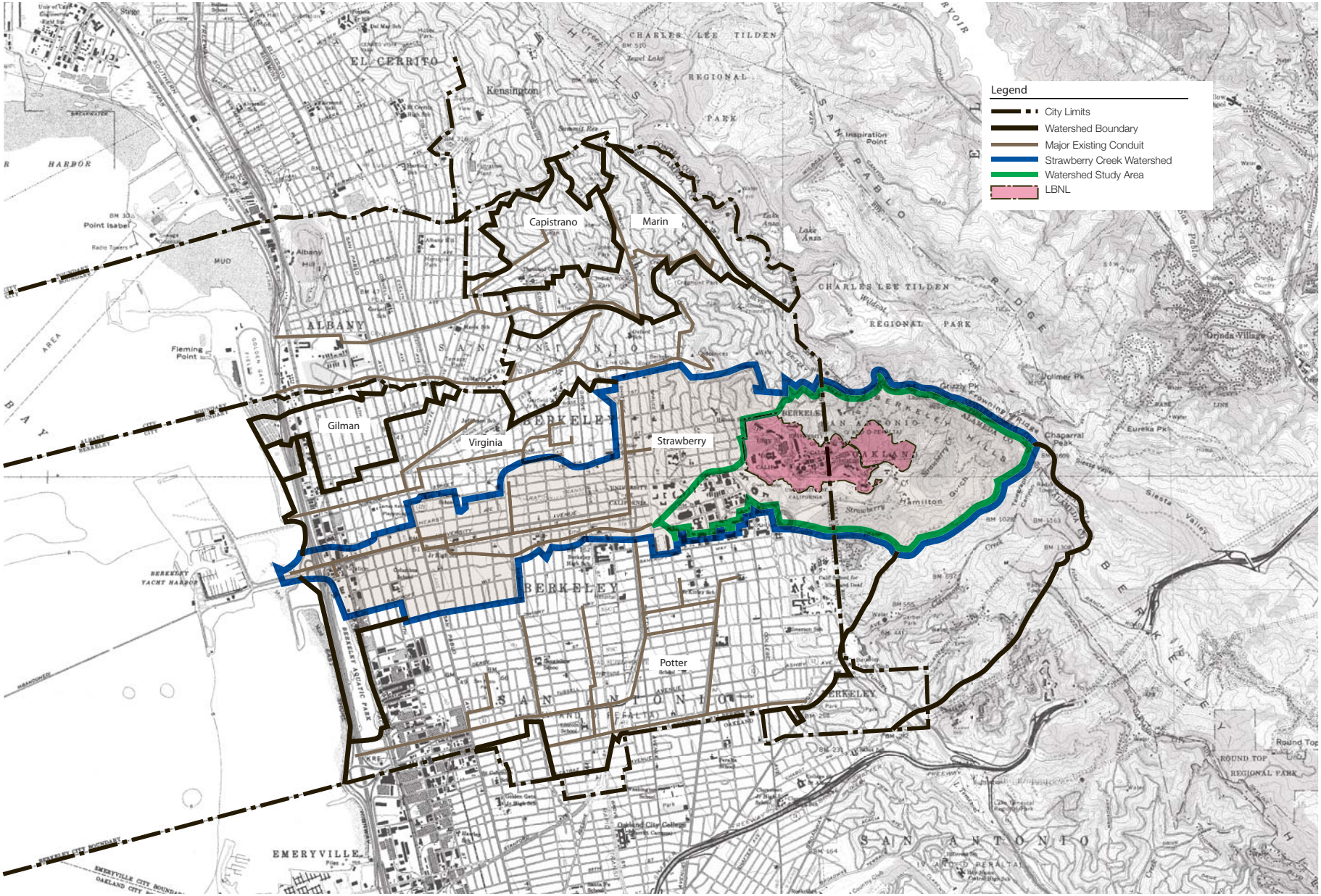
IV.G.2.1 Hydrologic Setting

Surface Water

LBNL is situated within Blackberry and Strawberry Canyons in the East Bay hills, with the vast majority of the site lying within the Strawberry Creek Watershed, as shown in Figure IV.G-1. This watershed has been modified since Native American times, when the area was regularly burned. It was subsequently grazed by animals of Spanish and Mexican settlers, and later farmed and used for dairy production by the Anglo settlers who followed. Beginning in the mid-19th century, the watershed was exploited as a water supply source in order to allow the growth of what has become the City of Berkeley. Thus historical development has resulted in alteration to hydrologic flow patterns and rates within the watershed (UC Berkeley, 1987).

The entire Strawberry Creek Watershed, from the East Bay hills to the San Francisco Bay, is approximately 2,066 acres in size. Berkeley Lab occupies 202 acres or about 10 percent of the total watershed. Traversing from east to west, there are four distinct levels of physical development evident: minimal development (hill area), light development (LBNL area), medium development (UC Berkeley campus), and heavy development (City of Berkeley).

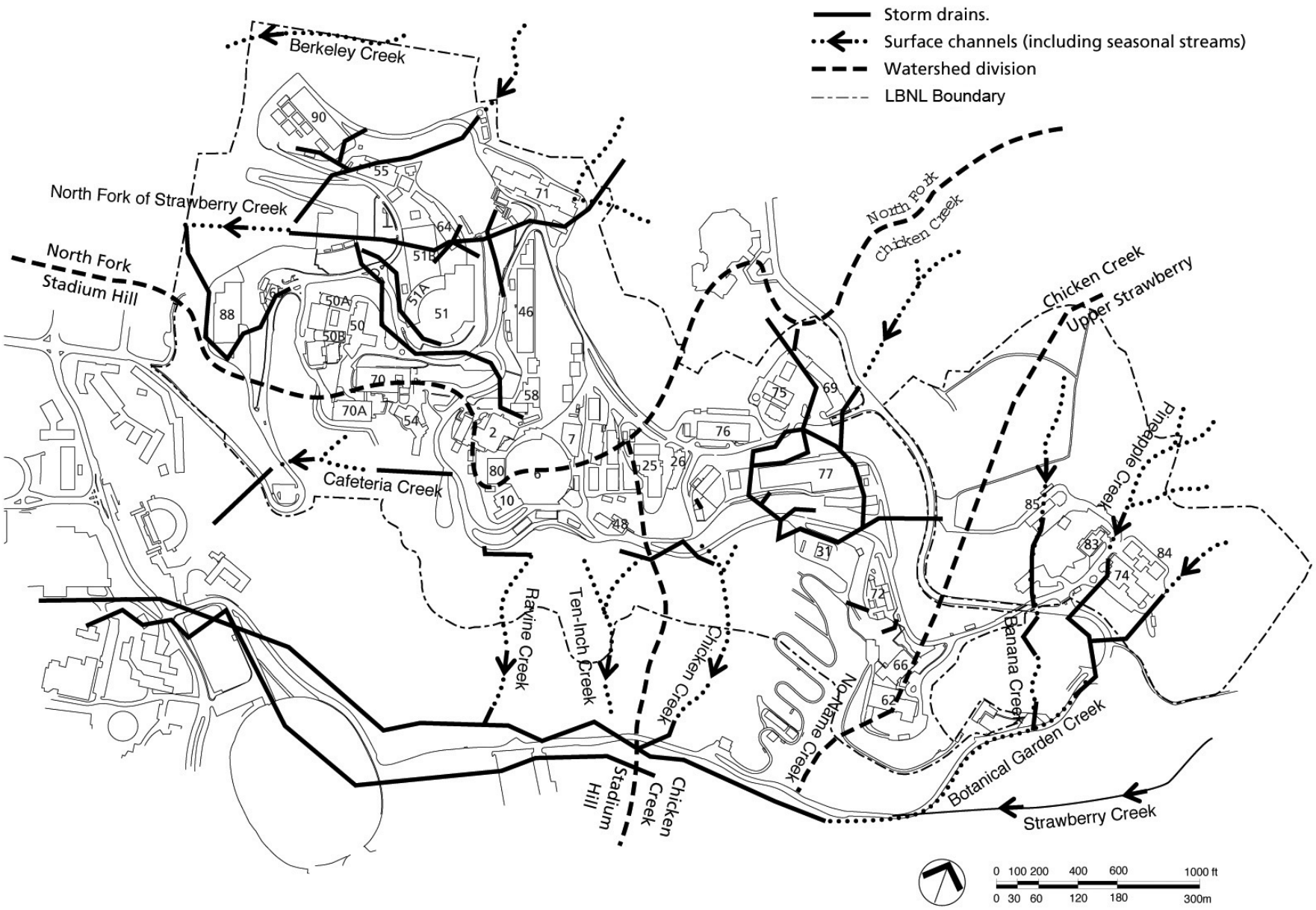
As depicted in Figure IV.G-2, the northwest portion of the LBNL site drains to the North Fork of Strawberry Creek, while the majority of LBNL drains to the South Fork of Strawberry Creek. Most of the contributing drainages are not formally named, but are commonly referred to by local residents and in LBNL publications with names that are used in this document for purposes of identification. The total watershed area of the Strawberry Creek North and South Forks pertinent to LBNL is 878 acres. Of this area, LBNL occupies and manages 202 acres, with the remaining 675 acres managed by UC, City of Berkeley, or City of Oakland. The extreme northwest corner of the Laboratory, approximately 2 acres, lies within the Lincoln/Schoolhouse Creek Watershed; however, this flow was diverted by the City of Berkeley and now also discharges into the North Fork of Strawberry Creek.



SOURCE: Lawrence Berkeley National Laboratory (2006)

LBNL 2006 Long Range Development Plan . 201074

Figure IV.G-1
Strawberry Creek Watershed



SOURCE: Lawrence Berkeley National Laboratory (2003)

LBNL 2006 Long Range Development Plan . 201074

Figure IV.G-2
Stormwater Drainage

In addition to the 202 acres of Lab runoff, LBNL must also manage "run-on" flow from 186 acres uphill and east of the Lab as shown on Figure IV.G-3. These acres are primarily undeveloped University-owned research and ecological study area land, University-owned institutional development, such as the Lawrence Hall of Science, and some Berkeley residential area. This water enters the LBNL storm drain system at six distinct locations. Because of the very steep terrain and areas involved, energy dissipators and other controls have been installed to mitigate peak flows onto the LBNL site.

The North Fork begins in the Campus Hill Area near the Lawrence Hall of Science and flows west, crossing LBNL and exiting the Lab site at the bottom of Blackberry Canyon north of Building 65. The North Fork then passes through a series of check dams and settlement basins before entering a 60-inch culvert above LeConte Avenue in the City of Berkeley and then re-emerges as a surface stream on the UC Berkeley campus. The North Fork is a perennial creek and is partially supplied by hydrauger flows.[15] A few tributary drainages contribute to the North Fork, including Cafeteria Creek, an intermittent stream that is also partially supplied by hydrauger flows. The other contributing drainages are unnamed ephemeral streams.[16] The North Fork watershed contains 53 acres of developed area (of which 35 acres are within LBNL) and 117 acres of undeveloped area (of which 56 acres are within LBNL).

The South Fork of Strawberry Creek begins in the eastern end of Strawberry Canyon and flows west, through a ~~retention~~ detention basin above the Haas Pool complex ("mid-canyon ~~retention~~ detention basin"), and is then diverted through 36-inch and 48-inch diameter concrete pipes before re-emerging as a surface stream in the eastern portion of the UC Berkeley campus. Along the way, several tributary drainages contribute to flows in the South Fork. Above the mid-canyon ~~retention~~ detention basin, contributing subdrainages include Hamilton Creek (a perennial stream), Pineapple and Banana creeks (both ephemeral streams), and a few other unnamed ephemeral creeks. Below the mid-canyon ~~retention~~ detention basin, contributing subdrainages include "No Name" Creek (an intermittent stream), Chicken Creek (a perennial stream), Ten-Inch Creek and Ravine Creek (both ephemeral streams), and a few other unnamed ephemeral creeks.

The three sub-watersheds along the South Fork to which LBNL contributes are shown on Figure IV.G-4 and consist of Upper Strawberry Creek (508 acres), Chicken Creek (63 acres), and Stadium Hill (67 acres), for a total of 638 acres. A fourth sub-watershed, Panoramic (70 acres), is located on the south side of the canyon across from LBNL, and does not receive any runoff from LBNL (Huffman Broadway Group, Inc., 2004).

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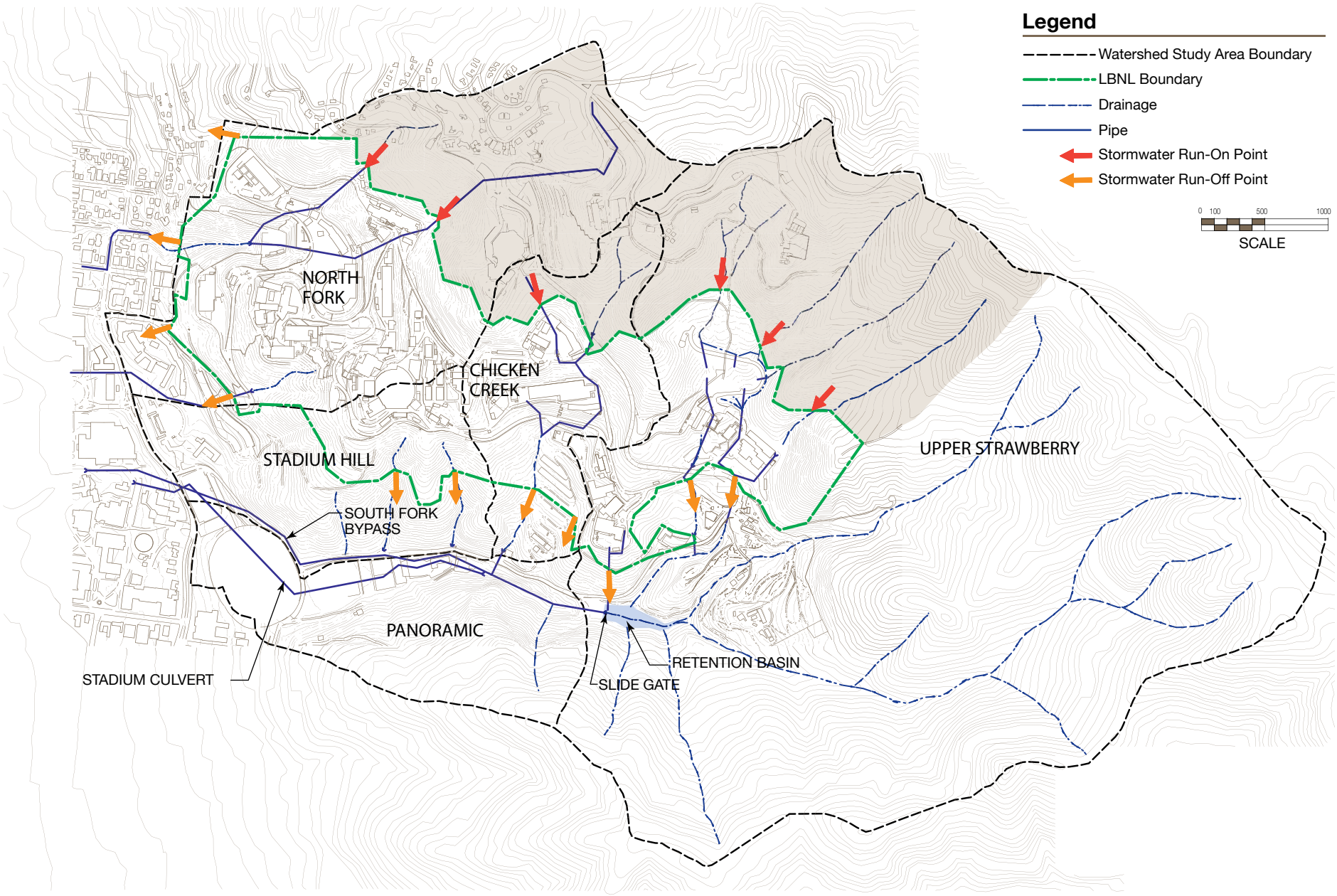
15 Hydraugers are horizontal drain pipes inserted into the hillside to draw off groundwater, some of which otherwise would eventually reach the natural drainage channels and which could, if not drained through by means of the hydraugers, result in slope instability where excessive moisture builds up in the soil.

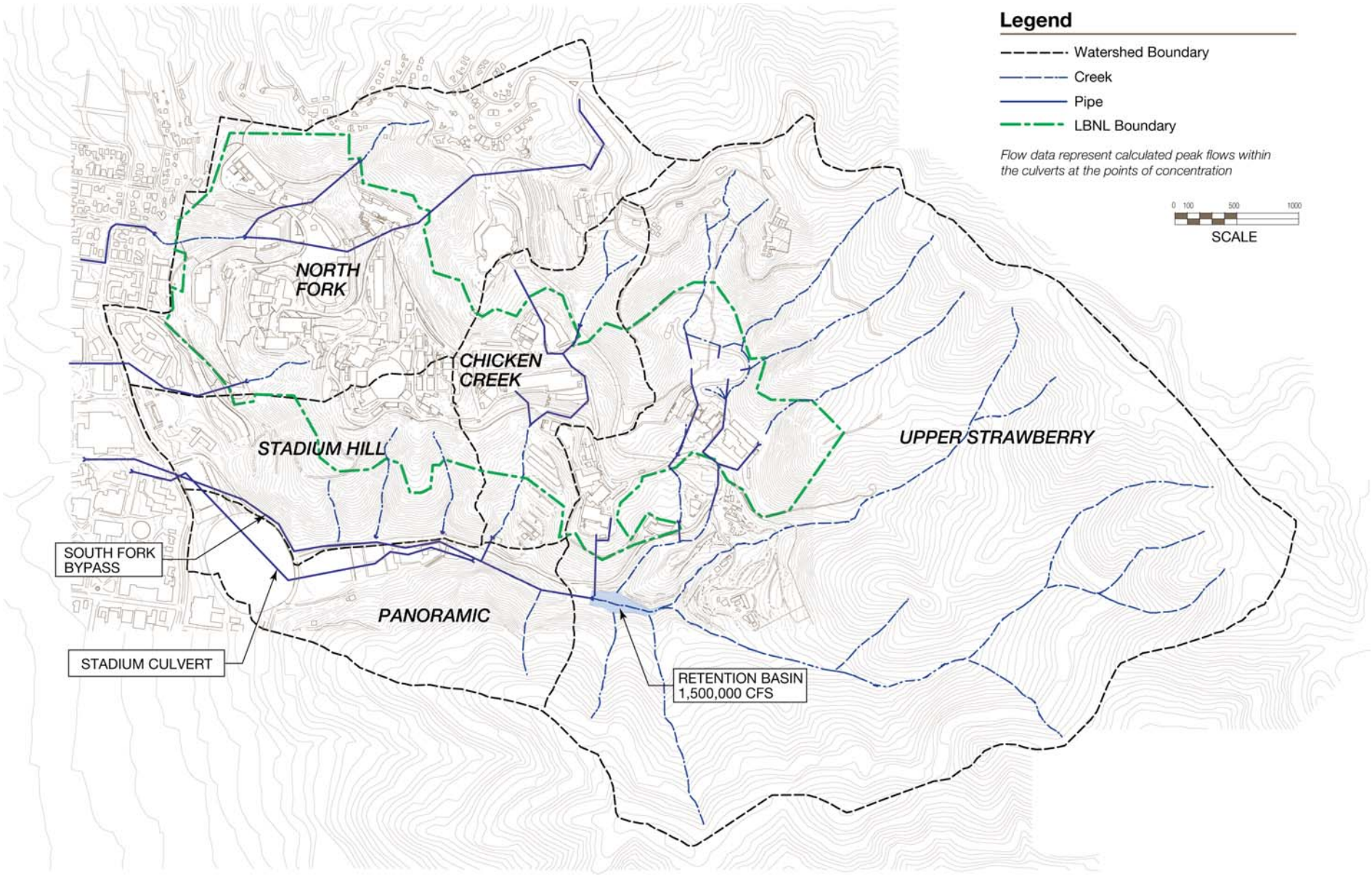
16 An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Runoff from rainfall is the primary source of water for stream flow, and groundwater is not a source of water for the stream. An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow. A perennial stream has flowing water year-round during a typical year. Groundwater is the primary source and runoff from rainfall is a supplemental source of water for stream flow.



SOURCE: Lawrence Berkeley National Laboratory (2006)

LBNL 2006 Long Range Development Plan . 201074

Figure IV.G-3
Runoff from and Run-on to LBNL Site



SOURCE: Lawrence Berkeley National Laboratory (2003)

Figure IV.G-4
Strawberry Canyon Subwatersheds

The South Fork watershed consists of largely undeveloped, steeply sloped canyons and hillsides. Developed areas are generally confined to the residential areas and University property on the ridges and plateaus above the LBNL site, plus roads, the University's Botanical Garden, and LBNL itself. Within the watershed, there are 76 acres of developed area and 632 acres of undeveloped areas. Thirty-two acres of this developed area and 78 acres of this undeveloped area are within LBNL.

Surface waters and piped flows from development above the Laboratory run through the site. After leaving LBNL property within Strawberry Canyon, the majority of stream flow and surface runoff in the South Fork of Strawberry Creek is routed through a mid-canyon ~~retention~~ detention basin on University of California land, above the Haas Pool complex in the Upper Strawberry Creek sub-watershed. This ~~retention~~ detention basin is located at an elevation of approximately 600 feet and has an estimated flood storage capacity of 11 million gallons (1.5 million cubic feet) although the original design capacity has likely been reduced by siltation and vegetation growth (Kuntz, 2004). Surface water releases from the mid-canyon ~~retention~~ detention basin are remotely controlled by a hydraulically operated gate, thereby controlling flow rates downstream consistent with the design parameters of the storm drainage systems of UC Berkeley and the City of Berkeley. A substantial portion of the flow from LBNL's eastern area is captured by this ~~retention~~ detention basin prior to its further progress onto the UC Berkeley campus.

After flowing above ground for a short distance on campus the North and South Forks of Strawberry Creek converge on the western side of the UC Berkeley campus, east of Oxford Street, where they flow through an on-campus Federal Emergency Management Agency (FEMA)-designated 100 year flood plain area. ~~into one of three on-campus natural retention basins. These natural retention basins are (1) the West Circle Retention Area (North Fork flows only), (2) the Eucalyptus Grove Retention Area, and (3) the Oxford Inlet Retention Area. They perform important retention and flow moderation roles, and have prevented flooding on numerous occasions. Upon leaving the basins,~~ Flow is then diverted underground through the Oxford Culvert and remains underground until it ultimately reaches the San Francisco Bay, except for a short daylighted stretch in West Berkeley. Surface water flows from LBNL and the larger Strawberry Creek Watershed are ~~ultimately~~ discharged into San Francisco Bay south of the Berkeley Marina at the terminus of the storm drainage system that conveys Strawberry Creek through the City of Berkeley (LBNL, 2002).

Groundwater

Groundwater depths at LBNL vary from zero to approximately 100 feet below ground surface, usually depending on the season. Locally "perched"[17] groundwater and seeps are present. Groundwater flow patterns generally reflect site topography, with groundwater underlying the northwestern portion of the site flowing to the west, while groundwater elsewhere generally flows to the south. Flow velocities vary between approximately 0.003 feet per year to 990 feet per year (LBNL, 2005).

[17] "Perched" groundwater refers to water that sits atop an impermeable layer (rock, clay, etc.) at a lesser depth below grade than is representative of the overall groundwater table.

Historic development at LBNL has included the installation of hydraugers to facilitate hillside drainage and minimize saturation of steep slopes. Groundwater collected in hydraugers is subsequently directed into LBNL's storm drain system, with the exception of groundwater collected in areas surrounding Buildings 6, 7, 46, and 51, where contamination affecting groundwater quality has been found (LBNL, 2001). Flows from hydraugers in these areas are treated and the water is subsequently discharged to the sanitary sewer system, under a wastewater discharge permit from the East Bay Municipal Utility District (EBMUD).

Groundwater in the vicinity of LBNL is controlled by faults, subsurface geologic stratigraphy, and bedrock fractures. Groundwater flow through bedrock is typically characterized by fracture flow that has slow recharge and yield, while groundwater flow in the drainages is unconfined and fluctuates with seasonal precipitation. The soils that underlie the site allow for rapid to very rapid runoff, as discussed in Section IV.E, Geology and Soils, of this document.

LBNL is located above the East Bay Plain, an alluvial aquifer that supplies groundwater for municipal and industrial use. However, there are no production wells at Berkeley Lab, and LBNL and surrounding communities receive their water from EBMUD. The shallow soils located on steep slopes that exist across the majority of LBNL permit rapid runoff and likely do not allow for substantial levels of groundwater recharge to occur.

IV.G.2.2 Topographic Setting

Topographic elevations at LBNL range from approximately 450 to 1,100 feet above mean sea level (amsl). Although slope elevations generally decrease towards the west and south, a series of three main canyons and ridgelines results in a complex, varied topographic profile across the site. Approximately 60 percent of LBNL is located on slopes of greater than 25 percent.

IV.G.2.3 Flooding

The San Francisco Bay Area has a Mediterranean climate with cool, wet winters and warm, dry summers. LBNL receives approximately 30 inches of precipitation annually, 90 percent of which occurs in November through April (LBNL, 2002). The project site does not lie within the 100-year flood plain as determined by Federal Emergency Management Agency (FEMA) flood hazard mapping (ESRI-FEMA, 2004). There are no impounded water bodies upstream from the project site, and therefore flooding associated with failure of a dam is not anticipated to affect the site.[18]

Most of the existing storm drainage system at LBNL is sized to handle flows from a 100-year storm event (LBNL, 2002) based on a storm intensity of 2.95 inches of precipitation per hour. Future improvements to the storm drain system will continue to provide this 100-year storm capacity.

[18] Potential impacts to the project site associated with flooding from seiches or tsunamis are analyzed as seismic hazards in Section IV.E, Geology and Soils, of this document, and were determined to be remote.

There are existing capacity constraints at the Oxford Culvert that pose a risk of flooding on Strawberry Creek "for downtown Berkeley, immediately west of Oxford Street, and to portions of the central UC Berkeley campus. The North Fork of Strawberry Creek in particular is subject to flash flood conditions in periods of intense rainfall" (City of Berkeley, 2001).

The UC Berkeley campus area just upstream (east) of the Oxford inlet is shown on FEMA maps as being in the 100-year floodplain. This campus floodplain ~~area functions as a retention basin to~~ tends to naturally buffer flash storms and periods of heavy runoff when the capacity of the Oxford Street inlet is exceeded or the inlet becomes blocked by debris.

Since completion of the 11-million-gallon mid-canyon ~~retention~~ detention basin in Strawberry Creek and other improvements, through a range of usual storms, including El Nino events, there has been no recorded flooding from this inlet attributable to flow volume alone. Flooding onto city streets can, however, result when tree branches block the flow or other debris temporarily reroutes the surface channels. In 1995, such an event caused the creek to overtop its banks near the Oxford Street culvert and flow onto Oxford Street (UC Berkeley, 2004).

The mid-canyon ~~retention~~ detention basin was constructed to include an overflow flume; when water levels in the ~~retention~~ detention basin reach elevations of 594 feet, water is diverted onto Centennial Road. A rise in water levels sufficient to result in redirection to the overflow flume can be caused by several factors, including debris plugging the slide gate that controls releases from the basin, inadequate ~~poor~~ management of ~~the slide~~ this gate ~~that controls releases from the basin, plugging of the gate by debris~~, and storm events that generate a peak flow that exceeds the capacity of the system. During a 1997 storm, the gate was either plugged or closed too far, resulting in excessive water levels in the ~~retention~~ detention basin. The overflow flume is partially controlled by other wooden gates that allow access to Haas Pool complex. These gates were left open during the 1997 storm, and overflow water from the basin was directed into swimming pools rather than Centennial Drive (Kuntz, 2004). Improvements were subsequently made to the basin, and the gate control mechanism was relocated to a more accessible location after this event.

Minimization of stormwater runoff is one of the goals of the Alameda Countywide Municipal National Pollutant Discharge Elimination System (NPDES) Stormwater Permit. LBNL takes this goal into consideration in the design of new facilities, roads, and buildings, and to the extent possible considering topography and geology, minimizes impervious surfaces to reduce the rate of runoff using accepted design guidelines and best management practices (BMP), as described below.

IV.G.2.4 Water Quality

Within LBNL, the major potential sources of stormwater pollutants are motor vehicles and earthwork operations during construction. LBNL has had a stormwater management program in place since 1992. This program consists of a Storm Water Pollution Prevention Plan (SWPPP), plus periodic monitoring, inspecting, and reporting. More on this program is presented in the Regulatory Environment section that follows. Past releases of hazardous materials used at LBNL,

not necessarily directly related to stormwater runoff, have affected groundwater underlying the project site, as discussed in Section IV.F, Hazards and Hazardous Materials, of this document.

Regionally, stormwater runoff is estimated to contribute more heavy metals to San Francisco Bay than direct municipal and industrial discharges do, as well as significant amounts of motor oil, paints, chemicals, debris, grease, and detergents. Runoff in storm drains may also include pesticides and herbicides from lawn care products and bacteria from animal waste. Most stormwater runoff flows untreated into creeks, lakes, and the bay. As point sources of pollution have been brought under control, the regulatory focus has shifted to nonpoint sources,[19] particularly urban runoff.

In 1987, UC Berkeley initiated a comprehensive study of Strawberry Creek (UC Berkeley, 1987). The study began as a water quality management plan, which was later expanded to urban creek and riparian habitat preservation and restoration. An update to the Strawberry Creek Management Plan is being developed by UC Berkeley to reflect progress resulting from program implementation and to expand the scope to address the Strawberry Creek Watershed as a functional eco-hydrological unit.

IV.G.2.5 Regulatory Environment

Regulations exist at both the state and federal levels for the control of surface water quality in California. The major federal legislation governing the water quality aspects of the project is the Clean Water Act. The objective of the Clean Water Act is “to restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” The State of California’s Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California. The State Water Resources Control Board (SWRCB) administers water rights, water pollution control, and water quality functions throughout the state, while the various Regional Water Quality Control Boards (RWQCBs) conduct planning, permitting, and enforcement activities.

State and Regional Water Quality Control Boards

The primary responsibility for the protection and enhancement of water quality in California has been assigned by the California legislature to the SWRCB and the nine RWQCBs. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for the implementation of state and federal laws and regulations. The RWQCBs adopt and implement water quality control plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems.

[19] Point-source pollution is defined as pollution from industrial and sewage treatment plants. Nonpoint-source pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. Nonpoint-source pollution is caused by rainfall moving over and through the ground. As the runoff moves, it picks up and carries away natural and man-made pollutants, ultimately depositing them into lakes, rivers, wetlands, coastal waters, and even underground sources of drinking water.

The project area lies within the jurisdiction of the San Francisco Bay RWQCB, which has adopted the Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) to implement plans, policies, and provisions for water quality management. Beneficial uses of surface waters within the San Francisco Bay Region are described in the Basin Plan and are designated for major surface waters and their tributaries. Beneficial uses of the Central San Francisco Bay include ocean, commercial, and sport fishing, estuarine habitat, industrial service supply, fish migration, fish spawning, navigation, rare and endangered species preservation, recreation, shellfish harvesting, and wildlife habitat. None of the surface water bodies at LBNL, such as Strawberry Creek, has any designated beneficial uses in the Basin Plan.

Both the SWRCB and U.S. Environmental Protection Agency (EPA) Region IX have been in the process of developing new water quality objectives and numeric criteria for toxic pollutants for California surface waters since 1994, when a state court overturned the SWRCB's water control plans containing water quality criteria for priority toxic pollutants. The EPA's draft California Toxics Rule (CTR) was published in the August 5, 1997, Federal Register [62 FR 42159], with the Final Rule promulgated on May 18, 2000. The proposed criteria largely reflected the existing criteria contained in the EPA's 304(a) Gold Book (WQ Criteria 1986) and its National Toxics Rule adopted in December 1992 [57 Federal Register 60848], and those of earlier state plans (the *Inland Surface Waters Plan* and the *Enclosed Bays and Estuaries Plan* of April 1991, since rescinded). With promulgation of the Final CTR, these federal criteria are legally applicable in the State of California for inland surface waters including creeks at LBNL and enclosed bays and estuaries for all purposes and programs under the Clean Water Act.

Total Maximum Daily Load (TMDL) – Section 303(d) of the Clean Water Act

California has identified waters that are polluted and need further attention to support their beneficial uses. These water bodies are listed pursuant to Clean Water Act Section 303(d). Specifically, Section 303(d) requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). Approximately 500 water bodies or segments have been listed in California. Once the water body or segment is listed, the state is required to establish "Total Maximum Daily Load," or TMDL, for the pollutant causing the conditions of impairment. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating water quality standards. Listing of a water body as impaired does not necessarily suggest that the pollutants are at levels considered hazardous to humans or aquatic life or that the water body segment cannot support the beneficial uses. The intent of the 303(d) list is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for continued water quality degradation.

In accordance with Section 303(d) of the Water Code, the San Francisco Bay RWQCB has identified impaired water bodies within its jurisdiction and the pollutant or stressor impairing water quality, and prioritized the urgency for developing a TMDL. While San Francisco Bay is included on the Section 303(d) list, Strawberry Creek is not. <u>However, the RWQCB has found that Bay Area urban creeks do not consistently meet the Basin Plan's narrative water quality objectives pertaining to toxicity. In response, the RWQCB has adopted a Basin Plan amendment</u>

that establishes a water quality attainment strategy and TMDL to reduce diazinon and pesticide-related toxicity in urban creeks (RWQCB, 2005).[20] The amendment specifies a concentration target of 100 nanograms per liter (as a one-hour average) as well as generic pesticide-related toxicity targets to comply with the applicable water quality objectives established to protect and support beneficial uses. Pollutants or stressors identified on the Section 303(d) list for Central San Francisco Bay include chlordane, dichlorodiphenyltrichloroethane (DDT), diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, non-dioxin-like polychlorinated biphenyls (PCBs), PCBs (dioxin-like), and selenium.

A TMDL has been established for San Francisco Bay for mercury, and the RWQCB is working on TMDLs for the Bay for PCBs, pesticides, and selenium, as well as a revision to the mercury TMDL. ~~The RWQCB has also adopted a TMDL for pesticide toxicity in urban creeks. (TMDLs are also being developed for other water bodies, such as the Napa River, Guadalupe River, and Sonoma Creek.)~~ Although it is not anticipated that any future TMDLs would affect LBNL, due to lack of discharge of such substances, LBNL will comply with applicable regulations.

Construction Activity Permitting

The San Francisco Bay RWQCB monitors and enforces the NPDES stormwater permitting for the region. The SWRCB administers the NPDES Permit Program through its General NPDES Permit. Construction activities of one acre or more are subject to the permitting requirements of the NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (General Construction Permit). The project sponsor must submit a Notice of Intent to the SWRCB in order to be covered by the General Permit prior to the beginning of construction. The General Construction Permit requires the preparation and implementation of a SWPPP, which must be prepared before construction begins. Components of SWPPPs typically include specifications for BMPs to be implemented during project construction for the purpose of minimizing the discharge of pollutants in stormwater from the construction area. In addition, a SWPPP includes measures to minimize the amount of pollutants in runoff after construction is completed, and identifies a plan to inspect and maintain project BMPs and facilities at the end of the construction project. This plan includes information regarding how the SWPPP was met.

Alameda County

In Alameda County, stormwater discharge from 17 participating agencies and cities, including the City of Berkeley, which ultimately receives runoff generated from within LBNL, is regulated by the Alameda Countywide Clean Water Program (ACCWP) under an NPDES permit issued by the San Francisco Bay RWQCB. The ACCWP has prepared and issued a 2001-2008 Stormwater Management Plan intended to reduce the discharge of pollutants in stormwater to the maximum extent possible and to effectively prohibit non-stormwater discharges into municipal storm drain systems and waterways. The Stormwater Management Plan includes a number of management practices and control techniques to reduce the discharge of pollutants in stormwater in Alameda

[20] The TMDL has been adopted by the RWQCB, but will need to be approved by the SWRCB, Office of Administrative Law, and then the U.S. EPA. The Basin Plan amendment will become effective upon U.S. EPA approval.

County and addresses municipal government activities, new development controls, and stormwater treatment. The San Francisco Bay RWQCB renewed ACCWP's NPDES Permit on February 19, 2003 (SFBRWQCB, 2003). This permit renewal included revising Provision C.3 to require on-site treatment and storage of stormwater runoff for development projects that fall under certain use and size characteristics. As noted below under Local Plans and Policies, LBNL is generally exempt from local regulations but seeks to cooperate with local jurisdictions to reduce any physical consequences of potential land use to the extent feasible. For example, LBNL voluntarily makes an effort to comply with the provisions of the ACCWP NPDES permit that are above and beyond its own permit requirements so as to not negatively affect downstream entities.

LBNL Regulatory Compliance

LBNL's Storm Water Pollution Prevention Plan

Stormwater within the LBNL site is currently managed in conformance with the Statewide NPDES General Permit for Stormwater Discharges Associated with Industrial Activity (General Industrial Permit). Oversight and enforcement of this permit is provided by the San Francisco Bay RWQCB ~~and the City of Berkeley~~. Implementation of the permit requirements is detailed in LBNL's SWPPP (LBNL, 2006) and Stormwater Monitoring Plan (LBNL, 2006). Additionally, LBNL complies with NPDES requirements associated with construction projects that involve one acre or more by applying for coverage under the State General Construction NPDES Permit. All post-construction activities at any project site comply with the General Industrial Permit.

LBNL's SWPPP describes best management practices used to protect stormwater quality. BMPs have been in place since the first general permit was issued by the state in 1992, and are regularly updated. Additionally, a master specification incorporating stormwater management among other environmental, health, and safety concerns is part of contract specifications on all construction projects undertaken by the site. LBNL manages stormwater to address issues such as natural debris and silt migration, slope stability and associated siltation issues, channel cutting and erosion, flow energy dissipation, run-on flow, and runoff retention, as described in more detail below.

LBNL's SWPPP lists potential sources of stormwater contaminants, including a comprehensive list of hazardous substances, chemicals, or other contaminants used throughout the facility. LBNL has implemented multiple source controls (such as containment systems for leak and spill control and maintenance of storm drains and streets to remove organic material and dirt) and management controls (such as preventive maintenance of equipment and the development of spill prevention and response programs) in order to minimize stormwater pollutants. However, treatment controls (such as oil-water separators and infiltration basins) have in the past generally not been used due to the effectiveness of source and management control measures (LBNL, 2002). Water quality samples are collected in accordance with LBNL's SWMP during the wet season, to demonstrate the effectiveness of LBNL's SWPPP and compliance with NPDES requirements (LBNL, 2001).

Stormwater Management

LBNL manages stormwater flows originating from sources upstream of the site and from within the site through engineering controls and management practices. Examples of engineering design features used to control surface water flow include:

- Primary debris interceptors. Structural steel tubes, evenly spaced and embedded in concrete across drainage channels, which remove heavy, floating items such as logs, limbs, stumps, and brush from storm runoff entering the LBNL site from upstream portions of the drainage. Primary debris interceptors prevent blockage of the storm system entrance and potential flooding; as debris collects on the interceptors, these features also function as local seasonal check dams by storing, slowing, and further dissipating energy of larger storm flows.

- Secondary debris interceptors. Heavy vertical grids of rebar spaced more closely together than primary debris interceptors to filter out smaller debris, constructed downstream from primary interceptors to further manage flows originating upstream of the site as they enter LBNL. Fiber rolls and similar instruments are typically placed seasonally at the secondary interceptors to help filter out suspended soil particles from runoff and act as smaller check dams, silting pools, and energy dissipaters.

- Rip-rap. Sharp-edged cobblestone typically placed at all entrances and outfall points in the storm drain system. Rip-rap is frequently cemented together and both dissipates energy and protects slopes and channels.

- Wing walls and head walls. Concrete walls used where open-channel flow enters a piping system to protect embankment and channel walls from erosion. Steel grates on the inlet structure also filter debris which may have bypassed the primary or secondary debris interceptors.

- Concrete v-ditches. Channels used in all earthwork projects along the tops of cut slopes and at intermediate benches on the face of the slope. V-ditches intercept surface runoff to keep the slope face from eroding and channeling.

- Jute mesh. Jute mesh installed on all slopes exposed by construction or grading activities on slopes steeper than 2:1 to prevent erosion until hydroseeding and/or ground cover is well established.[21] Mesh is pinned to the slope with long metal staples and typically reinforces the emerging grasslands for up to 7 years. Fiber rolls are staked at regular intervals across the faces of slopes to slow down and filter surface runoff.

- Down drains. Pipes that convey water down the face of slopes from a collection point at the top of the slope to a lower elevation at a stable outfall point to prevent erosion and damage to the slope face.

- Impervious, semi-pervious and pervious pavements, curbs, berms, and water dispersal systems. Surfaces that convey and control storm runoff to prevent runoff from eroding otherwise unprotected surfaces or from flowing down unprotected slopes.

LBNL's stormwater management practices would be instituted as feasible under LBNL's *Construction Standards and Design Requirements* and would include:

[21] LBNL hydroseeds with a mixture of native grasses and forbs.

- Stormwater flow management. Construction projects would be designed so that post-development runoff volumes would approximate pre-project runoff volumes, regardless of the areal size of the project. ~~Management and physical channeling maximize use of the mid-canyon retention basin for both flow originating from development and lands above the site and flow generated within LBNL in order to minimize both localized and downstream impacts from storms.~~

- General planning. Opportunities to reduce stormwater flow impacts and further improve water quality are integrated into LBNL's overall planning. For example, to minimize impervious surface area per vehicle, LBNL encourages alternative transportation modes to further reduce parking needs and improve LBNL's Transportation Demand Management performance and shifts parking to lots (as opposed to roadside parking). Parking lots and structures can integrate oil/water separators and other best management practices, allowing for better management of off-site flows.

- Project siting and design. Evaluation of the quantity and quality of stormwater runoff is integrated into site planning and design so stormwater flows can be effectively managed. Residual increased flows from new impervious surfaces are ameliorated through project-related BMPs ~~and use of the UC retention/management system~~. (Refer to BMPs under Impact HYDRO-1.)

- Landscape management. To improve slope stability and reduce erosion, LBNL's landscape management program improves the long-term health of tree stands and encourages native plants.

- Slope stabilization. Slope stabilization measures such as hydraugers and native vegetation reduce general sediment release and erosion and minimize slumps and resulting erosion and sediment production.

- Seasonal controls. Seasonal stormwater runoff controls, such as jute netting and fiber rolls, are installed to reduce sediment release and runoff along road edges and in the landscape. These are maintained by LBNL.

- Construction project controls. Active management of construction-related stormwater flows from development sites is a standard part of contract specifications on all construction projects undertaken by LBNL. Construction projects employ control measures and are monitored by LBNL to manage stormwater flows and potential discharge of pollutants.

- Elimination of all cross-connections. Labeling of stormwater inlets and minimization of sewer system infiltration have been undertaken to maintain clean stormwater flows and discharges to the appropriate water system.

- Publicizing program information. LBNL's annual Site Environmental Report is available to the public and provides an overview of recent actions and sampling results. LBNL's daily newsletter is another forum to make employees aware of stormwater issues. LBNL also submits a stormwater annual report to the San Francisco Bay RWQCB and makes its SWPPP and SWMP available to the public.

- Engagement with the community. LBNL communicates with the community regarding Strawberry Creek water quality and coordinates with relevant UC Berkeley staff and management personnel on stormwater issues.

- Pollution prevention. LBNL actively promotes pollution prevention and good housekeeping for its Facilities Division operation and maintenance activities, and provides water quality training to Facilities personnel who regularly observe large portions of the site or operate equipment that may potentially discharge liquid. LBNL cleans stormwater inlets prior to the winter storm season and utilizes concrete clean-out basins, responds to any spill of oil, gasoline, or hazardous materials, and applies other, similar BMPs on an ongoing basis. An annual general site inspection ensures the effectiveness of these efforts. LBNL also maintains a Spill Prevention, Control, and Countermeasure (SPCC) plan that covers petroleum-containing tanks.

- Oil–water separators. These are used where an extra measure of protection is advisable, and will continue to be deployed where they can be used effectively.

- Permits. As noted above, LBNL obtained a sitewide stormwater permit at the inception of the NPDES program in 1992. It also obtains construction permits when appropriate. LBNL's program is based on appropriate BMPs, and plans are periodically updated to reflect evolving knowledge, regulations, and practices in this field. These measures, which are meant to reduce the quantity and improve the quality of stormwater runoff, consist of:

  – Public education and outreach on stormwater impacts;
  – Public involvement and participation;
  – Illicit discharge detection and elimination;
  – Pollution prevention/good housekeeping for facilities operation and maintenance;
  – Construction site stormwater runoff control; and
  – Post-construction stormwater management in new development and redevelopment.

A more complete guide to LBNL's stormwater management measures can be found in the Lab's Storm Water Pollution Prevention Plan, which is posted on the internet at the following website: http://www.lbl.gov/ehs/esg/tableforreports/tableforreports.htm.

The Berkeley Lab site falls within the Strawberry Creek watershed. UC Berkeley is the other large property owner in this watershed. To coordinate stormwater management efforts for this watershed and in anticipation of regulatory changes in the State Water Resources Control Board's permitting program, Berkeley Lab has expanded its practices to reflect the Continuing Best Practices of UC Berkeley as cited in its 2020 LRDP EIR. These expanded Berkeley Lab practices include:

- During the design review process and construction phase, LBNL will verify that the proposed project complies with all applicable requirements and BMPs **(reflecting UCB Continuing Best Practice HYD-1-a)**

- LBNL will implement an urban runoff management program containing the BMPs included in the Strawberry Creek Management Plan. LBNL will also continue to comply with its NPDES stormwater permitting requirements by implementing appropriate construction and post construction control measures and BMPs required by project-specific SWPPPs. Stormwater Pollution Prevention Plans would be prepared as required by regulation to prevent discharge of pollutants and to minimize sedimentation and the

transport of soils resulting from construction-related activities **(reflecting UCB Continuing Best Practice HYD-1-b)**

- Landscaped areas of development sites will be designed to absorb runoff from rooftops and walkways where feasible. LBNL will ensure that open or porous paving systems be included in project designs wherever feasible, to minimize impervious surfaces and absorb runoff. "Feasibility" is based on site constraints such as topography, slope steepness and stability, soil type and permeability **(reflecting UCB Continuing Best Practice HYD-2-c)**

- To accommodate existing runoff, LBNL will continue to maintain and clean its storm drain system **(reflecting UCB Continuing Best Practice HYD-4-a)**

- Development that encroaches on creek channels and riparian zones will be restricted. Creek channels will be preserved and enhanced, where feasible. An undisturbed buffer zone will be maintained between proposed LRDP projects and creek channels **(reflecting UCB Continuing Best Practice HYD-4-c)**

- LBNL will manage runoff into storm drain systems such that the aggregate effect of projects implementing the LRDP is to approximate pre-project runoff volumes **(reflecting UCB Continuing Best Practice HYD-4-e)**

- Any project proposed, with potential to alter drainage patterns, will be accompanied by a hydrologic modification analysis. Such an analysis will then incorporate a plan to prevent increases of flow from the newly developed site, preventing downstream flooding and substantial siltation and erosion **(reflecting UCB LRDP Mitigation Measure HYD-5)**

IV.G.2.6 Local Plans and Policies

LBNL is a federal facility operated by the University of California and conducting work within the University's mission on land that is owned or controlled by The Regents of the University of California. As such, LBNL is generally exempted by the federal and state constitutions from compliance with local land use regulations, including general plans and zoning. However, LBNL seeks to cooperate with local jurisdictions to reduce any physical consequences of potential land use conflicts to the extent feasible. The western part of the LBNL site is within the Berkeley city limits, and the eastern part is within the Oakland city limits. This section summarizes relevant policies in the Berkeley and Oakland general plans.

Berkeley General Plan

Berkeley General Plan policies pertaining to hydrology and water quality relevant to implementation of the LBNL LRDP include the following:

> Policy EM-23 Water Quality in Creeks and San Francisco Bay: Take action to improve water quality in creeks and San Francisco Bay.

Actions:

D) Restore a healthy freshwater supply to creeks and the Bay by eliminating conditions that pollute rainwater, and by reducing impervious surfaces and encouraging use of swales, cisterns, and other devices that increase infiltration of water and replenishment of underground water supplies that nourish creeks.

F) Encourage the maintenance and restoration of creeks and wetlands and appropriate planting to cleanse soil, water, and air of toxins.

Policy EM-24 Sewers and Storm Sewers: Protect and improve water quality by improving the citywide sewer system.

E) Ensure that new development pays its fair share of improvements to the storm sewerage system necessary to accommodate increased flows from the development.

F) Coordinate storm sewer improvements with creek restoration projects.

Policy EM-25 Groundwater: Protect local groundwater by promoting enforcement of state water quality laws that ensure non-degradation and beneficial use of groundwater.

Policy EM-27 Creeks and Watershed Management: Whenever feasible, daylight creeks by removing culverts, underground pipes, and obstructions to fish and animal migrations.

Actions:

D) Restrict development on or adjacent to existing open creeks. When creeks are culverted, restrict construction over creeks and encourage design solutions that respect or emphasize the existence of the creek under the site.

F) Work in cooperation with adjoining jurisdictions to jointly undertake creek and wetland restoration projects, to improve water quality and wildlife habitat, to allow people to enjoy creeks as part of urban open space.

G) Regulate new development within 30 feet of an exposed streambed as required by the Creeks Ordinance and minimize impacts on water quality and ensure proper handling of stormwater runoff by requiring a careful review of any public or private development or improvement project proposed in water sensitive areas.

H) Consider amending the Creek Ordinance to restrict parking and driveways on tops of culverts and within 30 feet of creeks.

Policy S-27 New Development: Use development review to ensure that new development does not contribute to an increase in flood potential.

Actions:

C) Require new development to provide for appropriate levels of on-site retention or detention of stormwater.

D) Regulate development within 30 feet of an exposed streambed as required by the Preservation and Restoration of Natural Watercourses (Creeks) Ordinance.

Oakland General Plan

The Open Space, Conservation and Recreation Element of the Oakland General Plan, adopted in 1996, addresses the management of open land, natural resources, and parks in Oakland.

Open Space Objective OS-8 is "To conserve open space along Oakland's creeks, restoring the creeks where feasible and enhancing creek access on public lands." The following policies are relevant to the proposed project:

> Policy OS-8.2 Creek Daylighting: Support programs to restore or "daylight" sections of creek that have been culverted or buried in the storm drain system, provided that the following conditions exist: (1) broad-based community support for the project; (2) availability of financial resources for the project; and (3) no significant health, safety, flooding, or erosion hazards would result from the project. Place priority for daylighting on properties where additional opportunities for recreational access would be created.

Conservation Objective CO-5 is "To minimize the adverse effects of urbanization on Oakland's groundwater, creeks, lakes and nearshore waters." The following polices are relevant to the proposed project:

> Policy CO-5.2 Improvements to Groundwater Quality: Support efforts to improve groundwater quality, including the use of non-toxic herbicides and fertilizers, the enforcement of anti-litter laws, the clean-up of sites contaminated by toxics, and ongoing monitoring by the Alameda County Flood Control and Water Conservation District.
>
> Policy CO-5.3 Control of Urban Runoff: Employ a broad range of strategies, compatible with the Alameda Countywide Clean Water Program, to: (a) reduce water pollution associated with stormwater runoff; (b) reduce water pollution associated with hazardous spills, runoff from hazardous material areas, improper disposal of household hazardous wastes, illicit dumping, and marina "live-aboards"; and (c) improve water quality in Lake Merritt to enhance the lake's aesthetic, recreational, and ecological functions.

Conservation Objective CO-6 is "To protect the ecology and promote the beneficial uses of Oakland's creeks, lakes, and nearshore waters." The following polices are relevant to the proposed project:

> Policy CO-6.1 Creek Management: Protect Oakland's remaining natural creek segments by retaining creek vegetation, maintaining creek setbacks, and controlling bank erosion. Design future flood control projects to preserve the natural character of creeks and incorporate provisions for public access, including trails, where feasible. Strongly discourage projects that bury creeks or divert them into concrete channels.

IV.G.3 Impacts and Mitigation Measures

IV.G.3.1 Significance Criteria

The impact of LBNL projects on hydrology and water quality would be considered significant if it would exceed the following Standards of Significance, in accordance with Appendix G of the state CEQA Guidelines and the UC CEQA Handbook:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to

a level which would not support existing land uses or planned uses for which permits have been granted);

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Cause inundation by seiche, tsunami, or mudflow.

IV.G.3.2 Impact Assessment Methodology

Potential impacts were analyzed based on existing hydrology data and anticipated physical growth under the 2006 LRDP.

Due to site characteristics and the scope of the LRDP, significance criteria associated with placing of housing or other structures within a 100-year flood hazard zone are not relevant to the proposed project. As previously noted, LBNL is not located within a 100-year flood zone. As also previously discussed, LBNL's steep slopes, shallow bedrock, and thin soils presently inhibit significant groundwater recharge of the East Bay Plain, and therefore potential groundwater recharge and supply impacts associated with the project are not considered significant. Potential impacts associated with inundation by seiche or tsunami are not considered significant due to the elevation and location of LBNL relative to the Pacific Ocean and enclosed water bodies, as discussed in Section IV.E, Geology and Soils, of this document. There are no water supply wells on the LBNL main hill site.

If specific project differences from the presentation of the Illustrative Development Scenario and the 2006 LRDP EIR are such that the project is not within the scope of the LRDP EIR or the specific impact statements and mitigation measures do not cover the individual project pursuant to CEQA Guidelines Sections 15168(c)(2) and 15168(c)(5), then appropriate, project-specific CEQA analysis will be tiered from this 2006 LRDP EIR in accordance with CEQA Guidelines Section 15168(d)(1-3).

IV.G.3.3 2006 LRDP Principles, Strategies and LBNL Design Guidelines

2006 LRDP Principles and Strategies

The 2006 LRDP proposes fundamental principles that form the basis for the Plan's development strategies. The three principles most applicable to hydrology and water quality as related to new development are to "Preserve and enhance the environmental qualities of the site as a model of resource conservation and environmental stewardship"; "Build a safe, efficient, cost effective scientific infrastructure capable of long-term support of evolving scientific missions"; and "Build a more campus-like research environment."

Development strategies provided by the 2006 LRDP are intended to minimize potential environmental impacts that could result from implementation of the 2006 LRDP (see Chapter III, Project Description for further discussion, and see Appendix B for a full listing of principles, strategies and design guidelines). Development strategies set forth in the 2006 LRDP applicable to hydrology and water quality include the following:

- Protect and enhance the site's natural and visual resources, including native habitats, streams and mature tree stands by focusing future development primarily within the already developed areas of the site.
- Increase development densities within the most developed areas of the site to preserve open space, and enhance operational efficiencies and access.
- To the extent possible site new projects to replace existing outdated facilities and ensure the best use of limited land resources.
- To the extent possible site new projects adjacent to existing development where existing utility and access infrastructure may be utilized.
- Site and design new facilities in accordance with University of California energy efficiency and sustainability policies to reduce energy, water, and material consumption and provide improved occupant health, comfort, and productivity.
- Exhibit the best practices of modern sustainable development in new projects as a way to foster a greater appreciation of sustainable practices at the Laboratory.
- Improve efficiency and security of Laboratory access through improvements to existing gates and the creation of new gates.
- Reduce the percentage of parking spaces relative to the adjusted daily population.
- Consolidate parking into larger lots and/or parking structures, and locate these facilities near Laboratory entrances to reduce traffic within the main site.
- Remove parking from areas targeted for outdoor social spaces and service areas.
- Consolidate service functions wherever possible in the Corporation Yard.

- Utilize native, drought-tolerant plant materials to reduce water consumption; focus shade trees and ornamental plantings at special outdoor use areas.
- Minimize impervious surfaces to maintain or reduce storm water run-off and provide landscape elements and planting to stabilize slopes, reduce erosion and sedimentation.
- Maintain a safe and reliable utility infrastructure capable of sustaining the Laboratory's scientific endeavors.
- Design infrastructure improvements to embody sustainable practices.

LBNL Design Guidelines

The LBNL Design Guidelines were developed in parallel with the LRDP and are proposed to be adopted by the Lab following The Regents' consideration of the 2006 LRDP. The LBNL Design Guidelines provide specific guidelines for site planning, landscape and building design as a means to implement the LRDP's development principles as each new project is developed. Specific design guidelines are organized by a set of design objectives that essentially correspond to the strategies provided in the LRDP. The LBNL Design Guidelines provide the following specific planning and design guidance relevant to hydrology and water quality:

- Minimize impacts to disturbed slopes.
- Minimize further increases in impermeable surfaces at the Lab.
- Minimize visual and environmental impacts of new parking lots

IV.G.3.4 Construction[22] and Demolition Impacts

Impact 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)

Construction-related grading and other activities for all development under the LRDP would follow the Association of Bay Area Governments' (ABAG) Manual of Standards for Erosion and Sediment Control Measures (ABAG, 1995) and the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbook for Construction (CASQA, 2003a). In addition, construction would comply with LBNL's standard stormwater management practices and engineering controls, which require the control and minimization of stormwater pollutants originating from construction sites as a standard part of contract specifications. Disturbed areas would be landscaped and re-seeded at the earliest practical time during construction so that ground cover would be well-established by the next rainy season, as required by Mitigation Measures GEO-3a and GEO-3b, presented in Section IV.E, Geology and Soils. Landscaping would begin as soon as surface disturbances are completed for each relevant area. Implementation

22 For the purposes of this EIR, the term "construction," unless specifically indicated otherwise, includes activities that involve construction of new facilities, major rehabilitation or modification of existing facilities, and demolition of existing facilities.

of these measures is anticipated to effectively control sedimentation and pollutants in stormwater from construction sites that encompass less than one acre.

Individual projects constructed (or demolished) under the LRDP that involve one acre or more would require LBNL to apply for coverage under the State General Construction NPDES permit, and development of a project-specific SWPPP would therefore be required. As part of the SWPPP, a project-specific erosion control plan would be included in the project design process and implemented during construction to reduce short-term water quality impacts associated with construction. The SWPPP would include the use of BMPs to minimize stormwater pollution from sediments and construction-related contaminants. Such BMPs would include, as feasible:

- The covering of excavated materials.
- Installation of silt traps, fencing, and use of filter fabric as measures to control erosion and sedimentation and prevent such materials from entering surface water discharges.
- Truck and construction equipment maintenance and storage to minimize pollutants.
- Construction and hazardous materials storage.
- Housekeeping measures.
- Prohibition of cement truck washout to LBNL drains and surfaces.
- Oversight throughout construction by LBNL engineers and environmental specialists.

Compliance with NPDES permit requirements, which include creation of project-specific SWPPPs and, ultimately, implementation of BMPs that would minimize soil erosion and subsequent sedimentation of stormwater runoff or increased stormwater pollution associated with construction hazardous materials, as discussed above, and LBNL's standard stormwater management practices and engineering controls would ensure that potential adverse impacts to surface waters associated with construction under the LRDP would be less than significant.

Mitigation: None required.

Project Variant. The project variant would not result in any change in buildings or structures developed, and therefore impacts would be the same as those described for the proposed project.

Individual Future Projects/Illustrative Development Scenario. The Illustrative Development Scenario is a conceptual portrayal of potential development under the 2006 LRDP. Actual overall development that is approved and constructed pursuant to the 2006 LRDP would be less intense than portrayed in the scenario. The scenario was developed before the 2006 LRDP was reduced in scope in response to comments from the City of Berkeley, and thus the scenario includes an overall level of potential development that is greater than is being proposed in the 2006 LRDP. Each of the proposed buildings that is included in the scenario, however, might be constructed pursuant to the 2006 LRDP, and thus the scenario remains an appropriate and conservative basis for the evaluation of impacts to hydrology and water quality. For the reasons stated above, potential individual projects under the LRDP such as those identified in the Illustrative Development Scenario would not result in substantial effects with regard to soil erosion,

stormwater sedimentation, or construction-related pollution of stormwater, and the impacts of these specific projects would also be less than significant.

IV.G.3.5 Operations Impacts

Impact HYDRO-2: Implementation of the 2006 LRDP would adversely affect stormwater quality. (Less than Significant)

Urban runoff can carry a variety of pollutants, such as oil and grease, metals, sediment, and pesticide residues from roadways, parking lots, rooftops, and other surfaces, and deposit them in adjacent waterways. Pollutant concentrations in urban runoff are extremely variable and are dependent on storm intensity, land use, elapsed time between storms, and the volume of runoff generated in a given area that reaches a receiving water. The most critical time for urban runoff effects is in autumn under low flow conditions. Pollutant concentrations are typically highest during the first major rainfall event after the dry season, known as the "first flush."

The LRDP proposes to address transportation impacts through improvements for both private vehicles and alternate modes of transportation. The LRDP would add up to a net total of 500 employee parking spaces to the 2,300 existing parking spaces. To provide additional parking within the topographic constraints of LBNL, the LRDP anticipates that the majority of these new parking spaces would be sited in two parking structures as identified in the Illustrative Development Scenario. These parking structures would contain about 850 parking spaces, and would consolidate a substantial portion of existing roadside parking. New surface lots would consolidate other parking spaces currently located alongside Lab roadways. Increased surface parking areas could create new sources for collection of vehicle-related pollutants. Along with the incremental increase in pollutant loading from the creation of new impervious surfaces associated with general facility development, these parking areas could contribute to degradation of surface water quality by adversely affecting runoff leaving the site. However, because the LRDP anticipates that nearly 40 percent of all parking would be in multi-level parking structures, large areas of new parking would not be exposed to rainfall, and therefore the potential for additional contaminants entering stormwater runoff would be reduced, compared to existing conditions, under which all parking is exposed to the elements. Furthermore, LBNL will design appropriate stormwater control measures into projects to ensure that pre- and post-construction runoff volumes remain approximately the same.

Implementation of the 2006 LRDP would incrementally intensify urban uses at the site. The 2006 LRDP foresees an increase in the average daily population on the main site, which would affect LBNL's transportation facilities and services, and require the construction of new buildings

consistent with the mission of the Laboratory. Approximately 10 acres[23] of impervious surfaces would be added to the site.

Pollutant concentrations under the LRDP may increase due to the increase in vehicles, impervious surface area, and hazardous material use. To manage the amount of pollutants entering the storm drain system or surface water bodies at LBNL, and subsequently Strawberry Creek and the San Francisco Bay, the inclusion of control measures directed toward future development and facilities into LBNL's existing SWPPP and SWMP is part of the proposed project. In compliance with the provisions of the Clean Water Act, LBNL will implement relevant standards from the LBNL NPDES General Industrial Permit and associated SWPPP and SWMP, implement appropriate source control measures as recommended in the California Stormwater Best Management Practice Handbook for New Development and Redevelopment (CASQA, 2003b), and preserve existing pervious surfaces to the greatest extent practicable to minimize the amount of storm runoff, in accordance with the recommendations provided in the Bay Area Stormwater Management Agencies Association (BASMAA) *Start at the Source Design Guidance Manual for Stormwater Quality Protection* (BASMAA, 1999). In this way, LBNL is expected to comply with the Clean Water Act while still meeting the need for more usable space at the Lab.

Among the Objectives and Design Guidelines included in the 2006 LRDP are the following that would reduce potential hydrological impacts of development pursuant to the LRDP:

- To the extent possible, site new projects to replace existing outdated facilities and ensure the best use of limited land sources.
- Exhibit the best practices of modern sustainable development in new projects as a way to foster a greater appreciation of sustainable practices at the Laboratory.
- Consolidate parking into larger lots and/or parking structures; locate these facilities near Laboratory entrances to reduce traffic within the main site.
- Minimize impervious surfaces to reduce storm water run-off and provide landscape elements and planting to stabilize slopes and reduce erosion and sedimentation.

As noted, the proposed parking structures would result in less of a contribution to pollutant loading of stormwater runoff than a comparable amount of surface parking, as predominantly only rooftop parking would be exposed to rainfall, thereby reducing the potential for oil and grease from the covered areas to enter the watershed. In accordance with LBNL's stormwater engineering controls and management practices referenced above, and implemented in accordance with the LBNL *Construction Standards and Design Requirements*, runoff from parking structures built pursuant to the LRDP would be filtered as required to remove oil and grease prior to discharge. This can be accomplished through mechanical systems such as pre-manufactured oil-water separators or through natural processes such as bioswales and settlement ponds. Due to the steep terrain of the project site, bioswales or settlement ponds are not likely to

[23] A projection of approximately 10 acres of new impervious surface is calculated based on the aggregate increase of building, parking lot, and road surface area as posited under the Illustrative Development Scenario.

be practicable in many locations. Oil and sediment separators or absorbent filter systems would be designed and constructed to reduce water quality impacts from urban runoff. The performance of the filters would be monitored regularly to determine the effectiveness of the water treatment. In addition to treating pollutants originating from parking structures, LBNL would implement structural and treatment best management practices commonly used to reduce sediment and contaminant concentrations, including the use of grass strips, high infiltration substrates, and grassy swales to reduce runoff and provide initial stormwater filtration, and the use of retention basins to allow for infiltration and settling of sediments. These features would be included in proposed projects and implemented where practicable.

Compliance with LBNL's NPDES permit and associated SWPPP and SWMP, implementation of the LRDP design guidelines and development principles, and continued implementation of engineering controls and standard management practices would ensure that potential stormwater quality impacts associated with the LRDP are less than significant.

Mitigation: None required.

Project Variant. The project variant would not result in any change in buildings or structures developed, and therefore impacts would be the same as those described for the proposed project.

Individual Future Projects/Illustrative Development Scenario. The Illustrative Development Scenario is a conceptual portrayal of potential development under the 2006 LRDP. Actual overall development that is approved and constructed pursuant to the 2006 LRDP would be less intense than portrayed in the scenario. The scenario was developed before the 2006 LRDP was reduced in scope in response to comments from the City of Berkeley, and thus the scenario includes an overall level of potential development that is greater than is being proposed in the 2006 LRDP. Each of the proposed buildings that is included in the scenario, however, might be constructed pursuant to the 2006 LRDP, and thus the scenario remains an appropriate and conservative basis for the evaluation of impacts to hydrology and water. Potential individual projects under the LRDP such as those identified in the Illustrative Development Scenario would result in effects on stormwater quality that would be less than significant for the reasons stated above.

Impact 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)

Stormwater runoff from both LBNL and the UC Berkeley campus enter the City of Berkeley storm drain system at the western edge of the UC Berkeley campus, at Oxford Street. As detailed below, <u>any post-development runoff would approximate that of pre-development, resulting in essentially no net increase in this type of stormwater flow</u> ~~while growth under the 2006 LRDP would slightly increase the total volume of runoff from the LBNL site, there would be a less than proportional increase in stormwater runoff peak flows leaving the LBNL site and entering the~~

~~municipal storm drain system~~. Thus, impacts from increases in the quantity of stormwater runoff would be less than significant.

Projects at Berkeley Lab would be sited and designed so that stormwater flows could be effectively managed through (1) the use of BMPs at sites of new projects, (2) the use of BMPs at other locations on the Laboratory site, and (3) ~~the use of the mid-canyon retention basin to detain and control downstream releases of stormwater, and/or (4)~~ joint BMP projects with UC Berkeley. In addition, the Laboratory would continue to maintain, periodically replace, and upgrade portions of its stormwater management system under its maintenance and capital renewal programs. These siting and management considerations would be undertaken as part of LBNL's standard project site selection process and design review process. These considerations are an integral part of the LRDP and would be instituted, as appropriate, in *LBNL Construction Standards and Design Requirements.*

Implementation of the LRDP would add approximately 10 acres of impervious surfaces at LBNL, increasing the amount of impervious surface from 67 to 77 acres across the 202-acre LBNL site. This increased impervious surface area would constitute about 1.1 percent of the 878-acre Strawberry Creek watershed pertinent to LBNL, and, without the implementation of BMPs, would ~~only~~ slightly increase peak flows by about 10 cfs, or about 0.6 percent, over the current estimated total of 1,686 cfs (Table IV.G-1) generated in this watershed during a 100-year storm event (Blair, 2006). ~~Berkeley Lab would work with UC Berkeley to ensure that the retention basin is routinely maintained to ensure that its retention capacity is maximized.~~

~~Four of these 10 new acres of impervious surfaces would be located within the Upper Strawberry Creek sub-watershed. Peak flows from these four acres would total about 4 cfs, and would flow to the 11-million-gallon mid-canyon retention basin described earlier. This retention basin, which has ample capacity to contain and gradually release the water retained there, can handle runoff up to and including that from a 100-year storm event. Even though the volume of water entering this basin would increase by 4 cfs during peak flow, the basin's unused capacity and relatively slow release of runoff water would mean that this increase would not exceed the capacity of the downstream municipal storm drainage system (Blair, 2006).~~

~~The remaining six acres of new impervious surfaces would be divided between the North Fork of Strawberry Creek (4.1 acres) and Chicken Creek (1.9 acres) sub-watersheds. The estimated additional runoff generated from these areas would increase peak flows by 6 cfs, an increase of about 0.4 percent over the current total from the 878-acre watershed pertinent to LBNL. Compared to the runoff from the entire 2,066-acre Strawberry Creek Watershed, this represents an increase of approximately 0.1 percent.~~ The Laboratory would offset this ~~already small~~ potential increase in peak flows through use of design policies and BMPs at the sites of new development and/or at other locations, required as part of the Lab's siting and design review processes and integral to the LRDP~~, which would retard peak flows and otherwise reduce their effects~~. Through the use of both LBNL and UC Berkeley-identified BMPs, LBNL is committed to ensuring that post-development runoff volumes approximate pre-project runoff volumes for all construction projects, regardless of project size. Depending on site-specific conditions, these

would include such things as innovative design elements, such as energy dissipaters, vegetated swales, and settlement basins, to minimize erosion; converting surfaces that presently are impervious to pervious surfaces~~; diverting runoff that presently does not go to the mid-canyon retention basin to that basin~~; and temporarily retaining a portion of rainfall at the project site or the immediate area for later, gradual release. These efforts would ensure that~~, as would be the case for increased peak flows from~~ stormwater flows from new development in all sub-watersheds in the Upper Strawberry Creek ~~sub-~~watershed~~, peak flows from new development in these sub-watersheds~~ would approximate pre-project conditions and, hence, would not exceed the capacity of the municipal storm drainage system.

TABLE IV.G-1
EXISTING AND PROJECTED FUTURE PEAK FLOWS GENERATED BY LBNL AND SURROUNDING PROPERTIES (CFS[1])

Sub-watershed	Existing Conditions Devel. Areas	Existing Conditions Undev. Areas	Existing Conditions Total	Project Increment	Future Total
Upper Strawberry	62	860	922	4	926
Chicken Creek	48	81	129	2	131
Panoramic	52	91	143	0	143
Stadium Hill	49	87	136	0	136
North Fork	149	207	356	4	360
Total	**360**	**1,326**	**1,686**	**10**	**1,696**

[1] cfs = cubic feet per second.

SOURCE: Kuntz, 2004; Blair, 2006.

As a result of the above measures, there would be no or negligible effects on erosion and downstream flooding, or other impacts to beneficial uses, and impacts would be less than significant.

Mitigation: None required.

Project Variant. The project variant would not result in any change in buildings or structures developed, and therefore impacts would be the same as those described for the proposed project.

Individual Future Projects/Illustrative Development Scenario. The Illustrative Development Scenario is a conceptual portrayal of potential development under the 2006 LRDP. Actual overall development that is approved and constructed pursuant to the 2006 LRDP would be less intense than portrayed in the scenario. The scenario was developed before the 2006 LRDP was reduced in scope in response to comments from the City of Berkeley, and thus the scenario includes an overall level of potential development that is greater than is being proposed in the 2006 LRDP. Each of the proposed buildings that is included in the scenario, however, might be constructed pursuant to the 2006 LRDP, and thus the scenario remains an appropriate and conservative basis for the evaluation of erosion impacts. For the reasons stated above, potential individual projects under the LRDP such as those identified in the Illustrative Development Scenario would result in

no or negligible effects on erosion and downstream flooding or other beneficial uses and the impacts would be less than significant.

IV.G.3.6 Cumulative Impacts

This analysis considers cumulative growth as represented by the implementation of the Berkeley and Oakland general plans (and thus includes growth anticipated by the City of Berkeley General Plan EIR), and implementation of the UC Berkeley 2020 LRDP (including the Southeast Campus Integrated Projects) along with implementation of the proposed LBNL 2006 LRDP. (Demolition of the Building 51 complex—housing the Bevatron accelerator—is analyzed as part of the 2006 LRDP because the buildings were in place when the EIR analyses were undertaken. Certification of the Building 51 (Bevatron) EIR and approval of the demolition project are anticipated to be considered in early 2007.) Additional projects currently underway at UC Berkeley, described in Section VI.C of this EIR, are also accounted for in the cumulative analysis.

The geographic context for this cumulative analysis is the Strawberry Creek Watershed. Because Strawberry Creek and its tributaries drain through LBNL, UC Berkeley, and the City of Berkeley, the analysis considers development in those areas and not exclusively at LBNL. This analysis evaluates whether the impacts of the proposed LRDP, together with the impacts of cumulative development, would result in a significant impact (based on the significance criteria on p. IV.G-18) and, if so, whether the contribution of the LRDP to this impact would be considerable. Both conditions must apply in order for the project's cumulative impacts to rise to the level of significance.

Impact 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)

Implementation of the LBNL LRDP and UC Berkeley LRDP would have similar programmatic level results, as both projects would be required to comply with NPDES permit regulations to minimize short-term and long-term degradation of stormwater runoff. Peak flows to the municipal storm drainage system that begins at Oxford Street would essentially remain unchanged ~~not increase significantly~~ as a result of the LBNL LRDP, relative to existing conditions. Therefore, any cumulative impacts would largely be the result of other development. The City of Berkeley General Plan indicates that no significant changes to roadways or the residential pattern in the Upper Strawberry Creek sub-watershed are anticipated. The UC Berkeley 2020 LRDP does not identify any specific projects to be developed on the UC Berkeley-managed lands in this upper watershed area. The UC Berkeley 2020 LRDP projects that approximately 100,000 gross square feet of multi-story building space might be constructed somewhere on UC Berkeley-managed lands in the hill area, but this plan notes that on-site stormwater management features will be incorporated so that there will be no increase in net stormwater runoff flows from the hill site. Similarly, the UC Berkeley LRDP notes that any further development by UC Berkeley on the central campus and adjacent lands will not increase

stormwater flows. Neither the UC Berkeley LRDP nor the City of Berkeley General Plan proposes revegetation actions in the hill area; only ongoing annual fire management work is planned. The City of Berkeley is engaged in a multi-decade project to reduce infiltration to their storm sewer system. This latter effort may result in some modest reduction in storm sewer flows in this drainage system over time. Finally, the EIR for the UC Berkeley Southeast Campus Integrated Projects (SCIP) finds that, with mitigation, the SCIP would neither result in significant hydrological impacts, nor contribute considerably to cumulative hydrologic impacts (UC Berkeley, 2006).

Potential cumulative hydrologic and water quality impacts associated with the proposed LRDP are therefore considered less than significant. Furthermore, other development in the area and the region that could contribute to water quality impacts on San Francisco Bay, for example, would be subject to similar programmatic requirements (NPDES permit regulations, stormwater pollution prevention plans, etc.), thereby further reducing the potential for cumulative adverse impacts.

Mitigation: None required.

Project Variant. The project variant would result in hydrology and water quality impacts substantially similar to the hydrology and water quality impacts that would result from the 2006 LRDP development. The cumulative hydrology and water quality impacts of the project variant would therefore be less than significant as described above.

Individual Future Project/Illustrative Development Scenario. The Illustrative Development Scenario is a conceptual portrayal of development under the LRDP. A future project under the LRDP such as conceptually portrayed in the Illustrative Development Scenario, when combined with other projects under the LRDP and other development as discussed above, would also, for the reasons stated above, result in cumulative hydrology and water quality impacts that would be less than significant.

IV.G.4 References – Hydrology and Water Quality

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APPENDIX B

Revised Draft Transportation Demand Management Program

Background

The Lawrence Berkeley National Laboratory (LBNL) is projected to experience moderate growth over the next twenty years. The purpose of the LBNL Transportation Demand Management (TDM) Plan is to reduce total vehicle trips to the Lab, reducing emissions as well as traffic impacts and parking demands. The strategy is to implement TDM programs that increase awareness among staff and offer incentives to access the Laboratory by means other than the use of single-occupant vehicles (SOV), including public transit, carpools and vanpools, bicycling, and walking. Besides reduced traffic, emissions, and parking demands, other benefits include improved air and environmental quality, and improved relations between the Laboratory, the City of Berkeley, UC Berkeley, and the local community.

Current Conditions

Berkeley Lab's TDM Program facilitates a range of commute options for its employees that have served to reduce commuter vehicle trips to the Lab. As of the most recent Berkeley Lab transportation study, it is estimated that approximately 52% of Laboratory staff and visitors use their personal vehicles to commute to the Laboratory (see table) – a rate of use of alternative transportation modes comparable to institutions in dense urban areas.

Table 1: Current Mode split estimates based on FY2000 employee transportation survey:

Mode	% of total	Number
Drive Alone	51.8%	2266
carpool >2x week	7.7%	336
motorcycle	2.7%	119
LBNL Shuttle	9.7%	426
LBNL Shuttle & bike	3.8%	168
Bicycle only	5.7%	248
Walk	4.3%	190
Current Transit	10.7%	469
Telecommute 2+x week	3.6%	156
Total	**100.0%**	**4376**

The Lab limits the supply of parking available to employees, currently providing spaces for approximately 50% of its Adjusted Daily Population (ADP), reflecting the high degree to which access is achieved by means other than single-occupant vehicles. There are currently 2,300 parking spaces at the Laboratory, distributed as shown in Table 2.

Table 2: Current Parking Mix

Parking Type	No. Spaces	No. Permits
Orange (employee)	32	26
Blue (employee)	309	792
General (employee)	1,552	2,523
Disabled	39	0
Emergency	3	0
Gov. Vehicle	271	0
Loading Zone	43	0
Motorcycle	23	101
Timed	11	0
Visitor	17	0
Total	**2,300**	**3,442**

Currently there are 1,932 general use parking spaces available (including spaces for the disabled) to serve an approximate ADP of 4,515. Parking at the Laboratory is free, but is allowed by permit only. Parking permits are provided to career employees and participating guests. The Laboratory has typically provided one employee parking space for each 1.7 to 2.0 staff person and user/guest that is authorized to park an automobile on the Laboratory's main hill-site during the work day. Parking spaces are provided in an array of moderate to small surface parking lots dispersed throughout the Laboratory, and along the sides of many roads. There are currently no parking structures on the main site.

Due to staff population growth and an increasing demand on user facilities, the Lab has experienced an increase in demand of 25 to 30 parking spaces a year for the last fifteen years, and this trend is expected to continue. The Lab has added approximately 650 spaces over the past 16 years. The 1987 LRDP allowed for a total of 2410 spaces, a number which has not yet been reached.

TDM Approach

The 2006 LRDP includes the projection of 500 net new parking spaces being added to the Laboratory over the next 20 years, accompanying a net Adjusted Daily Population increase of 1,010, meaning that the ratio of parking to population will be reduced. The draft EIR analysis includes mitigation measures in the TDM program which will require an additional traffic survey when the number of parking spaces at the Laboratory is increased beyond 375. It is therefore the goal of this TDM Plan to implement measures over the course of the LRDP time frame, reducing the demand for parking and maintaining a cap of 375 on net new parking spaces.

The implementation of additional commute options and other programs to encourage the use of mass transit will require increased resources, either directly in the form of expenses or indirectly in the form of staffing. This TDM Plan outlines a phased approach that takes into account the resource limitations while working toward the goal of reducing total vehicle trips to the Lab. A key task in Phase 1 is to document the effectiveness and utilization of the existing TDM program elements, establishing benchmarks and laying the foundation for implementation of new or enhanced measures.

Current TDM Measures

Berkeley Lab's current TDM program includes the following measures:

Laboratory Shuttle Service
The TDM component that has the greatest impact on Lab traffic is the Berkeley Lab Shuttle system. A system of small buses, the shuttle is offered free to Berkeley Lab employees and visitors. The shuttle has an on-site route that serves passengers within the Laboratory campus, and a number of external routes that connect the Laboratory to various locations within the City of Berkeley, including UC Berkeley, major AC Transit stops and BART stations. Stops are served generally every ten to fifteen minutes during normal working hours, Monday through Friday. The shuttle buses include racks for bicycles, so bicyclists can ride the shuttle up the hill and bicycle down. The shuttle reduces vehicle trips within the Laboratory, and provides access to the Laboratory for commuters using public transit such as BART and AC Transit.

Guaranteed Ride Home
The Lab provides a guaranteed ride home via Lab Security or taxi in case of family illness, family crisis, unscheduled overtime, or other emergencies. This encourages Lab employees to use alternative means of transportation getting to the Lab, as they can feel comfortable that in unusual or emergency situations they will be able to get home quickly. The Lab also participates in the Alameda County Guaranteed Ride Home program.

Pretax Transportation Program Incentive
Berkeley Lab offers employees participation in the "WageWorks" program, which enables Lab employees to deduct transportation costs of up to $100 with pretax dollars. This incentive offers commuter participants a discount of up to 40% for public transportation expenses such as BART or AC Transit tickets.

Carpooling/Vanpooling
The Lab's website links employees to Rideshare, a free regional ridesharing agency. Lab employees who participate in Rideshare can also deduct voucher expenses with pre-tax dollars as part of the Pretax Transportation Program.

Telecommuting and Flex Time
The Laboratory supports telecommuting, reducing the number of daily trips to the Lab by employees. The Laboratory also allows for flexibility in work hours to reduce peak demand.

Limited Parking
Parking is limited and is regulated through the use of parking permits, thus discouraging personal vehicle use.

Clean-fuel Vehicles
The Laboratory has an ethanol fueling facility and uses bio-diesel in some fleet vehicles and buses.

Other related practices and benefits

Pedestrian Network
Berkeley Laboratory has a well developed internal system of pedestrian routes, encouraging pedestrian activity in lieu of the use of vehicles. This pedestrian network is connected to the UC Berkeley campus, the City of Berkeley, and surrounding neighborhoods, thorough a series of secure pedestrian gates. The network is lighted for security and to encourage use.

Government-owned Vehicles
The Laboratory owns and maintains a number of vehicles for Berkeley Lab business use. Employees who come to work without a personal car have access to a vehicle for short trips.

Bicycle infrastructure
Bicycling is a popular form of non-auto commuting to the Laboratory. Berkeley Lab has a well-developed infrastructure to support those who bicycle to work; specifically;

- Major Laboratory circulation routes include bike lanes.
- The Berkeley Lab shuttle accommodates bike transport.
- Bike racks are provided throughout the Laboratory.
- Showers are provided at a number of locations around the Laboratory.
- The LBNL Bicycle Coalition, a volunteer group at the Laboratory, are an organized bicycling group that encourage bicycle commuting through education and helping to improve facilities.

On-site amenities
Berkeley Lab provides many support services and amenities on-site, which reduces the number of stops during commutes and trips of people leaving the Laboratory to perform errands, including:

- ATM
- Cafeteria
- Guest housing (under development)
- Dental
- Employee activities, including recreation programs and facilities

Information and Marketing
Berkeley Lab provides information to employees about TDM programs and services through the following venues:

- Laboratory Newspaper “the View,” and e-news “Today at Berkeley Lab”
- Comprehensive pedestrian and bicycling maps
- Bulletin board displays
- E-mail bulletins
- Transit and access information in new employee orientation and Laboratory visitor packets
- Transportation fair
- Promotional events
- Employee advisory committee

- Spare the Air Campaign notifications

Phased Implementation of Expanded TDM Measures

Through a series of internal planning meetings as well as community meetings, a number of possible new TDM measures have been identified. Many require additional study to determine the cost and the TDM benefit before they can be implemented. This Transportation Demand Management Plan will be implemented in three phases as follows:

- **Phase 1:** Initial TDM Planning (commencing October 2007, FY08)
- **Phase 2:** Feasibility Analyses of Additional TDM measures (FY09)
- **Phase 3:** Feasibility of TDM Measures Requiring Significant Capital Expense (triggered by reaching 2,675 parking spaces – an increase of 375 parking spaces over the base 2006 inventory of 2300.)

Phase 1: Initial TDM Planning

The Lab will proceed with an initial planning phase which will examine more closely some of the key aspects of managing transportation demand. In Phase 1, staffing will be established to handle the tasks and benchmarks will be set for meeting the goals of the TDM Plan. The Phase 1 tasks are as follows:

LBNL TDM Coordinator
Identify resource for a "TDM Coordinator" or "TDM Manager" who will monitor, plan, and implement TDM measures in coordination with the departments overseeing parking and access. This resource will oversee studies evaluating the cost and benefits of further TDM measures.

LBNL Transportation Committee
Form a committee to develop and implement TDM measures in conjunction with the TDM Coordinator position.

Commuter Surveys and TDM Measure Cost Studies
Conduct commuter survey similar to the one conducted in 2000 to determine the commute patterns of employees and to identify transportation modes that can be improved and to establish a baseline for measuring improvement. Conduct studies that compare the costs of implementation of additional TDM measures vs. the cost of building parking structures.

Parking Management Study
Conduct an annual inventory of on-site parking spaces and track the number of net new spaces. Review the inventory of parking permits to re-assess the guidelines regarding the issuance of parking permits.

Commuter Outreach
Conduct information and outreach program to aggressively promote the use of alternatives to the single-occupant commuter vehicle, to encourage employees to take advantage of the commute options currently available to them (e.g. carpooling, guaranteed ride home, "WageWorks"). Make

information on mass transit alternatives more readily available to employees and guests, using quarterly e-news and employee newspaper articles describing efficient alternatives and their outcomes of reduced traffic and preserved air quality benefits

Contractor Delivery and Construction Traffic
Develop standardized contract specification information required in procurement / purchasing contracts to discourage or prohibit deliveries during commute hours, when these contracts involve delivery of goods to the Lab's site. The Lab will work with the City of Berkely Transportation and Public Works to review and approve truck routes and the Construction Traffic Management Plans.

Bicycle Infrastructure
Expand bicycle racks at buildings and on Berkeley Lab shuttle buses to meet the increased number of bicycle commuters.

Parking Fee at Leased Buildings
Investigate the applicability of the Parking Cash-Out program (AB2109), an employer funded program in the leased facilities.

Phase 2: Feasibility Analyses of Additional TDM measures

Based on surveys and studies conducted in Phase 1, in Phase 2 the Lab will conduct more detailed feasibility analyses on the implementation of additional TDM measures, examining cost of implementation and associated benefits. It is likely that the studies will focus on these areas:

Traffic Studies
Perform periodic gate count and a commuter survey to more accurately profile the transportation modes used by Berkeley Lab commuters. Study service vehicle traffic to determine number of trips and vehicle modes of service and delivery vehicles. In conjunction with the City of Berkeley, monitor key intersections for traffic and pedestrian activity (Heast/Gayley and Gayley at Stadium Rimway) to assess impacts during Laboratory growth.

Parking Fee at the Lab
Currently there is no fee for parking at the Laboratory, although permits are controlled and limited. The Lab is a Department of Energy (DOE) facility, and there may be DOE directives regarding parking fees that must be more fully explored and discussed with DOE and UC. A study will be conducted on parking fees, legal constraints, and potential fee structures.

Shuttle Coordination Plan
In cooperation with UC Berkeley, Alta Bates Hospital, Bayer Corporation and the West Berkeley Shuttle (all of whom operate shuttles), assess the feasibility of developing coordinated shuttle scheduling, thus reducing transportation related impacts in the area.

Car Share
Investigate the use of Car Share service in addition to, or in lieu of, government-owned fleet vehicles, either outsourced or managed in-house, possibly using an on-line reservation system. This service would provide automobile rental by the hour; employees may be more inclined to use mass transit if they had the option of an available automobile for personal errands during the day.

Enhanced Pretax Transportation Program
Review similar programs at nearby institutions and assess the feasibility of improving or enhancing the "WageWorks" program already in place.

Enhanced Carpool/Vanpool
Assess the costs of providing additional incentives to further encourage carpools and vanpools. Create a more coordinated and visible program for carpooling and vanpooling and offer additional incentives. Dedicate preferential parking spaces to carpools and vanpools, encouraging their use.

Alternative Fuels Program
Implement the use of alternative fuels such as biodiesel in the shuttle fleet and in government-owned Laboratory vehicles. Encourage and reward the use of alternative fuel vehicles in carpools and vanpools. Mandate the use of alternative fuel vehicles in contractor and construction vehicles.

Additional On-Site Amenities
Identify and develop feasibility of additional support services and amenities, to further reduce the number of stops during commutes and trips of people leaving the Laboratory to perform errands, such as:

- Child care
- Dry cleaning pick-up
- Gym

Phase 3: Feasibility of TDM Measures Requiring Significant Capital Expense

It is anticipated that the implementation of TDM measures in Phases 1 and 2 will sufficiently control the transportation and traffic impacts. If it is necessary to add more than 375 spaces to the Berkeley Lab main site within the time frame of the 2006 LRDP, the Lab will consider additional options to ease traffic impacts. The following measures will be considered:

BART Bicycle Storage
Work with BART to provide additional bicycle storage lockers at BART stations impacted by Berkeley Lab commuters.

Remote Parking
Create or lease remote parking locations that could be serviced by the Berkeley Lab Shuttle in order to reduce on-site traffic and parking as well as traffic impacts in surrounding communities.

Discount Group Pass Program
Investigate the costs of a mass transit group pass program, a mass-transit deep discount group pass that would allow unlimited usage of regional mass transit systems, including both AC Transit and BART; modeled on the UC Berkeley BearPass (offered to UCB staff and faculty), the UC Berkeley ClassPass (offered to UCB students) or the City of Berkeley's EcoPass program (offered free to all City employees).

Critical Intersection Shared Funding
Investigate shared funding and prepare a plan for improving critical off-site intersections with funding shared among the Lab, other major institutions, and local jurisdictions (e.g. City of Berkeley, UC Berkeley, and LBNL).

Funicular Railway
Explore the feasibility of a funicular railway on site similar to the Angel's Flight system in Los Angeles as suggested by the Sierra Club in the Draft LRDP EIR review as another transportation option that would encourage employees to use mass transit to commute to work.

Preparation of Updated Traffic Analysis
In addition to the TDM measures identified above, Berkeley Lab intends to prepare an updated traffic analysis pursuant to a "reopener" negotiated with the City of Berkeley to evaluate traffic impacts related to future development at the Lab. The updated traffic analysis will be prepared on the earliest to occur of ten years from the date that Berkeley Lab's Long Range Development Plan EIR is certified or the date upon which development at the Lab pursuant to the Long Range Development Plan reaches 375 net new parking spaces. When the earliest of these thresholds is reached, Berkeley Lab will conduct the new traffic study , consult with the City of Berkeley regarding that traffic study, circulate that traffic study for review by City of Berkeley staff, and consider whether further mitigation measures or modifications to the Long Range Development Plan should be adopted based upon that traffic study. The new traffic study may be conducted as part of a further project review or independently. The extent to which the traffic study is circulated for public review under the California Environmental Quality Act, and the timing of such review, will depend both upon the content of the traffic study and the timing of Berkeley Lab's consideration of any project approvals and associated CEQA reviews or determinations which may utilize or rely on the information in the traffic study. Consistent with this TDM Plan, it is anticipated that the new traffic study will assist in reducing total vehicle trips to and within Berkeley Lab, reducing air emissions, traffic impacts, and parking demands.