

DRAFT REPORT

VETERINARY MEDICINE
LABORATORY AND EQUINE
ATHLETIC PERFORMANCE
LABORATORY FACILITIES

DRAFT FOCUSED TIERED EIR

Prepared for
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- A Notice of Preparation and Tiered Initial Study
- B Response to Comments on Notice of Preparation and Tiered Initial Study
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ES.1 PROJECT DESCRIPTION

This Draft Focused Tiered Environmental Impact Report (EIR) evaluates the potential environmental impacts associated with the construction and operation of a new Veterinary Medicine Laboratory and a new Equine Athletic Performance Laboratory in the Health Sciences District of the Central Campus of UC Davis. The proposed project consists of the following facilities:

- **Veterinary Medicine Laboratory Facility**, a modern animal surgery teaching facility which would include small and large animal surgery suites; an instructional surgical lecture hall; small and large animal cold storage and freezer storage; a dentistry preparation and storage room, and other facilities such as locker rooms, an equipment room, a scrub room, a break room, and offices that would accommodate support staff for the facilities.
- **Large and Small Animal Holding Facilities**, which would include a large animal holding facility to house horses, large ruminants (mainly cows, goats and sheep), and camelids (e.g., llamas), and a small animal holding facility to hold dogs and cats.
- **Canine Blood Donor Facility**, which would hold up to 48 canine blood donors that, supply blood products to patients in need of transfusion.
- **Equine Athletic Performance Laboratory Facility**, which would house an equine treadmill and a small animal treadmill both used for research, and a clinical instruction and teaching treadmill. The facility would also include an electronics and instrumentation room, a biochemistry and analytical laboratory, an animal laboratory, a shop for fabrication of materials for use in the laboratory, a multi-purpose room, a computer lab, offices for grad /postdoctoral students, faculty and staff, and equipment rooms.
- **Equine Holding Facility**, which would include up to 20 stalls for holding horses.
- **Other Ancillary Facilities**, which would include outdoor facilities to exercise or hold small and large animals.

This Draft EIR evaluates impacts of the proposed project and recommends project-specific and cumulative mitigation measures, as appropriate. Please see the Project Description (Section 2) for a complete description of the project.

ES.2 PROJECT OBJECTIVES

The proposed project involves construction of new veterinary medicine facilities to replace old inadequate facilities that are currently used by the School of Veterinary Medicine to instruct students in the Doctor of Veterinary Medicine (DVM) curriculum in veterinary surgery and to conduct research, clinical instruction and teaching in the areas of cardiovascular and respiratory physiology of horses and other large animals. The campus has identified the following objectives for the proposed project:

- Provide modern animal surgery teaching facilities in order to allow the School of Veterinary Medicine to meet accreditation requirements and ensure full compliance with applicable guidelines and standards
- Provide additional space needed to accommodate a larger student class size;
- Consolidate veterinary medicine facilities in one portion of the campus near the Veterinary Medical Teaching Hospital and reduce cross-campus travel by students, faculty and staff
- Move veterinary facilities away from the center of the campus where noises (e.g., barking dogs) and movement of large animals can be disruptive to other, nearby teaching facilities
- Allow for the efficient use of land resources on the campus

ES.3 TIERED EIR

The Tiered Initial Study (TIS) prepared for the proposed project is included in Appendix A of this Draft EIR. The TIS evaluated potential environmental effects of the proposed project and identified which issues would require further analysis in the Draft EIR and which issues were fully evaluated in the TIS and would not require additional analysis. For all resource areas, the analysis contained in the TIS identified no potentially significant impacts related to the proposed project that were not sufficiently addressed and mitigated by the 1994 LRDP EIR, as amended.

However, due to the potentially controversial nature of this project arising from the use of animals at the proposed facilities for instruction and research purposes, a decision was made to confirm the above-mentioned determination in four resources areas through preparation of a Focused Tiered EIR. This Focused Tiered Draft EIR will therefore evaluate the potential impacts of the project in the following resource areas:

- Air Quality
- Transportation and Circulation
- Hazards and Hazardous Materials
- Biological Resources

ES.4 IMPACT SUMMARY

Table ES-1 that follows provides a complete listing of all impacts and mitigation measures. For each impact, it reports the significance of impact before mitigation, applicable project-specific mitigation and/or applicable 1994 LRDP EIR mitigation measures, and the level of significance of impact after implementation of the mitigation measures. All project-level impacts would be reduced to a less-than-significant level. The project would contribute to significant cumulative regional impacts that were identified in the 1994 LRDP EIR and were determined to be significant and unavoidable.

ES.5 ALTERNATIVES TO THE PROPOSED PROJECT

The following alternatives were examined in detail in the EIR and compared to the proposed project to identify the environmentally superior alternative:

- No Project
- Construction of the proposed facilities at another location on campus
- Construction of a reduced project at the proposed site

Detailed descriptions and an analysis of potential impacts of these alternatives are presented in Section 5. The No Project alternative was determined to be the environmentally superior alternative. However it would not allow for the attainment of project objectives. Of the build alternatives, construction of the proposed facilities at an alternative location is considered environmentally superior because it would avoid the less-than-significant impacts of the proposed project.

ES.6 KNOWN AREAS OF CONTROVERSY

Section 15123 of the CEQA Guidelines requires that a summary of an EIR identify areas of controversy known to the Lead Agency, including issues raised by agencies and the public. During the public comment period, four letters were received regarding the proposed project. These letters, and responses to them, are included as Appendix B in this document. No controversial issues were raised during the public comment period.

**Table ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Impact	Level of Significance Prior to Mitigation ¹	Mitigation Measures	Level of Significance Following Mitigation ¹
3.1 Transportation and Circulation			
3.1-1 Increases in traffic volumes associated with the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities in relationship to the capacity of the future transportation network, would not result in level of service standard violations.	LS	<i>No mitigation required.</i>	LS
3.1-2 Cumulative increases in traffic volumes in relationship to the capacity of the future transportation network would result in level of service standard exceedances. The proposed project's contribution to these exceedances is considered a <i>less-than-significant impact</i> .	LS	<i>No mitigation required.</i>	LS
3.2 Air Quality			
3.2-1 Operation of the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities would generate ROG _s , NO _x , PM ₁₀ , and CO emissions from vehicle exhaust and energy use.	LS	<i>No mitigation required.</i>	LS

¹ LS = Significant; PS = Potentially Significant; S = Significant; SU = Significant, Unavoidable

² Impacts are significant on a cumulative level only; project level impacts will be less than significant. The project's contribution to the impact will not be cumulatively considerable.

Table ES-1 (continued)

Impact	Level of Significance Prior to Mitigation ¹	Mitigation Measures	Level of Significance Following Mitigation ¹
<p>3.2-3 The proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities, in conjunction with 1994 LRDP development, the WWTP Replacement Project, and cumulative development in the region, would result in increased emissions of criteria pollutants.</p>	<p>SU²</p>	<p>1994 LRDP EIR Mitigation Measures: 4.5-6(a) <i>Implement Mitigation Measures 4.5-3(a) and (b).</i> 4.5-6(b) <i>The Sacramento Air Basin includes a large number of jurisdictions, including the greater Sacramento metropolitan area. In the Basin, air quality is regulated by the Sacramento Metropolitan Air Quality Management District, YSAQMD, and a number of other Air Pollution Control Districts. Pursuant to rules, regulations, and policies of those AQMDs and APCDs, as well as adopted general plans throughout the Basin, it is within the jurisdiction of each local government or district to take actions to ensure compliance with the federal Clean Air Act and the California Clean Air Act.</i></p>	<p>SU²</p>
<p>3.2-4 Development allowed under the proposed project, in conjunction with 1994 LRDP development, the WWTP Replacement Project, and cumulative development in the region, would result in increased cumulative CO concentrations at intersections, but would not exceed state or federal air quality standards.</p>	<p>LS</p>	<p><i>No mitigation required.</i></p>	<p>LS</p>

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² Impacts are significant on a cumulative level only; project level impacts will be less than significant. The project's contribution to the impact will not be cumulatively considerable.

Table ES-1 (continued)

Impact	Level of Significance Prior to Mitigation ¹	Mitigation Measures	Level of Significance Following Mitigation ¹
<p>3.2-5 Operation of the proposed facilities, in conjunction with development anticipated under the 1994 LRDP, could expose campus occupants and Davis-area residents to toxic air contaminants emitted from laboratory uses.</p>	LS	<i>No mitigation required.</i>	LS
<p>3.2-6 Development allowed under the proposed project, in conjunction with 1994 LRDP development, the WWTP Replacement Project and cumulative development in the Davis area, may generate unacceptable cumulative health risks from toxic air contaminants. Inadequate methods exist to assess the magnitude of this impact, and it is therefore considered too speculative to determine the precise level of significance.</p>	SU	<i>No mitigation currently available.</i>	SU
<p>3.3 Hazardous Material and Public Safety</p>			
<p>3.3-1 Implementation of the proposed project would eventually lead to an increase in hazardous chemical use at UC Davis that could expose campus occupants to potential health or safety risks.</p>	LS	<i>No mitigation required.</i>	LS
<p>3.3-2 Implementation of the proposed project could lead to an increase in generation of hazardous chemical waste at UC Davis that could expose campus occupants to potential health or safety risks.</p>	LS	<i>No mitigation required.</i>	LS
<p>3.3-3 Storage of radioactive materials and operation of x-ray machines at the project site could expose campus occupants to potential health or safety risks.</p>	LS	<i>No mitigation required.</i>	LS

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Table ES-1 (continued)

Impact	Level of Significance Prior to Mitigation¹	Mitigation Measures	Level of Significance Following Mitigation¹
3.3-4 The proposed project would increase the use of laboratory animals at UC Davis, thereby increasing the risk of animal bites and escapes.	LS	<i>No mitigation required.</i>	LS
3.3-5 The proposed project could lead to an increase in the generation of medical (biohazardous) waste at UC Davis that could expose campus occupants to potential health or safety risks.	LS	<i>No mitigation required.</i>	LS
3.3-6 Hazardous materials used at the proposed facilities may be inadvertently released to the sewer or disposed of with non-hazardous solid waste.	LS	<i>No additional mitigation required.</i>	LS
3.3-7 Increased use of hazardous chemical materials related to cumulative development in the region would increase the number of people exposed to health hazards associated with such use.	SU ²	<i>No mitigation available.</i>	SU ²
3.3-8 Implementation of the proposed project, in conjunction with other development in the region that generates hazardous chemical waste, could place an additional load on hazardous waste management facilities.	SU ²	<i>No additional mitigation available.</i>	SU ²
3.3-9 Implementation of the proposed project, in conjunction with other development in the region that generates medical waste, would place an additional load on available medical waste management facilities.	LS	<i>No mitigation required.</i>	LS

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Table ES-1 (continued)

Impact	Level of Significance Prior to Mitigation ¹	Mitigation Measures	Level of Significance Following Mitigation ¹
3.4 Biological Resources			
<p>3.4-1 Development of the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities site would result in the conversion of approximately 7.6 acres of Ruderal/Annual Grassland which could result in the loss of burrowing owl nesting and foraging habitat.</p>	PS	<p>1994 LRDP EIR Mitigation Measures:</p> <p>4.7-3(a) <i>The Campus shall continue to monitor the area around the Medical Sciences Complex for the presence or absence of burrowing owls.</i></p> <p>4.7-3(b) <i>The Campus, in consultation with the DFG, shall conduct a pre-construction breeding-season survey (approximately February 1 through August 31) of proposed project site during the same calendar year that construction is planned to begin. The survey shall be conducted by a qualified biologist to determine if any burrowing owls are nesting on or directly adjacent to proposed project site.</i></p> <p><i>If phased construction procedures are planned for the proposed project, the results of the above survey shall be valid only for the season when it is conducted.</i></p> <p><i>If, after five years, a previously recorded nest site remains unoccupied by a Swainson's hawk or other raptors, it will no longer be considered as a Swainson's hawk or raptor nest site subject to this mitigation.</i></p>	LS

¹ LS = Significant; PS = Potentially Significant; S = Significant; SU = Significant, Unavoidable

² Impacts are significant on a cumulative level only; project level impacts will be less than significant. The project's contribution to the impact will not be cumulatively considerable.

Table ES-1 (continued)

Impact	Level of Significance Prior to Mitigation ¹	Mitigation Measures	Level of Significance Following Mitigation ¹
		<p>4.7-3(c) <i>During the construction stage, the Campus in consultation with the DFG, shall avoid all burrowing owl nest sites potentially disturbed by project construction during the breeding season while the nest is occupied with adults and/or young. The occupied nest site shall be monitored by a qualified biologist to determine when the nest is no longer used. Avoidance shall include the establishment of a 300-foot to 500-foot diameter non-disturbance buffer zone around the nest site. Disturbance of any nest sites shall only occur outside of the breeding season and when the nests are unoccupied based on monitoring by a DFG approved biologist. The buffer zone shall be delineated by highly visible temporary construction fencing.</i></p> <p><i>Based on approval by DFG, pre-construction and pre-breeding season exclusion measures may be implemented to preclude burrowing owl occupation of the project site prior to project-related disturbance.</i></p>	

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Table ES-1 (continued)

Impact	Level of Significance Prior to Mitigation ¹	Mitigation Measures	Level of Significance Following Mitigation ¹
		1997-98 Major Capital Improvement Projects SEIR Mitigation Measures: 6.5-3 <i>In addition to the compensation for the loss of Swainson's hawk foraging habitat identified in the 1994 LRDP EIR Mitigation Measure 4.7-5, the Campus shall also convert either the approximately 55 acres of existing orchards adjacent to Putah Creek at the Russell Ranch or a portion of the 85 acres designated habitat restoration and research area to cover type suitable for burrowing owl nesting habitat.</i>	
3.4-2 Development of the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities site would result in the conversion of approximately 7.6 acres of Ruderal/Annual Grassland which could result in the loss of raptor (birds-of-prey) nesting habitat.	PS	1994 LRDP EIR Mitigation Measures: 4.7-4(a) <i>The Campus, in consultation with DFG, shall conduct a pre-construction or pre-tree pruning or removal survey of trees greater than 30-feet tall (proposed activity) during the raptor breeding-season (approximately March 1 through August 31). The survey shall be conducted by a qualified biologist during the same calendar year that the proposed activity is planned to begin to determine if any nesting birds-of-prey would be affected.</i> <i>If phased construction procedures are planned for the proposed activity, the results of the above survey shall be valid only for the season when it is conducted.</i>	LS

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Table ES-1 (continued)

Impact	Level of Significance Prior to Mitigation ¹	Mitigation Measures	Level of Significance Following Mitigation ¹
		<p>4.7-4(b) <i>The Campus shall continue to conduct annual surveys to determine the location of nesting Swainson's hawks and other raptors on the Campus. If nesting Swainson's hawks or other raptors are found during the survey at a previously unknown location within one-half mile of a project site and not within 100 yards of a previously documented site, the Campus shall, prior to project construction, contact the California Department of Fish and Game to determine the potential for disturbance to nesting Swainson's hawks and other raptors and will implement feasible changes in the construction schedule or other appropriate adjustments to the project in response to the specific circumstances.</i></p> <p><i>If, after five years, a previously recorded nest site remains unoccupied by a Swainson's hawk or other raptors, it will no longer be considered as a Swainson's hawk or raptor nest site subject to this mitigation.</i></p>	
<p>3.4-3 Development of the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities site would result in the conversion of approximately 7.6 acres of Ruderal/Annual Grassland which would result in the loss of foraging habitat for Swainson's hawk and other resident and migratory species.</p>	<p>S</p>	<p>1994 LRDP EIR Mitigation Measure:</p> <p>4.7-5 <i>As Agricultural Land and Ruderal/Annual Grassland is converted to Campus development under the 1994 LRDP, the Campus will compensate for the loss of Swainson's hawk foraging habitat at a 1:1 ratio of acres lost to acres preserved through the implementation of one or a combination of the following methods.</i></p> <ul style="list-style-type: none"> <i>Approximately 40 acres of Cropland habitat in the "C" tract adjacent to the Putah Creek Reserve on the West Campus will remain Campus agricultural research uses but will be under land use restrictions that will ensure cropland cover types that are suitable as Swainson's hawk foraging habitat.</i> 	<p>LS</p>

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Table ES-1 (continued)

Impact	Level of Significance Prior to Mitigation ¹	Mitigation Measures	Level of Significance Following Mitigation ¹
		<ul style="list-style-type: none"> • <i>No incompatible uses such as orchards, vineyard, or development will be allowed in the areas set aside for Swainson's hawk foraging habitat. However, normal crop rotations may periodically result in unsuitable cover types of annual crops.</i> • <i>Approximately 20 acres of land within the North Fork Cutoff that currently support livestock enclosures will be restored to a woodland and grassland habitat.</i> • <i>Approximately 55 acres of existing orchards adjacent to Putah Creek at the Russell Ranch will be removed, converted to a cover type suitable for Swainson's hawk foraging, and added to the Putah Creek Reserve.</i> • <i>Approximately 85 acres at the Russell Ranch that have been designated as a habitat restoration and research area will include the establishment of cover types that are suitable Swainson's hawk foraging habitat.</i> 	
<p>3.4-4 Development of the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities site could result in the potential failure of Swainson's hawk nesting efforts.</p>	PS	<p>1994 LRDP EIR Mitigation Measures:</p> <p>4.7-6(a) <i>The Campus shall conduct a pre-construction breeding season survey of the proposed project site, and within a one-half-mile radius of the site, to determine the presence or absence of any nesting Swainson's hawks.</i></p> <p><i>If any Swainson's hawks are nesting within a one-half-mile radius of the project site, the Campus shall, in consultation with DFG, determine the potential for disturbance to nesting Swainson's hawks and will implement feasible changes in the construction schedule or other appropriate adjustments to the project in response to the specific circumstances.</i></p>	LS

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Table ES-1 (continued)

Impact	Level of Significance Prior to Mitigation ¹	Mitigation Measures	Level of Significance Following Mitigation ¹
		<p>4.7-6(b) <i>The Campus shall continue to conduct annual surveys to determine the location of nesting Swainson's hawks on and within 1/2-mile of the Campus. If nesting Swainson's hawks are found during the survey at a previously unknown location within one-half mile of a project site and not within 100 yards of a previously documented site, the University shall, prior to project construction, contact the California Department of Fish and Game to determine the potential for disturbance to nesting Swainson's hawks and will implement feasible changes in the construction schedule or other appropriate adjustments to the project in response to the specific circumstances.</i></p> <p><i>If, after five years, a previously recorded nest site remains unoccupied by a Swainson's hawk, it will no longer be considered as a Swainson's hawk nest site subject to this mitigation.</i></p>	
<p>3.4-5 Development of the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities, in conjunction with 1994 LRDP development and the WWTP Replacement Project, would result in the loss of Agricultural Land and Ruderal/Annual Grassland habitat for resident and migratory wildlife species.</p>	<p>SU²</p>	<p>1994 LRDP EIR Mitigation Measures:</p> <p>4.7-9(a) <i>Implement 1994 LRDP Mitigation Measures 4.7-1, 4.7-3, 4.7-4, 4.7-5, and 4.7-6.</i></p> <p>4.7-9(b) <i>The County of Yolo, when implementing the County-wide Habitat Management Plan, should impose a 1:1 mitigation ratio of habitat preserved to that converted on all development projects within their jurisdiction that convert Agricultural Land and Annual Grassland habitat to urban development.</i></p>	<p>SU²</p>

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² Impacts are significant on a cumulative level only; project level impacts will be less than significant. The project's contribution to the impact will not be cumulatively considerable.

This Focused Tiered Draft Environmental Impact Report (DEIR) analyzes specific potential environmental impacts of the proposed Veterinary Medicine Laboratory and Equine Performance Laboratory Facilities in four resource areas: transportation and circulation, air quality, hazardous materials and public safety, and biological resources.

1.1 PURPOSE OF REPORT

UC Davis has prepared this Focused Tiered DEIR on the proposed Veterinary Medicine Laboratory and Equine Performance Laboratory Facilities for the following purposes.

- to satisfy the requirements of the California Environmental Quality Act (CEQA)
- to inform the general public, the local community, responsible and interested public agencies, and the University of the nature of the proposed project, the possible environmental impacts, possible measures to mitigate those impacts, and alternatives to the proposed project
- to enable The Board of Regents (The Regents) of the University of California (University) to consider environmental consequences when deciding whether to approve the project

As described in the CEQA Guidelines, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. In discharging this duty, the public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social (Section 15021 of the CEQA Guidelines). This Focused Tiered DEIR is a public information document, the purpose of which is to identify the potential significant effects of the proposed project on the environment, and to indicate the manner in which those significant effects can be avoided or mitigated, to identify any unavoidable adverse impacts that cannot be mitigated, and to identify reasonable and feasible alternatives to the proposed project that would eliminate any significant adverse environmental effects, or reduce the impacts to a less-than-significant level. The Focused Tiered DEIR also discloses growth inducing impacts, effects found not to be significant, and cumulative impacts.

The public agency (The Regents) is required to consider the information in the Focused Tiered EIR, along with any other relevant information, in making its decision on whether to implement the project (Section 15121 of the CEQA Guidelines). Although the Focused Tiered EIR does not determine the ultimate decision that will be made regarding implementation of the project, The Regents must consider the information in the EIR and respond to each significant effect identified in the Focused Tiered EIR.

For the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities project, CEQA requires that the University prepare a DEIR that reflects the independent judgement of the University regarding the impacts, level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. The Focused Tiered DEIR is then circulated to responsible agencies, trustee agencies with resources affected by the project, and interested agencies and individuals. The purpose of public and agency review of the DEIR include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting counterproposals. In reviewing the Focused Tiered DEIR, reviewers should focus on the

sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the proposed project might be avoided or mitigated.

1.2 SUMMARY OF THE PROPOSED PROJECT

The proposed project includes the construction and operation of a new Veterinary Medicine Laboratory and a new Equine Athletic Performance Laboratory in the Health Sciences District of the Central Campus of UC Davis. The Veterinary Medicine Laboratory facility would consist of a laboratory, animal holding facilities for both large and small animals, a canine blood donor holding facility, an instructional lecture hall and other ancillary facilities including exercise runs for dogs and other small animals and a pasture to hold large animals. The Equine Athletic Performance Laboratory would include a laboratory with three treadmills and other facilities such as a “hot walker,” a round pen, and a large animal holding facility. The project would replace old, inadequate facilities that are currently used by the School of Veterinary Medicine to instruct students in the DVM curriculum in veterinary surgery and to conduct research, clinical instruction and teaching in the areas of cardiovascular and respiratory physiology of horses and other animals.

1.3 EIR REVIEW PROCESS

Tiered EIR

This environmental analysis is a Focused Tiered DEIR for the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities. The environmental analysis for the proposed project is tiered from the UC Davis 1994 Long Range Development Plan (LRDP) EIR in accordance with Section 15152 and 15168(c) of the CEQA Guidelines. The 1994 LRDP EIR is a Program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations, Sections 15000 et seq.). The 1994 LRDP EIR analyzed full implementation of uses and physical development proposed under the 1994 LRDP through the academic year 2005-06 and identified measures to mitigate the significant adverse project and cumulative impacts associated with that growth.

The CEQA concept of "tiering" refers to the coverage of general environmental matters in broad program-level EIRs, with subsequent focused environmental documents for individual projects that implement the program. The project environmental document incorporates by reference the discussions in the Program EIR and concentrates on project-specific issues. CEQA and the CEQA Guidelines encourage the use of tiered environmental documents to reduce delays and excessive paperwork in the environmental review process. This is accomplished in tiered documents by eliminating repetitive analyses of issues that were adequately addressed in the Program EIR and by incorporating those analyses by reference.

The State CEQA Guidelines at §15152(f)(3) provide that “[s]ignificant environmental effects have been ‘adequately addressed’ in a previous program EIR if the lead agency determines that:

- (a) they have been mitigated or avoided as a result of the prior environmental impact report and findings adopted in connection with that prior environmental report;

- (b) they have been examined at a sufficient level of detail in the prior environmental impact report to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project; or
- (c) they cannot be mitigated to avoid or substantially lessen the significant impacts despite the project proponent's willingness to accept all feasible mitigation measures, and the only purpose of including analysis of such effects in another environmental impact report would be to put the agency in a position to adopt a statement of overriding considerations with respect to the effects."

These criteria are applied in the analysis set forth in this Focused Tiered DEIR. The tiering of the environmental analysis for the proposed project allows this DEIR to rely on the 1994 LRDP EIR for the following.

- (a) a discussion of general background and setting information for environmental topic areas
- (b) overall growth-related issues
- (c) issues that were evaluated in sufficient detail in the 1994 LRDP EIR for which there is no significant new information or change in circumstances that would require further analysis
- (d) long-term cumulative impacts

All applicable 1994 LRDP EIR mitigation measures, as identified in the Tiered Initial Study, are incorporated into and made part of the project. For a more detailed discussion of impacts to other resource areas not analyzed further in the body of this Focused Tiered DEIR, please refer to the Tiered Initial Study, which is included as Appendix A.

Public Review

In accordance with Section 15063 and 15082 of the CEQA Guidelines, the campus published a Notice of Preparation (NOP) and Tiered Initial Study (TIS) that were circulated for a 30-day period of public review comment from February 15, 2000 to March 15, 2000. Copies of the NOP, TIS and ensuing comments from the public are included in this document as Appendix A and B. Copies of these documents are also available at the UC Davis Planning and Budget Office at 376 Mrak Hall, UC Davis and the Reserve Reading Room at Shields Library, UC Davis.

This Focused Tiered DEIR will begin public circulation on April 19, 2000, for a 45-day period of review and comment by the public and other interested parties, agencies, and organizations. The public review period will conclude at 5 p.m. on June 2, 2000. All comments or questions about the DEIR should be addressed to:

Richard F. Keller
Planning and Budget Office, 376 Mrak Hall
University of California
One Shields Avenue
Davis, California 95616

Comments relating to the Focused Tiered DEIR may also be presented orally during the public hearing on Thursday, May 18, 2000 at 7:00 p.m. at the University Club on Old Davis Road at UC Davis. Following the public hearing on this document and after the close of the written public comment period, responses to written and oral comments on the environmental effects of the project will be prepared and published in the Final Focused Tiered EIR document. The EIR (comprised of the Draft EIR and the Final EIR documents) will be considered by The Regents in a public meeting and will be certified if it is determined to be in compliance with CEQA. Following certification of the Focused Tiered EIR, The Regents will consider approval of the proposed project. CEQA requires the decision makers to balance the benefits of a proposed project against any unavoidable environmental impacts. If environmental impacts are identified as significant and unavoidable, The Regents may still approve the project if it believes that social, economic, or other benefits outweigh the unavoidable impacts. The Regents would then be required to state in writing the specific reasons for approving the project based on information in the Focused Tiered EIR and other information in the record. As indicated in Section 15093 of the CEQA Guidelines, this reasoning is called a “statement of overriding considerations.”

CEQA Findings and Mitigation Monitoring

CEQA requires that when a public agency makes findings based on an EIR, the public agency must adopt a reporting or monitoring program for those measures which it has adopted or made a condition of the project approval in order to mitigate or avoid significant effects on the environment (Public Resources Code Section 21081.6). The reporting and monitoring program must be designed to ensure compliance during project implementation (Public Resources Code Section 21081.6).

The Mitigation Monitoring Program for the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities will be prepared, and will be considered by The Regents in conjunction with review of Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities project.

1.4 LEAD AND RESPONSIBLE AGENCIES

The Board of Regents (The Regents) of the University of California (University) is the lead agency for the proposed project evaluated in this Focused Tiered DEIR because it has principal responsibility for reviewing and certifying the adequacy of this document and approving the project. Distinct from the lead agency are responsible agencies with permitting or approval authority over the project. The State Water Resources Control Board is a responsible agency for this project with regards to compliance with NPDES requirements.

1.5 DECISION TO PREPARE A FOCUSED TIERED EIR

The Tiered Initial Study (Appendix A) prepared for the proposed project evaluated potential environmental effects of the proposed project and identified which issues would require further analysis in the EIR and which issues were fully evaluated in the TIS and would not require additional analysis. The analysis contained in the Tiered Initial Study concluded that in all resource areas (see list below), the proposed project would either result in no impact, a less-than-significant impact, a less-than-significant impact due to incorporation of 1994 LRDP EIR mitigation measures, a de minimis contribution to a significant, unavoidable impact identified in the 1994 LRDP EIR or, a significant unavoidable cumulative impact identified in the 1994 LRDP EIR for which no new mitigation measures are available and no new analysis is proposed:

- Land Use and Planning
- Agriculture Resources
- Population and Housing
- Transportation/Circulation
- Noise
- Air Quality
- Hazards and Hazardous Materials
- Biological Resources
- Hydrology and Water Quality
- Geology and Soils
- Mineral Resources
- Cultural Resources
- Aesthetics
- Recreation
- Public Services
- Utilities and Service Systems

Based on the analysis performed in the TIS, it has been determined that the proposed project would not result in any potentially significant impacts that are not sufficiently addressed and mitigated by the 1994 LRDP EIR, as amended. Therefore, the TIS was an adequate environmental review of the project, and a Negative Declaration could have been prepared. However, the proposed project is potentially controversial due to the use of animals in the proposed facilities. Therefore, a Focused Tiered DEIR has been prepared for the project. This Focused Tiered DEIR evaluates the potential impacts of the project in the following resource areas.

- Air Quality: operational air quality impacts due to emissions of criteria pollutants and toxic air contaminants
- Transportation and Circulation: level of service impacts from increased vehicular traffic in the Health Sciences District
- Hazardous Materials and Public Safety: impacts from increased use and generation of hazardous chemicals and waste, radioactive materials and waste, biohazardous materials and waste, and laboratory animal use by the laboratories included in the project
- Biological Resources: impacts of project construction and operation on nearby nesting burrowing owls, Swainson's hawks and other raptors

It should be noted that during the preparation of this Focused Tiered DEIR, certain reporting discrepancies were found in the TIS. Furthermore, as additional information was reviewed, it was determined that certain environmental impacts would not result from the proposed project. Where there are differences in the information reported in the EIR and the TIS, the information reported in the DEIR supercedes the information in the TIS.

1.6 RELATIONSHIP TO THE 1994 LRDP AND LRDP EIR

1994 LRDP

The 1994 LRDP, as amended, was designed to accommodate projected campus population growth and facilities development through 2005-06. The 1994 LRDP identifies physical planning principles to guide campus development and includes a land use plan that identifies zones on campus that could be used as future building sites for academic and administrative uses, teaching and research fields, support functions, housing, recreational uses, open space, parking, and commercial and potential enterprise opportunities. The 1994 LRDP projected a campus increase in available academic, administrative, and support building space of 1,750,000 assignable square feet (asf), representing an increase from about 4,745,740 asf to about 6,495,740 asf. Since adoption of the 1994 LRDP, approximately 459,086 asf of space has been approved, constructed, or occupied. The 46,484 asf of academic and administrative use proposed under the project would not exceed planned development and would be consistent with the development approved under the 1994 LRDP (please refer to Appendix A, Tiered Initial Study and Notice of Preparation, Section IV, for additional discussion on other projects under consideration that would also increase the assignable square footage of the campus).

The 1994 LRDP also established population projections for buildout of the LRDP. At buildout of the 1994 LRDP, campus population is projected to be 38,630 (26,000 students and 12,630 faculty and staff). The current estimates of population (1998-99) for campus faculty, staff and students is 32,982 (22,803 students and 10,179 faculty and staff). Recently approved projects including the 1997-98 Major Capital Improvement Projects, Center for the Arts Performance Hall and South Entry Roadway Project, 1999 Chilled Water Expansion Project, and the USDA Western Haman Nutrition Research Center would add approximately 175 new campus employees, and therefore once these projects are built, campus faculty and staff population would increase to 10,354. The proposed project would result in a projected population increase

of 37 people, 36 students and 1 employee. As a result, the number of students on campus would increase to approximately 22,839 and the faculty and staff population would increase to 10,355. This would be within and consistent with the population projections in the 1994 LRDP (please refer to Appendix A, Tiered Initial Study and Notice of Preparation, Section IV, for additional discussion on other projects under consideration that would also result in an increase in campus population).

1994 LRDP EIR

The 1994 LRDP EIR is a program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations, Section 15000 et seq.). The 1994 LRDP EIR analyzed full implementation of uses and physical development proposed under the 1994 LRDP through the academic year 2005-06 and identified measures to mitigate the significant adverse project and cumulative impacts associated with that growth. The environmental analysis in the 1994 LRDP EIR (State Clearinghouse #94022005) was amended by the Wastewater Treatment Plant (WWTP) Replacement Project EIR (State Clearinghouse #95123027 and #96072024) in 1997, by the 1997-98 Major Capital Improvement Projects SEIR (State Clearinghouse #97122016) in 1998, by the Center for the Arts Performance Hall and South Entry Roadway and Parking Improvements Tiered Initial Study and Mitigated Negative Declaration (State Clearinghouse #98092016) in 1998, and by the USDA Western Human Nutrition Research Center Tiered Initial Study and Mitigated Negative Declaration (State Clearinghouse #99092060) in 1999. Hereafter, references to the 1994 LRDP EIR include the 1994 LRDP EIR as amended by the subsequent documents unless otherwise noted, as allowed under Section 15150 of the CEQA Guidelines. All documents are available for review during normal operating hours at the UC Davis Planning and Budget Office at 376 Mrak Hall, UC Davis and the Reserve Reading Room at Shields Library, UC Davis.

The WWTP Replacement Project EIR identified the loss of an additional 20 acres of prime agricultural land that was not identified in the 1994 LRDP EIR analysis. As a result, the magnitude of several land use and biological resource impacts associated with the conversion of prime agricultural land and the conversion of Agricultural Land and Ruderal/Annual Grassland habitat were increased. (see Appendix A of the WWTP Replacement Project EIR).

The 1997-98 Major Capital Improvement Projects SEIR identified the loss of 20 acres of prime agricultural land and 31 acres of Agricultural Land and Ruderal/Annual Grassland over that anticipated in the 1994 LRDP EIR, as amended by the WWTP Replacement Project EIR. As a result, the magnitude of several land use and biological resource impacts associated with the conversion of prime agricultural land and the conversion of Agricultural Land and Ruderal/Annual Grassland habitat were increased. To mitigate identified land use and biological resource impacts associated with the conversion of prime agricultural land and Ruderal/Annual Grassland habitat, 20 acres of land at the Russell Ranch was redesignated from Academic and Administrative Low Density to Teaching/Research Fields.

The 1997-98 Major Capital Improvement Projects SEIR also included an updated analysis of transportation and circulation impacts. This analysis reflected the decision by the City of Davis not to expand the Richards Boulevard Underpass from 2 lanes to 4 lanes. The analysis also included more recent traffic numbers. The results of the analysis indicated that the operating performance of several intersections would decrease to Level of Service E or F during A.M. or

P.M. peak hour operating conditions. The 1997-98 Major Capital Improvement Projects SEIR also revised 1994 LRDP EIR Mitigation Measure 4.3-1(b) which identifies feasible improvements to reduce some transportation and circulation impacts to a less-than-significant level (see Appendix A of the 1997-98 Major Capital Improvement Projects SEIR). The updated transportation and circulation analysis in the 1997-98 Major Capital Improvement Projects SEIR is used as the basis for analysis for cumulative impacts in all later EIRs tiered from the 1994 LRDP.

Mitigation measures identified in the 1994 LRDP EIR that apply to proposed project will be required to be implemented as part of the project. The mitigation measures in the 1994 LRDP EIR that are appropriate to be implemented as part of the proposed project are identified and discussed in the Tiered Initial Study (Appendix A) and in Section 3 of this Focused Tiered DEIR, as appropriate.

1.7 REQUIRED PERMITS

Because the total area disturbed by the proposed project is greater than 5 acres, UC Davis will be required to file a Notice of Intent with the State Water Resources Control Board in compliance with NPDES requirements and will implement a storm water pollution prevention plan during project construction as required by the General Permit for Stormwater Discharges Associated with Construction Activity.

1.8 REPORT ORGANIZATION

The Focused Tiered DEIR is organized in the following sections:

- *Executive Summary.* Summarizes environmental impacts that would result from implementation of the proposed project, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation. It also presents alternatives to the proposed project and known areas of controversy.
- *Section 1 Introduction.* Provides an introduction and overview describing the intended use and scope of the Focused Tiered DEIR, its relationship to the 1994 LRDP and LRDP EIR, as amended, and the environmental review process.
- *Section 2 Project Description.* Provides a detailed description of the proposed project, including its location, background information, major objectives, and structural and technical characteristics.
- *Section 3 Environmental Setting, Impacts and Mitigation.* Contains project-specific and cumulative impact analyses for each resource area identified for further analysis in the TIS (Appendix A). For each resource area, it provides a description of the environmental setting, potential impacts of the project, cumulative impacts of this project in conjunction with the overall growth and development included in the 1994 LRDP and in the Davis region and mitigation measures.
- *Section 4 Other CEQA Considerations.* Provides a discussion of growth inducement, significant and unavoidable impacts, and irreversible environmental effects of the proposed project.

- *Section 5 Alternatives to the Proposed Project.* Identifies and discusses alternatives considered in the development of the proposed project and the associated environmental effects.
- *Section 6 References.* Itemizes supporting and reference sources used in the preparation of the Focused Tiered DEIR.
- *Section 7 Report Preparers and Individuals Consulted.* Identifies the persons who prepared the Focused Tiered DEIR and those who were consulted during its preparation.
- *Appendix A.* Contains the Notice of Preparation and TIS for the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities.
- *Appendix B.* Contains the comments received on the Notice of Preparation and TIS and responses to the comments.
- *Appendix C.* Contains guidelines on the care and use of laboratory animals.

2.1 PROJECT LOCATION

UC Davis

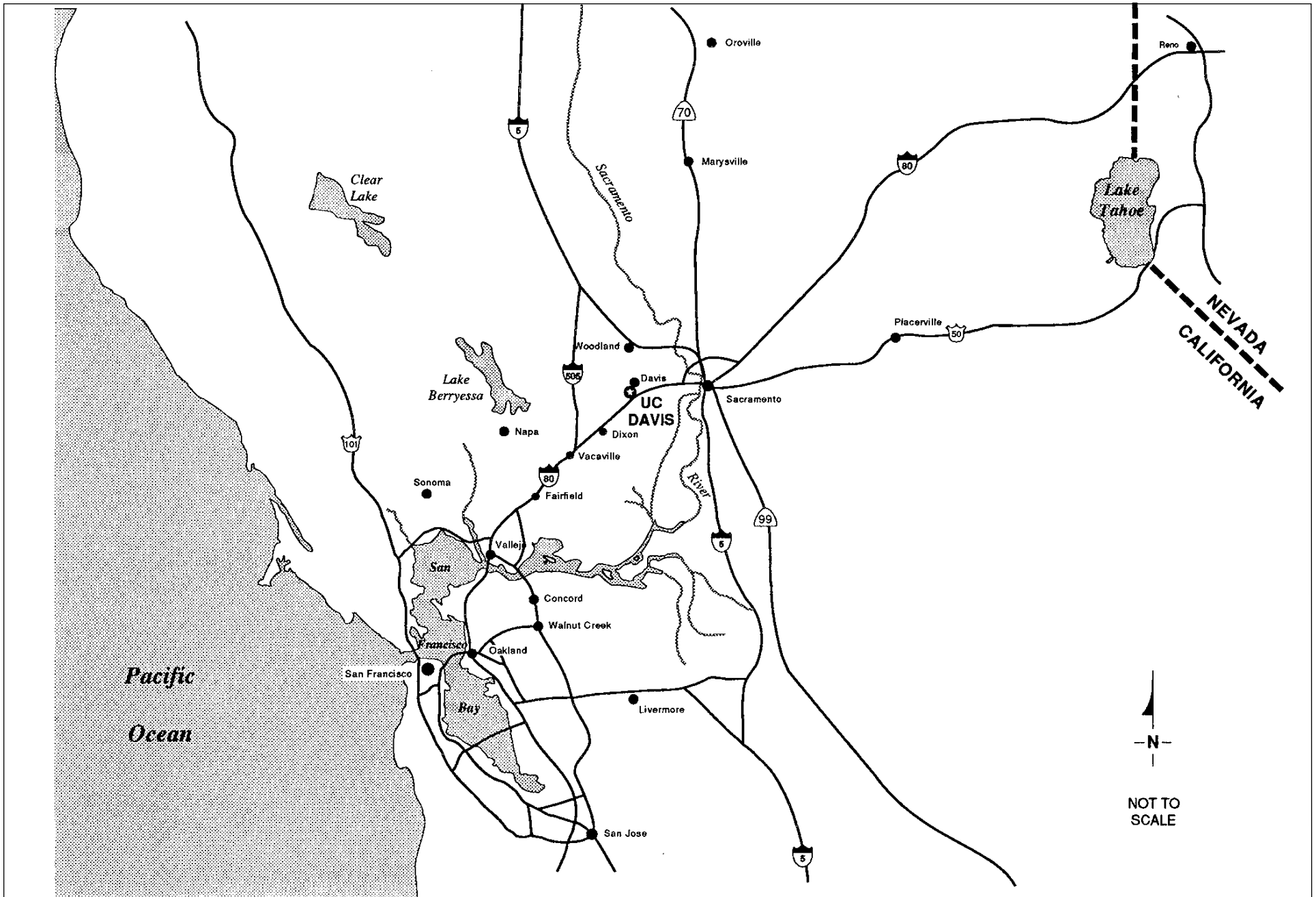
The 5,300-acre UC Davis campus is located in Yolo and Solano Counties approximately 72 miles northeast of San Francisco, 15 miles west of the City of Sacramento, and adjacent to the City of Davis (see Figure 1). The campus, in general, is made up of four units: the Central Campus, the South Campus, the West Campus, and Russell Ranch (see Figure 2). The term “Main Campus” is used to refer to Central, South and West Campus units collectively and excludes Russell Ranch. The Central Campus is bounded approximately by Russell Boulevard to the north, Highway 113 (State Route 113) to the west, Interstate 80 (I-80) and the Union Pacific Railroad tracks to the south, and 1st and A Streets in the City of Davis to the east. The South Campus is located south of I-80 and north of the South Fork of Putah Creek. The West Campus is bounded to the east by Highway 113, to the north by Russell Boulevard, to the south by Putah Creek and to the west by privately owned lands. While the Central, South and West Campus units are contiguous, Russell Ranch is located to the west of West Campus and is separated from that campus unit by 1½ miles of privately owned agricultural land.

Project Site

The proposed facilities would be constructed on an approximately 7-acre site in the southern portion of Health Sciences District of the Central Campus (see Figure 3). Adjacent land uses include Garrod Drive and the Veterinary Medicine Diagnostic Building (Thurman Hall) to the north, the Veterinary Medical Teaching Hospital (VMTH) to the east, the Equestrian Center and the Campus Arboretum to the south and Highway 113 right-of-way to the west. The site is not developed with any permanent structures. Although the site is essentially flat, it has been substantially altered into an equestrian cross county riding course complete with a small hill, man-made obstacles, and jumps, and is currently used by the Equestrian Center to exercise horses. This riding course will not be replaced at another location on campus.

2.2 NEED FOR THE PROJECT

The proposed project supports the instruction and research missions of the University of California by providing essential facilities for graduate professional education in the School of Veterinary Medicine (SVM). UC Davis’ SVM offers a four-year Doctor of Veterinary Medicine (DVM) program. This program is designed to provide fundamental concepts and knowledge of veterinary science and training in clinical skills sufficient to enable graduates to enter a chosen area of veterinary medicine with an entry level of professional competency. The surgical curriculum under this program consists of both core and elective courses. The core courses are designed to introduce students to principles and techniques of surgery, to begin developing skills in the anesthetic management of patients, and to develop an understanding of the importance of anatomy in surgical planning. The elective surgical courses are designed to build upon the skills acquired in the core courses and to focus on common surgical problems of individual animal species. In order to provide this instruction, the SVM utilizes a number of animal species that are acquired either from outside sources or reared on campus.

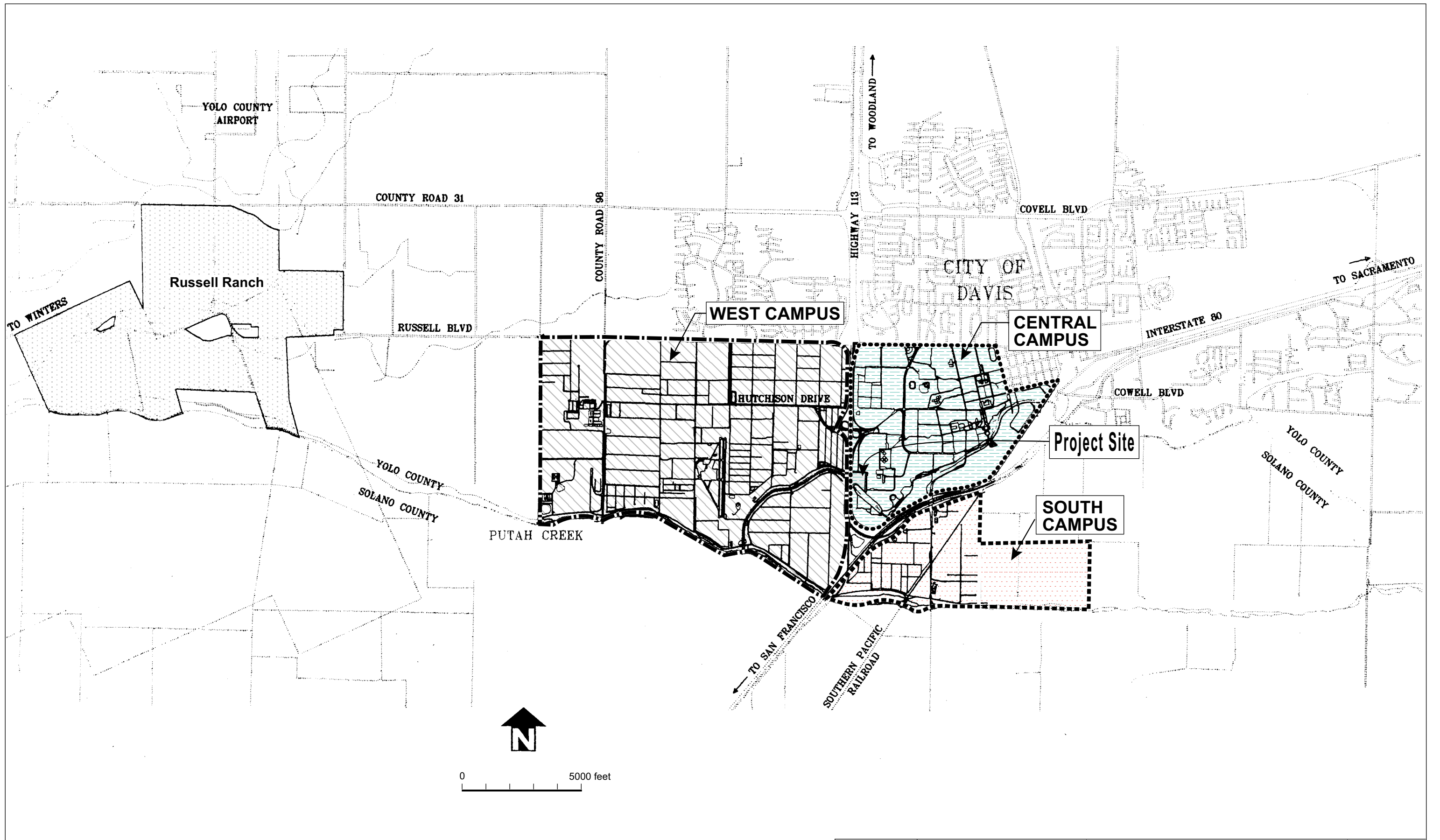


Source: 1994 LRDP DEIR, Figure 3-1

Project No. 51-00067005.00	UC Davis Veterinary Medicine Facilities
URS Greiner Woodward Clyde	

REGIONAL LOCATION

Figure
1



Source: 1994 LRDP DEIR, Figure 3-2

Project No. 51-00067005.00	UC Davis Veterinary Medicine Facilities	LOCAL SETTING	Figure 2
URS Greiner Woodward Clyde			

Figure 3

The project responds to and aims at correcting facility adequacy issues raised in the 1998 accreditation evaluation of the SVM by the American Veterinary Medical Association (AVMA), and a citation by the American Association for Accreditation of Laboratory Animal Care (AAALAC). This project would enable UC Davis to continue to meet accreditation requirements and to maintain the quality of its SVM program.

Surgical training facilities are currently located in Haring Hall, Haring Annex, Haring Barn, and at N Barn in the Animal Resources Services (ARS) facilities (Figure 4). These facilities were designed in the late 1940s for a class size of 48 students. Since then not only has the class size of students in the DVM program grown significantly, but animal surgery techniques have also changed dramatically. Additionally, during this time, AAALAC, National Institutes of Health (NIH) and the United States Department of Agriculture (USDA) have developed guidelines and standards related to medical and surgical care and housing of animals used in teaching and research. The new animal surgery facilities would ensure full compliance with these guidelines and standards.

The AVMA is the accreditation body for all veterinary teaching programs in the United States and Canada. In 1998, AVMA conducted an evaluation of existing facilities at the SVM at UC Davis. AVMA's 1998 accreditation report stated that the animal surgery instructional facilities were inadequate and not sufficiently contemporary in design to ensure an appropriate learning environment. Specific items included in the report with respect to surgery instructional facilities in Haring Hall and Annex include the following:

- Crowded conditions that result from 61 DVM students using the laboratories and support space that are designed for 48 DVM students, and resultant inability to maintain the needed levels of cleanliness and protection against contamination in the surgery rooms and support areas
- Inadequate heating, ventilation and air-conditioning systems
- Inadequate surgery support and storage facilities
- Inadequate lighting
- The distance between facilities is not conducive to efficient class scheduling or faculty interaction

Similarly, N Barn on the South Campus, which is used to train DVM students in food animal surgery, also suffers from the following deficiencies.

- Surgeries are located in a converted barn that was not designed to meet the requirements of a modern surgical facility
- The facilities are difficult to clean
- There are no support facilities (scrub room, pharmacy, service laboratory, built-in storage areas)
- There is no lecture hall facility

Figure 4

- The facility is physically remote from other DVM facilities and therefore much time and energy is lost by students, faculty, and technicians traveling to and from the facility

In addition to the animal surgeries, the SVM utilizes two equine treadmills for purposes of research, clinical instruction, and teaching in the fields of cardiovascular and respiratory physiology of horses and other vertebrates. The research treadmill is housed in Haring Barn, a 50+-year-old facility that was renovated to serve as an interim treadmill laboratory (Figure 4). The facility needs improved lighting, electrical service, ventilation, climate control, and emergency exits.

Associated with the research treadmill is an electronics and instrumentation room that is currently located in a converted barn. This room has inadequate electrical service and is very difficult to keep clean. Similarly, a biochemistry/analytical laboratory that is used to analyze blood samples has been added to the building. This laboratory is not supplied with de-ionized water, gas or fumehoods. Another laboratory used with the treadmill is located in a converted garage and is in need of repair.

A clinical treadmill facility is currently located at an interim location between the B Barn and the C Barn at the VMTH (Figure 3). The treadmill was built in a driveway and has a roof and walls but no environmental controls, making it difficult to use at certain times of the year. A subterranean steam pipeline running beneath the treadmill compounds this problem. The facility is located adjacent to a dirt arena and the equipment in the room is chronically covered in dust. The treadmill at this location generates noise that can be bothersome to adjacent land uses. Both treadmills and associated facilities were cited by AAALAC and AVMA as not meeting the minimum standards for treadmill operation, and therefore need to be upgraded. The proposed project would construct modern facilities and thereby address the existing deficiencies in the instructional surgery and treadmill laboratory facilities.

The proposed project would locate the new facilities at one centralized location on Garrod Drive in the southern portion of the Health Sciences District adjacent to other veterinary medicine facilities including the VMTH, the Veterinary Medicine Diagnostic facility, and the Equestrian Center. This would eliminate unnecessary travel across the campus and allow better class scheduling.

The proposed project would also provide the needed laboratory space for the projected increase in enrollment in the DVM program. In 1998-99, the State of California provided an augmentation of \$2.5 million specifically to the SVM to allow a phased increase in enrollment from a class of 122 DVM to 131 DVM students per year. The phase-in would be completed by 2007-08. The proposed facilities would accommodate a class of 131 DVM students per year.

The project would address another existing problem at the SVM that results from the location of the existing animal surgeries and the equine treadmill in the heart of the core campus. The dogs to be spayed/neutered are housed in the Haring Kennel that is near the Campus Silo Student Center, a congregating area for students and visitors. The barking of the dogs in the kennel can be disturbing to these people who do not know of the SVM's program. Similarly, horses used in chronic exercise studies are housed in the Haring Wing Barn and are sometimes observed by other students who misinterpret a heavily exercised animal as having been mistreated. The proposed project would relocate these facilities to an area where adjacent land uses are also

focused on animal holding and care. The project would also place the surgeries, the equine performance facility in close proximity of the animal holding facility and thereby eliminate the need to move animals between housing and the laboratory facilities.

Lastly, the project would relocate canine blood donors from distant facilities at the ARS to the vicinity of the VMTH. A critical component of the small animal clinical service at the VMTH, and especially for emergency and surgical cases, are blood donors that supply a variety of blood products to patients in need of transfusions. Historically, a small cadre of blood donor dogs were housed and maintained in the VMTH to provide fresh blood needs of canine patients, and commercial product was purchased to satisfy the balance of the needs. In the past two years, however, commercial suppliers have been unable to meet the demand in the veterinary profession for blood products and the VMTH has had to expand its blood donor colony. Currently, there are 10 blood donor dogs housed at the VMTH and another 24 dogs are housed at the ARS. The VMTH projects the need to expand the colony to 40 blood donor dogs. Housing some of the dogs presents numerous problems. Sometimes, blood is needed immediately (within 10-15 minutes) but if an ARS donor is used, the turnaround time is close to one hour. Also, the dogs at the ARS do not receive the same level of interaction as those housed at the VMTH. The proposed canine blood donor facility would locate the dogs near the VMTH to address these problems.

In essence, the proposed project would eliminate facility deficiencies related to the animal surgeries and equine athletic performance facilities, provide space for a larger class size, centralize all veterinary medicine-related facilities in one portion of the campus and eliminate unnecessary cross-campus travel by students, staff and faculty, and eliminate the need to move animals between housing and the laboratory facilities, and would move these facilities to a portion of the campus where the ongoing activities would not be bothersome to persons not related to the SVM programs.

2.3 PROJECT OBJECTIVES

The campus has identified the following objectives for the proposed project.

- Provide modern animal surgery teaching facilities in order to allow the School of Veterinary Medicine (SVM) to meet accreditation requirements and ensure full compliance with applicable guidelines and standards
- Provide additional space needed to accommodate a larger student class size
- Consolidate veterinary medicine facilities in one portion of the campus near the VMTH and reduce cross-campus travel by students, faculty and staff
- Move veterinary facilities away from the center of the campus where noises (e.g., barking dogs) and movement of large animals can be disruptive to other nearby teaching facilities
- Allow for the efficient use of land resources on the campus

2.4 PROJECT DESCRIPTION

The proposed project includes the construction and operation of a new Veterinary Medicine Laboratory and a new Equine Athletic Performance Laboratory in the southern portion of Health Sciences District of the Central Campus. The Veterinary Medicine Laboratory facility would consist of a laboratory, animal holding facilities for both large and small animals, a canine blood donor holding facility, an instructional lecture hall and other ancillary facilities including exercise runs for dogs and other small animals and a pasture to hold large animals. The Equine Athletic Performance Laboratory would include a laboratory with three treadmills and other facilities such as a “hot walker,” a round pen, and an equine holding facility.

Currently, large and small animal surgical training is provided in the animal surgery teaching facilities located in Haring Hall, Haring Annex and associated animal holding area for livestock and horses in Haring Barn in the academic core of the Central Campus. The location of these facilities is shown on Figure 4. Training in food animal surgery is provided in “N” Barn at the ARS facilities on the South Campus. Treadmills used for research and teaching in cardiovascular and respiratory physiology of horses are located in Haring Barn and at a location near the VMTH. Canine blood donors are housed at two locations, near the VHTH and at the ARS on the South Campus.

Currently, there are no plans to backfill the space that would be released when the functions are moved into the new facilities. It is likely though, that due to the age of the structures, they would be demolished to construct new facilities at that site. However, the vacated structures would stay in place until the campus develops a specific proposal for the site. Therefore, demolition of these facilities would be a consequence of a future project that would involve use of the land underlying the existing buildings. Analysis of demolition impacts would occur with the analysis of a future project to be constructed at the site.

The proposed facilities would include up to five new buildings and a number of outdoor ancillary facilities (see Figure 5 and Table 2.4-1). Each of the proposed improvements is described below:

**TABLE 2.4-1
PROPOSED FACILITIES**

Facility	Gross Square Feet	Assignable Square Feet
Veterinary Medicine Laboratory ¹	36,821	20,620
Large and Small Animal Holding	23,614	13,224
Canine Blood Donor Facility	2,340	1,692
Equine Athletic Performance Laboratory	14,407	8,068
Large Animal Holding	4,965	2,880
Total	82,147	46,484

¹Includes Surgical Lecture Hall

Veterinary Medicine Laboratory Facility

The new laboratory on the west side of Garrod Drive would provide a modern animal surgery teaching facility with the flexibility necessary to accommodate program change, increased student enrollment, and new laboratory techniques. The nature and logistics of animal surgery instruction require special-purpose laboratory and support facilities to meet the needs of the DVM teaching program. Before each surgical laboratory session, the surgery facilities are in use for 3-4 hours for preparation of animals and equipment by DVM students and staff. Animals must be selected, brought to holding facilities that must be located near the laboratories, and weighed for determination of anesthetic and drug doses that will be needed during the surgical procedures. The animals must then be prepared for surgery, anesthetized and transported to the surgical operating rooms. Each surgery session typically lasts from 4 to 7 or more hours, depending on the complexity of the procedure, possible complications during the procedure, and the level of dexterity of the students performing the operation. Post-operative care involves holding the animals in a recovery area until they can be safely returned to nearby holding facilities. Several hours of clean-up following each surgery session are also required in the laboratories and support facilities to bring them to the level of cleanliness needed for the next surgery session.

The 36,821-gross-square-foot (20,620-assignable-square-foot) building would be a single-story, steel frame structure founded on spread footings. Walls would be constructed of concrete or concrete masonry and the foundation would be a concrete slab foundation. The facility would consolidate the small animal, large animal and food animal surgeries into one structure and would contain the following special-purpose areas:

Small Animal Surgery Suite. A small animal surgery room would include surgery tables and instruments and would be used to teach a variety of anesthesia, surgical and non-surgical courses in the curriculum of the SVM. The room would also be used to conduct Continuing Education courses for post-DVM training, resident training and classes for animal health technicians and animal technicians from other campus and non-campus units.

A small animal preparation and induction room would be used to anesthetize small animal patients and prepare the patients for surgery before moving the patients to the small animal surgery room. The room would also be used to instruct techniques of physical restraint, blood sample collection, and injections. A laboratory and dispensing pharmacy would be located within the interior of this room, which would be used to do blood work and dispense anesthetic drugs for patients.

Two radiology rooms would be constructed with appropriately shielding, rolling access to the small animal surgery room and with adequate room to accommodate a patient, transport cart, and students. These rooms would be used to process x-rays after they have been taken for radiographic diagnostic training purposes. The viewing room would be used to discuss radiographic findings. The equipment storage room would accommodate small animal equipment, gas anesthesia machines, ventilators, orthopedic equipment, and ultrasonography machines.

Large Animal Surgery Suite. The surgery rooms would include an overhead track system with roll-up door access to outside animal holding areas. The room would be used for instruction in

large animal surgery and anesthesia, as well as herd health, reproduction and food animal courses involving animals under general anesthesia, sedation and restraint of standing animals under sedation and local anesthesia, equine and food animal diagnostic procedures, and topographical anatomy. Two induction/recovery rooms fitted with "restraint gates" would be used for induction of, and recovery from, general anesthesia for horses, large ruminants and camelids (cattle, llamas, etc). The gates would provide for animal and personnel safety and ensure that other activities in the main surgical area are not disrupted.

Small and Large Animal Cold Storage and Freezer Storage. A cold room and freezer would be used to store small animal cadavers and body parts to be used in other surgical, teaching, or research activities. They would also function as an area for hazardous waste collection/pick-up and cadaver disposal. A second cold room and freezer would be used to store large animal cadavers and body parts collected throughout the year for use in surgery, and other courses. Equipment storage rooms would accommodate the hardware (ventilators, gas anesthesia machines, instrument tables, portable surgery table, and other ancillary equipment) necessary to conduct surgery classes.

Dentistry Preparation and Storage Room. This room would accommodate dentistry special equipment items that need to be kept separate from the general small animal equipment.

Scrub Room. This room would be used by students and instructors in preparation for donning surgical gowns and gloves used during surgical procedures. This room would also be used to instruct students and technicians in proper scrubbing, gowning and gloving techniques.

Surgical Support/Wrapping Room. This room would be used by students to sort instruments and make up surgical packs. The room would include a "pass through" window into a sterilizer room to submit packs for sterilization. The sterilizer room would serve multiple functions including sterilization of all instrument packs; preparation of specialty instrument packs; supply, drug, and suture dispensing; and processing and storage of specialty surgical instruments. The Supply Storage Room would store most disposables, chemicals, small instruments, and some equipment replacement and repair items.

Equipment/Machine Room. This room would house an oxygen manifold to supply piped oxygen to all three surgery rooms, the small animal preparation room and the large animal recovery rooms. This room would also have a system to remove excess anesthetic gases from anesthesia machines while they are in use. The air compressor used to drive the dentistry equipment and oxygen cylinders would also be installed in this room.

Other facilities. These would include locker rooms equipped with showers, changing areas, toilet stalls, washbasins, lockers and bench seating, a break room that would also serve as a conference room, and two offices that would accommodate support staff for the facilities.

Instructional Surgical Lecture Hall. The Instructional Surgical Lecture Hall would include 1,350 assignable square feet (2,411 gross square feet) of space with a seating capacity of 90. The space would accommodate regularly scheduled surgical course lectures as well as Extension and Continuing Education programs.

In the typical veterinary medicine instructional surgery course, students begin each laboratory session by assembling in a lecture hall where the instructor previews the surgery instructions and demonstrates, through slides, video and computer programs, the skills and techniques to be

learned during that particular session. It is important that a lecture hall be located in close proximity to the instructional laboratories to allow students sufficient preparation time for anesthesia, induction, surgery and recovery of animals. The location of this lecture hall in close proximity to the animal surgery class laboratory facilities is a key element in the improvement of veterinary medicine teaching facilities.

The 90-seat lecture hall proposed for construction in this project would support the surgical training programs that would be accommodated in the proposed new Veterinary Medicine Laboratory Facility and allow all surgical instructional programs to be presented to DVM students in one location. The lecture hall would have fixed, tiered seating and would also contain state-of-the-art multi-media equipment to support the lectures.

Large and Small Animal Holding Facilities

The new student instructional animal holding facilities on the west side of Garrod Drive would provide both small and large animal quarters to augment the teaching surgery laboratories at the Veterinary Medicine Laboratory Facility as well as other related instructional programs. The new facilities would replace the uses at existing facilities in Haring Barn, Haring Kennel, N Barn and other locations at ARS. The 23,614-gross square-foot animal holding facilities would consist of a small animal holding facility, which would be attached to the Veterinary Medicine Laboratory Facility, and a large animal holding facility, which would be constructed as an independent structure. Near these, a separate 2,340 gross-square-foot building would be constructed to hold canine blood donors that provide a source of blood products for animal patients at the VMTH.

Large Animal Holding Facility. This building (4,008 assignable square feet) would be used to house large animals including horses, large ruminants (mainly cows, goats and sheep), and camelids (e.g., llamas). The facility would consist of large animal quarters, a treatment area, food and bedding storage areas, heavy equipment storage space, hallways and maintenance space. The facility would include 32 stalls for cows and horses to be used in teaching and research, and 12 smaller stalls to house sheep and goats. It would be a single story building with a concrete slab foundation and concrete block or cast-in-place concrete exterior walls. The building would be fitted with evaporative cooling (swamp cooling) and natural ventilation. Heating is not necessary. The rooms would have epoxy flooring and fixed animal pens.

Small Animal Holding Facility. This 9,216-assignable-square-foot extension to the Veterinary Medicine Laboratory Facility would be used to hold dogs and cats. It would consist of separate quarters for dogs and cats, a small animal treatment room, a small animal food and bedding storage area, and maintenance space. This building would also be made of concrete block or cast-in-place concrete with full height exterior walls, concrete slab foundation, and epoxy flooring. The facility would be enclosed and fitted with a mechanical air conditioning system. A floor drainage system would be designed to remove animal waste in the dog and cat areas.

Canine Blood Donor Facility

This would consist of a 2,340-gross-square-foot (1,692-assignable-square-foot) building and 1,824 square feet of exterior run space. The building would include interior dog runs to hold up to 48 dogs. Each dog would have a 4-foot by 6-foot interior space and a 4-foot by 12-foot run

space with “doggie door” access between them. Other areas in the facility include a food preparation room, an animal treatment room, a bulk feed storage room, and a restroom for staff.

Equine Athletic Performance Laboratory Facility

The Equine Athletic Performance Laboratory Facility would be located on the east side of Garrod Drive. It would support activities in four areas of the academic program of the SVM including research, teaching, clinical instruction, and service in the fields of cardiovascular and respiratory physiology of horses and other vertebrates. The 14,407-gross-square-foot (8,068-assignable-square-foot) facility would include two high-speed, in-ground, large animal treadmills, one small animal treadmill, associated laboratory facilities and requisite animal housing. This would replace the inadequate existing facilities in Haring Barn, Haring Annex, and an interim location between the B Barn and the C Barn at the VMTH. The facility would include the following areas:

Research Treadmill Room. This room would house an equine treadmill and a small animal treadmill. Both treadmills would be mounted at ground level to facilitate animal entry and exit. This design would enhance safety by not having animals positioned above people working around them. Access to the room would be provided through double doors at each end of the treadmill room. The room would have sufficient space to allow horses to be walked off either end of the treadmill, and would have movable safety railings to keep them restricted to appropriate areas of the laboratory. The room would have a duct system connected to an outdoor turbine for collecting gas during exercise. Interior windows would open from this room to the adjacent instrumentation room, and several wire/tubing pass-through openings would be mounted in the wall. The room would be insulated to reduce noise and would be climate controlled.

Clinical Treadmill Room. This room would house the VMTH’s clinical equine treadmill. It would be used for carrying out clinical evaluation of equine athletes presented to the Large Animal Clinic. It would also be used by principal investigators from clinical departments and the Equine Analytical Chemistry program to run animals for their research projects. This equine treadmill would also be mounted with the surface at ground level to facilitate animal access, and to increase safety by not having animals positioned above people working around them. All aspects of this room would be identical to those of the research treadmill room. The outer wall of this room would have a double sliding door mounted at the level of the treadmill so that long-distance video filming of running horses is possible.

Electronics and Instrumentation Room. This room would separate the two treadmill labs and would house the electronic and laboratory instruments necessary to collect data on animals running on the treadmills (gas analyzers, etc.).

Biochemistry and Analytical Laboratory. This laboratory would be used to analyze blood and gas samples, and would house specialized instruments (e.g., gas chromatograph and spectrophotometer) and laboratory benches.

Animal Laboratory. This room would be used for conducting animal experiments (on horses and smaller animals) that do not utilize the treadmills, such as experiments on a standing animal that is not exercising or an anesthetized animal.

Shop. This room would be used for fabrication of materials for use in the laboratory and for treadmill research. It would house a number of power tools with necessary benches, cabinets and shelving, electrical outlets, sinks, etc.

Multi-Purpose Room. This room would be used for storage of equipment items and supplies not being used in current experiments, as well as serve as temporary auxiliary laboratory space when experiments require more than the usual treadmill and animal laboratory areas. It would also be used as a preparation room for material for numerous experiments in the animal lab and research treadmill areas.

Computer Lab. This room would house computers and computer peripherals for general use by laboratory personnel, as well as provide a break area for personnel. The wall separating this room from the adjacent graduate student lab would be a partition that could be opened so that the larger room could be used as a meeting/conference room.

Grad Student/PostDoctoral, Faculty and Staff Offices. The facility would include rooms that would be used by graduate students and postdoctoral fellows, faculty and staff associated with the athletic performance laboratory facility.

Equipment Rooms. These rooms would be isolated from the main laboratory areas and would house treadmill transformers, controllers, turbines for the flow systems, and other large electrical/air conditioning equipment.

Equine Holding Facility

This building (4,965 gross square feet; 2,880 assignable square feet) would be located east of Garrod Drive and adjacent to the Equine Athletic Performance Laboratory, and would include up to 20 stalls for holding horses, as well as other areas for storing food, bedding, and equipment.

Other Ancillary Facilities

In addition to the facilities described above, site improvements include the following outdoor facilities that would be used to exercise or hold small and large animals.

- A 30-foot diameter “hot walker” and a 40-foot diameter round pen that would be used to exercise and maintain healthy horses for the treadmill facility
- A wash shower with rubber flooring and drains that would be used to wash down horses
- A horse run with a force platform (analytical tool used to measure the speed of a horse as it passes a given point)
- A small animal exercise run which would consist of an enclosed lawn or dirt area adjacent to the small animal holding facility
- Horse Stall Run (paddock) areas attached to each horse stall to provide outdoor space for animals to move and graze
- Non-domestic Small Animal Paddock, a fenced area adjacent to the laboratory facility

- Cattle Raceways (i.e., fenced pathways for moving animals between locations)
- Cattle chutes used to load and move cattle from the barn to the surgery building
- Cow Dry Lot (outdoor paddocks)
- Blood Donor Animal Exercise runs
- A covered shop area and a service area
- A 2.4-acre pasture to hold large animals

Population

The Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory facilities would accommodate approximately four employees including three staff relocated from existing facilities and one new staff member. The faculty are already on site in the adjacent VMTH. The proposed project in conjunction with other future projects in the Health Sciences District would allow the DVM class to grow from 122 to 131 students, an increase of nine students per class. Because the DVM is a four-year program, the actual increase would be 36 students.

Landscaping and Setbacks

The project would require the removal of three to four ornamental trees. These would be replaced by new landscaping. Portions of the site that are not needed for the proposed facilities would be landscaped with materials similar to those used in adjacent areas such as VMTH and Thurman Hall. An area designated teaching lawn is included in the project adjacent to the large animal holding facility on the west side of Garrod Drive.

The project includes a 30-foot setback along Garrod Drive, which runs along the northern and eastern site boundaries, and a 30-foot setback from the alignment for a possible future road that would run along the project's southern and western boundaries.

Utilities and Infrastructure

The proposed project would require connections to campus utilities and infrastructure including electrical, steam, natural gas, domestic water, sanitary sewer, utility water, storm drains, and communications. Existing utilities adjacent to the site are adequately sized to serve the project, and no improvements would be necessary to the distribution lines, mains, supply sources or treatment plants to handle the demands of the project. The chilled water loop pipeline is not sufficiently close to serve this project therefore a stand-alone cooling system would be constructed as part of the proposed project to serve the buildings.

Electrical power would be supplied from the campus 12KV distribution system. The service would be to a pad-mounted transformer in the service yard that would serve all parts of the project. Lighting would be designed to achieve Illuminating Engineering Society (IES) recommended lighting levels while staying within the power limitations of Title 24 energy regulations. In general, fluorescent lighting would be used in office and laboratory areas and

decorative lighting in public spaces. A diesel generator would be installed to provide emergency and standby power.

A fire alarm system would be provided with connection to the central campus system. Smoke detectors would be installed in accordance with code and as required by the State Fire Marshal.

The buildings would tie into the campus telephone and data networks through copper and fiber optic cable to the main telecommunications room.

A security system would be provided composed of security fencing, card readers and access control.

Roadway and Parking Improvements

The project does not include any changes to existing roads in the vicinity of the site. Access to the facilities would be via Garrod Drive. There would be three entrances into the site. The main public entrance would be in the northeastern corner of the site via Garrod Drive. The service entrances would also be on Garrod Drive due south of the main entrance.

The project includes four parking spaces that would be used for campus vehicles and handicapped parking. Project-related students, faculty and staff would use existing parking facilities in the Health Sciences District. Most of these users would be in the Health Sciences District working or taking courses at the VMTH or using the library. These users would have parking passes or would bicycle to the District. Parking for the additional 36 students and one employee added by the project would be available at existing parking lots in the Health Sciences District.

2.5 PROJECT SCHEDULE AND CONSTRUCTION ACTIVITIES

It is anticipated that The Regents will consider design approval of the proposed project in Summer 2000, with construction beginning in Spring 2001, and completion of construction by Summer 2002. Construction staging would take place on-site in the western portion of the site that would not be developed with structures, and later used as a pasture. Construction traffic would access the site via Highway 113 and Hutchison Drive.

SECTION THREE Environmental Setting, Impacts, and Mitigation Measures

This section describes existing conditions in the project area with respect to transportation and circulation, air quality, hazardous materials and public safety, and biological resources that may be affected by the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities, associated impacts, and mitigation measures that would minimize or avoid identified impacts.

The environmental setting for each resource area discussed in this section is based on a review of existing, available information and data gathered through field visits.

Significance criteria are stated in the impact discussions for resources for which such criteria can be defined. Generally, where impact analyses are quantitative, involving modeling or other methods of prediction, the significance criteria are stated as standards or guidelines adopted or accepted by regulatory agencies with expertise in the resource area. Qualitative impact analyses include significance criteria that are generally policies or goals, or are stated as the relative magnitude of impact in relationship to the existing resource.

In the analysis of impacts and their significance, features included in the proposed site plan, or measures that would be required by law or local regulations were taken into account. Mitigation measures are identified for those impacts considered significant.

For most resource areas, this EIR depends upon the LRDP EIR, as amended, for cumulative impact analysis. The LRDP EIR cumulative impact analysis utilized both projections of land uses and a list of reasonably foreseeable projects. The cumulative traffic analysis which was revised for this project also utilized cumulative land use projections based upon buildout of the campus LRDP (year 2005-06, including the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities analyzed in this Focused Tiered DEIR), year 2010 City of Davis forecasts, and regional growth to year 2010 levels. Campus growth was apportioned to areas of the campus based on projections that correspond to projects anticipated as part of the 1994 LRDP.

Construction schedules for other projects proposed in the Health Sciences District were examined to determine if those projects in conjunction with the proposed project could result in cumulatively considerable construction impacts (especially related to dust and other construction emissions, and construction traffic). The schedules of the proposed projects would not overlap with those of other proposed project, therefore cumulative construction impacts would not occur.

3.1 TRANSPORTATION AND CIRCULATION

This section addresses the potential effects of the project-related motorized vehicle traffic on the levels of service of the roadway system on and adjacent to the campus. All other transportation-related impacts are adequately addressed in the TIS for this project and are not addressed in this section. All relevant information, including applicable environmental and regulatory setting, standards of significance, and mitigation measures identified in Section 4.3 of the 1994 LRDP EIR, in Section 4.9 of the 1997 WWTP Replacement Project EIR, in Chapter 8 of the 1997-98 Major Capital Improvement Projects SEIR, in Item 6 of the Center for the Arts Tiered Initial Study and Mitigated Negative Declaration, and in Item 7 of the USDA Western Human Nutrition Research Center Tiered Initial Study and Negative Declaration, is incorporated by reference and summarized below, as appropriate.

3.1.1 Environmental Setting

Section 4.3 of the 1994 LRDP DEIR, contains a detailed description of the existing transportation systems on campus and in the adjacent areas of the City of Davis, Yolo County, and Solano County. This section contains new information refining and updating the information presented in the 1994 LRDP EIR, as well as more detailed information concerning the proposed facilities.

3.1.1.1 Motorized Roadway Network

The proposed project site is located in the southwestern corner of the Health Sciences District of Central Campus. The majority of the project site is bounded by Highway 113 to the west, Garrod Drive to the north and east, and the Campus Arboretum to the south. Some of the proposed facilities would be located on the east side of Garrod Drive and would be bounded by Garrod Drive to the west and south and existing veterinary medicine facilities to the north and east (see Figure 5). Both public and service access to the facilities would be via Garrod Drive. It should be noted that improvements to the intersection of Health Science Drive and Hutchison Drive have recently been completed to improve the efficiency of the intersection. Improvements include repaving and restriping Hutchison Drive to include a left turn lane for westbound traffic. This improvement will improve the flow of traffic for vehicles accessing the proposed facilities.

3.1.1.2 Traffic Under Existing Conditions

In the fall of 1997, as part of the 1994 LRDP EIR Mitigation Monitoring Program, a comprehensive traffic data collection and roadway operating condition analysis effort was completed to update background information on the motorized roadway systems presented in the 1994 LRDP EIR (UC Davis 1998). This study was subsequently updated in 1999 for the USDA Western Human Nutrition Research Center and expanded to include the Health Sciences Drive and Hutchison Drive intersection (UC Davis 1999a). Information in this section is based upon this most recent analysis which was conducted in 1999. Traffic counts were undertaken at 30 key intersections in the campus vicinity. Field reconnaissance was undertaken to ascertain the traffic control characteristics of each of the critical intersections. Lane configuration, traffic control and signal phasing information is included in a Technical Appendix prepared for the

SECTION THREE Environmental Setting, Impacts, and Mitigation Measures

Western Human Nutrition Research Center Tiered Initial Study and Mitigated Negative Declaration, available for review during normal operating hours at the UC Davis planning and Budget Office at 376 Mrak Hall, UC Davis (UC Davis 1999b).

Methodology

Determination of roadway operating conditions is based upon comparison of known or projected traffic volumes during peak hours to roadway capacity. In an urban or suburban setting, roadway capacity is generally governed by intersection characteristics. Roadway operating conditions are described by “levels of service.” Level of service (LOS) is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs. Levels of service are designated “A” through “F” from best to worst, which cover the entire range of traffic operations that might occur. LOS “A” through “E” generally represent traffic volumes at less than roadway capacity, while LOS “F” represents over capacity and/or forced flow conditions. Table 3.1-1 presents level of service definitions.

For the purposes of the 1994 LRDP EIR Mitigation Monitoring Program, the following a.m. and p.m. peak hour intersection level of service goals were utilized.

- For roadways within the City of Davis and the Central Campus, LOS “D” for existing roadways and LOS “C” for new roadways
- For County roadways, LOS “C”

Signalized Intersection Analysis. Signalized intersection analyses were conducted using a methodology outlined in the Transportation Research Board’s *Highway Capacity Manual, Special Report 209*, (Transportation Research Board 1998). The methodology utilized is known as “operational analysis.” This procedure calculates an average stopped delay per vehicle at a signalized intersection and assigns a level of service designation based upon the delay. Table 3.1-2 presents the LOS criteria for signalized intersections. This methodology differs from the superseded “Critical Movement” technique utilized in the 1994 LRDP EIR (*Transportation Research Circular 212, Interim Materials on Highway Capacity, 1980*).

Unsignalized Intersection Analysis. Stop sign controlled intersections were analyzed utilizing the methodology outlined in the Transportation Research Board’s *Highway Capacity Manual, Special Report 209* (Transportation Research Board 1998). This methodology calculates an average total delay per vehicle for each controlled movement at the intersection, as well as average total delay per vehicle for the intersection as a whole. A level of service designation is assigned based upon the average delay. Table 3.1-2 presents the relationship of total delay to level of service for unsignalized intersections. This methodology differs from the superseded unsignalized intersections technique utilized in the 1994 LRDP EIR (*Special Report 209, Highway Capacity Manual, 1985, and Transportation Research Circular 373, Interim Materials on Unsignalized Intersection Capacity, 1991*).

TABLE 3.1-1

LEVEL OF SERVICE DEFINITIONS

<p><i>Level of Service A</i> represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. The general level of comfort and convenience provided to the motorist, passenger, or pedestrian is excellent.</p> <p><i>Level of Service B</i> is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream flow LOS A. The level of comfort and convenience provided is somewhat less than LOS A, because the presence of others in the traffic stream begins to affect individual behavior.</p> <p><i>Level of Service C</i> is in the range of stable flow, but marks the beginning of the range of flow in which the operations of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.</p>	<p><i>Level of Service D</i> represents high-density, but stable, flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.</p> <p><i>Level of Service E</i> represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to “give way” to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.</p> <p><i>Level of Service F</i> is used to defined forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse this point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion. Level of Service “F” is used to describe the operating conditions within the queue, as well as the point of the breakdown.</p>
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SOURCE: Highway Capacity Manual, Transportation Research Board, Special Report No. 209, Washington, D.C. 1985.

SECTION THREE Environmental Setting, Impacts, and Mitigation Measures

**TABLE 3.1-2
LEVEL OF SERVICE CRITERIA FOR
SIGNALIZED AND UNSIGNALIZED INTERSECTIONS**

Level of Service	Description	Average Stopped Delay Per Vehicle (Seconds)
A	Signalized: Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 5.0
	Unsignalized: Little or no delays.	≤ 5.0
B	Signalized: Operations with low delay occurring with good progression and/or short cycle lengths.	5.1 to 15.0
	Unsignalized: Short traffic delays.	5.1 to 10.0
C	Signalized: Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	15.1 to 25.0
	Unsignalized: Average traffic delays.	10.1 to 20.0
D	Signalized: Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	25.1 to 40.0
	Unsignalized: Long traffic delays.	20.1 to 30.0
E	Signalized: Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	40.1 to 60.0
	Unsignalized: Very long traffic delays	30.1 to 45.0
F	Signalized: Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 60.0
	Unsignalized: Extreme traffic delays with intersection capacity exceeded causing severe congestion.	> 45.0

Source: *Highway Capacity Manual*, Special Report 209, Transportation Research Board, 1994.

SECTION THREE Environmental Setting, Impacts, and Mitigation Measures

A.M. and P.M. Peak Hour Operating Conditions

Table 3.1-3 summarizes the 1999 a.m. and p.m. peak hour levels of service at the 30 critical study intersections. All of the study intersections meet the level of service criteria based upon the 1999 data, with the exception of the following known operating deficiencies.

- California Avenue and Old Davis Road – This all-way stop intersection is assisted by manual traffic control in the a.m. peak hour when it operates at LOS “C”, and operates at LOS “F” in the p.m. peak hour. Consistent with the 1994 LRDP and LRDP EIR Mitigation Measure 4.3-1(b), as amended by the 1997-98 Major Capital Improvement Projects SEIR, the campus plans the realignment of Old Davis Road to the south, including a new (relocated) intersection with California Avenue. This realignment is expected to be completed in 2000, and the new intersection would operate at an acceptable level of service.
- Richards Boulevard and First Street – This signalized intersection operates at LOS “E” during both the a.m. and p.m. peak hours. No feasible improvement has been identified to improve the level of service to an acceptable LOS “D,” as the City of Davis has decided not to widen Richards Boulevard to four lanes south of the intersection. This conclusion was documented in the Richards Boulevard Corridor Upgrade Project DEIR (City of Davis 1996) and has been verified by subsequent analysis of intersection improvements by City of Davis staff (Staff Report to City Council, dated November 21, 1997).

Intersection levels of service under future traffic conditions are shown in Table 3.1-6 and are further discussed under Section 3.1.2 Impacts and Mitigation Measures.

3.1.2 Impacts and Mitigation Measures

3.1.2.1 Standards of Significance

According to CEQA Guidelines, a project that would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the roadway system is considered to have a significant adverse impact on the environment. For the purpose of this Focused Tiered DEIR, the standards of significance used by the City of Davis, Yolo County, and Solano County were applied. Specifically, a.m. and p.m. peak hour intersection levels of service were compared to the following standards.

- for roadways within the City of Davis and the Central Campus, LOS “D” for existing roadways and LOS “C” for new roadways
- for County roadways, LOS “C”
- for I-80, LOS “E”
- for Highway 113, LOS “D”

SECTION THREE Environmental Setting, Impacts, and Mitigation Measures

TABLE 3.1-3

**A.M. AND P.M. PEAK HOUR EXISTING INTERSECTION
OPERATING CONDITIONS**

Intersecting Roadways		A.M. Peak Hour		P.M. Peak Hour	
		Delay (seconds)	LOS	Delay (seconds)	LOS
County Road 98	Russell Blvd.	2.1	A	2.4	A
SR 113 SB Ramp	Russell Blvd.	4.8	A	5.1	B
SR 113 NB Ramp	Russell Blvd.	8.6	B	12.1	B
County Road 98	Hutchison Dr.	1.5	A	1.7	A
Hopkins Road	Hutchison Dr.	0.7	A	1.5	A
SR 113 SB Ramp	Hutchison Dr.	8.8	B	1.7	A
SR 113 NB Ramp	Hutchison Dr.	2.8	A	1.0	A
La Rue Road	Hutchison Dr.	13.4	B	18.5	C
La Rue Road	Russell Blvd.	13.5	B	15.1	C
La Rue Road	Orchard Park Dr.	8.9	B	12.1	B
La Rue Road	Garrod Dr.	0.6	A	1.4	A
California Avenue	Russell Blvd.	0.8	A	0.3	A
California Avenue	Old Davis Road	16.5	C	48.9	F
Old Davis Road	I-80 WB Ramp	2.4	A	0.7	A
Old Davis Road	I-80 EB Ramp	4.9	A	2.8	A
Mrak Hall Dr.	Old Davis Road	3.1	A	6.5	B
Oak Avenue	Russell Blvd.	2.6	A	2.0	A
Howard Way	Russell Blvd.	11.5	B	13.6	B
A Street	Russell Blvd.	4.3	A	4.8	A
B Street	Russell Blvd.	15.4	C	14.7	B
B Street	Third Street	2.9	A	4.6	A
A Street	First Street	3.2	A	3.3	A
A Street	Old Davis Road	7.7	B	6.8	B
B Street	First Street	14.4	C	16.9	C
D Street	First Street	5.9	B	12.7	B
Richards Blvd.	First Street	47.3	E	49.1	E
Richards Blvd.	Olive Drive	11.3	B	18.4	C
I-80 EB Ramps	Richards Blvd.	13.3	B	15.6	C
Research Park Dr.	Richards Blvd.	6.5	B	10.1	B
Health Sciences Dr.	Hutchison Dr.	0.9	A	2.9	A

SOURCE: DKS Associates 1999

SECTION THREE Environmental Setting, Impacts, and Mitigation Measures

The City of Davis generally follows the level of service “C”/“D” policy in the first bullet above. The City’s General Plan Transportation and Circulation Element allows exceptions to the policy. Specifically, where six lane streets are necessary to meet the standard, they are generally deemed infeasible because they are inconsistent with desired small city character. Because of environmental impacts associated with the implementation of certain roadway improvements, the City has also decided to override the standard in specific locations. The locations include the Richards Boulevard/First Street corridor and the Pole Line overcrossing of I-80.

3.1.2.2 Project Impacts and Mitigation Measures

3.1-1 Increases in traffic volumes associated with the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities in relationship to the capacity of the future transportation network, would not result in level of service standard violations. This is considered a *less-than-significant impact*.

The proposed project would result in the relocation and consolidation of UC Davis veterinary surgery facilities from Haring Hall, Haring Annex and Haring Barn on the Central Campus and “N” Barn on the South Campus. Operation of the new facilities would require four employees, one new and three to be transferred to the Health Sciences District from the current veterinary surgery facilities on the Central and South Campus. The faculty and students that would utilize the new facilities would largely be those that currently utilize the surgery facilities in other parts of the campus. In addition to existing students, the proposed project would allow a phased increase in enrollment from a Doctor of Veterinary Medicine (DVM) class of 122 to 131 students per year. As the DVM program is a 4-year program, the proposed project would allow for a 36-student increase in enrollment to be completed by the 2007-08 academic year.

According to a survey conducted in 1997, about 60 percent of employees, 37 percent of graduate students, and 22 percent of undergraduate students travel to the UC Davis campus by automobile (as a passenger or driver) (Hamilton 2000). The impact to roadways as a result of existing students and faculty traveling to the new project site would be minor because the existing students and faculty currently travel to the vicinity of the site to use other facilities. Veterinary Medicine faculty currently spend much of their time at the VMTH, adjacent to the project site, as do all junior and senior DVM students (those that are not counted as part of the phased increase), who attend courses at the VMTH. Freshman and sophomore students also currently travel to the area to visit the Veterinary Medical Library and these students would only travel to the project site approximately one day per week to take surgery classes. The proposed project would therefore actually eliminate unnecessary cross-campus traffic by consolidating veterinary medicine-related facilities in one portion of the campus. The proposed project would also eliminate the need to move animals between housing and laboratory facilities and the trips associated with this activity.

While the addition of one new employee (three transferred employees would already be traveling to and from campus) at project completion and the phased increase of 36 students by 2007-08 would generate additional vehicle trips to and from the campus, the volume of traffic generated by these trips would be minimal. Table 3.1-4 summarizes the motorized vehicle trip generation associated with the proposed project. However, it is important to note that the 36 students would be added in phases, with completion of the phased increase in 2007-08. Based upon one new

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employee and 36 new students, the project is estimated to generate 78 daily motorized vehicle trips, including 5 trips during the a.m. peak hour, and 6 trips during the p.m. peak hour. Due to the minimal increase in motorized vehicle trips associated with this project, a detailed intersection capacity analysis was not performed. According to the cumulative 2005-06 traffic analysis (performed in 1999), all intersections evaluated in the vicinity of the project site, including Health Sciences and Hutchison Drives, Highway 113 southbound and northbound ramps and Hutchison Drive, and La Rue Road and Garrod Drive, would operate at acceptable levels of service. Therefore, since the relative magnitude of this increase on campus traffic (approximately one tenth of a percent on a daily basis or 78 out of 52,840 daily trips), is so small and there are no locations of traffic congestion anticipated in the vicinity of the project area, the proposed project would not result in a violation of the level of service standards set forth in Section 3.1.2.1.

**TABLE 3.1-4
MOTORIZED VEHICLE TRIP GENERATION**

Time Period	Existing Campus		Proposed Project	
	Entering Campus	Exiting Campus	New Trips Entering Campus	New Trips Exiting Campus
A.M. Peak Hour ¹	3,560	940	1	4
P.M. Peak Hour ¹	1,500	3,390	4	2
Remainder of Average Weekday	21,360	22,090	34	33
Average Weekday ²	26,420	26,420	39	39

Notes:

¹ Time period of peak hour varies by location on campus. For analysis purposes, the peak volume at each location has been considered.

² Based upon Tuesday and Thursday conditions.

SOURCE: DKS Associates, 1999.

Mitigation Measures

No mitigation is required.

3.1.2.3 Cumulative Impacts on Traffic under Future Conditions

Methodology and Assumptions

This section relies on the cumulative 1994 LRDP EIR traffic analysis, as amended. Cumulative traffic volumes have been reevaluated twice since certification of the 1994 LRDP EIR, once in 1997 for the 1997-98 Major Capital Improvement Projects and a second time, in 1999, for the USDA Western Human Nutrition Research Center. The 1999 cumulative traffic analysis takes into account the City's decision to maintain the Richards Boulevard undercrossing as two lanes instead of widening it to four lanes, as originally planned, and revisits the assumed distribution of projected population growth on the campus associated with the 1994 LRDP.

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Assumptions for the 1994 LRDP are periodically refined as it is implemented. Since the most recent analysis (1999), which this DEIR relies on, assumptions regarding distribution of development on campus have changed. Although overall campus-wide population will remain consistent with the 1994 LRDP projections, assumptions regarding how the population would be distributed over the campus have been refined. The cumulative traffic analysis conducted for the USDA Western Human Nutrition Research Center in 1999 took into account specific numbers of employees and students in certain areas of the campus due to new development under the 1994 LRDP. Recent plans for expanded development of the Health Sciences District that have evolved since approval of the USDA Western Human Nutrition Research Center, exceed earlier assumptions regarding development in the Health Sciences District, and growth in the District is now expected to occur at a greater scale than previously envisioned.

In addition to the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities, anticipated growth in the Health Sciences District is anticipated to include three other buildings associated with the veterinary school (Center for Companion Animal Health, Vet Med 3A, and the Valley Building), one building associated with the School of Medicine (the Genome and Biomedical Sciences Facility), and one building associated with the USDA (Western Human Nutrition Research Center, already approved). While the 1999 traffic analysis took these projects into account, the scale of certain facilities under consideration has grown through the project planning phases. As a result, the population in the Health Sciences District is expected to be greater than accounted for in the 1999 analysis. In order to address these refined assumptions regarding growth in the Health Sciences District, a new traffic analysis is currently being conducted in order to confirm that cumulative intersection levels of service would remain consistent with the 1999 analysis. Based upon preliminary review, no new significant cumulative traffic impacts are expected to be identified in the new traffic analysis. In the event that the new analysis determines that level of service deteriorates at any intersection resulting in new significant impacts not previously analyzed, previously identified mitigation measures including physical intersection improvements, would be implemented in order to ensure the intersections operate at acceptable levels of service, as indicated by the UC Davis standards of significance (see Section 3.1.2.1).

Although the results of the new analysis are not yet available, development assumptions regarding the proposed project have not changed. Due to the small number of employees and students (one employee and 36 students) and resulting number of vehicular trips (5 during the a.m. peak hour and 6 during the p.m. peak hour) being added to the campus as a result of the proposed project, the project's contribution to traffic impacts would be de minimis regardless of the results of the cumulative traffic analysis.

Cumulative analysis of traffic and circulation conducted in 1999 was based upon travel forecasts developed from future year land use projections and transportation networks. The cumulative land use projections were based upon buildout of the campus LRDP (year 2005-06, including the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities analyzed in this Focused Tiered DEIR), year 2010 City of Davis forecasts, and regional growth to year 2010 levels. The cumulative transportation network included the existing transportation system plus improvements planned for implementation by the City of Davis by the year 2010.

Cumulative a.m. and p.m. peak hour traffic volumes in the vicinity of campus were developed to analyze future roadway operating conditions. In order to remain consistent with other regional

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and City planning efforts, the City of Davis' Travel Model was used, with modifications, for the analysis used in this EIR. The following describes the major elements of, and modifications made to, the model for this analysis:

- All basic modeling elements of the City's model were maintained such as the basic model structure, and trip generation, distribution, and assignment algorithms.
- All basic land use and trip generation elements of the model for City of Davis uses were maintained. This included assumptions about off-campus trip generation reductions in the future due to implementation of Transportation Systems Management (TSM) measures, as utilized for the City's General Plan analyses.
- The City's model treats the campus as a "special generator," which essentially specifies the number of trips into and out of the campus. Campus land use and transportation networks were refined in the model to allow improved traffic projections on campus, similar to the effort undertaken for the 1989 and 1994 LRDP EIRs. Trip generation on campus was associated with parking areas, since motorized trips are oriented to specific parking areas rather than the ultimate building destinations. The trip generation variables are faculty/staff, commuter (off-campus residence) student, and resident (on-campus) student.
- Trip generation on-campus was increased to reflect growth anticipated under buildout of the 1994 LRDP. Specifically, buildout of the LRDP to 2005-06 levels was assumed. This includes the proposed project along with other campus growth. For analysis purposes, existing mode split and trip generation for all campus trip purposes was utilized for future conditions. No credit was taken for additional TSM measures which may be implemented over time. Thus, the analysis provides conservative (high) estimates of potential impacts.
- Campus trip generation includes all areas of the campus. Growth has been apportioned to these areas of the campus based upon current projections that correspond to the 1994 LRDP (for 2005-06).
- Beyond the campus and City of Davis, regional growth is based upon year 2010 levels as projected by the Sacramento Area Council of Governments (SACOG).
- The City's model was modified to provide a.m. and p.m. peak hour traffic projections in the study area, rather than only daily volume projections. Factors for this purpose were derived from the SACOG SACMET model, and adjusted slightly to reflect existing travel patterns in the vicinity of the campus.
- Updated land use data for the year 2010 was provided by the City of Davis in January 1998 for incorporation into the model. This database includes campus uses within the City, such as the South Davis Research Park. The updated database includes pertinent recent changes in City planning, such as the Core Area Specific Plan and Gateway/Olive Drive Specific Plan. These projections are the latest available forecasts of the year 2010 based upon the City's current land use designations.
- The cumulative roadway network is based on the City's updated year 2010 network provided by the City of Davis in January 1998. In accordance with recent City

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action, this network maintains the Richards Boulevard undercrossing as a two-lane facility.

- Future roadway improvements identified in the 1994 LRDP were not assumed to be in place for the cumulative analysis. The LRDP roadway improvements are intended to provide guidance for changes to the roadway network when required to mitigate significant traffic impacts.

Cumulative Impacts and Mitigation Measures

3.1-2 Cumulative increases in traffic volumes in relationship to the capacity of the future transportation network would result in level of service standard exceedances. The proposed project's contribution to these exceedances is considered a *less-than-significant impact*.

Table 3.1-5 summarizes the motorized vehicle trip generation associated with the buildout of the 1994 LRDP as amended. Daily traffic volume levels for motorized vehicles entering and exiting the campus are anticipated to increase by about 24 percent from approximately 52,840 to 65,620. Table 3.1-6 summarizes cumulative a.m. and p.m. peak hour intersection operating conditions. Although the proposed project would not generate sufficient traffic volume to have a significant impact on its own, six analyzed intersections are projected to exceed level of service standards under the cumulative scenario:

**TABLE 3.1-5
CUMULATIVE MOTORIZED VEHICLE TRIP GENERATION**

Time Period	Existing Campus		Cumulative	
	Entering Campus	Exiting Campus	Entering Campus	Exiting Campus
A.M. Peak Hour ¹	3,560	940	4,260	1,110
P.M. Peak Hour ¹	1,500	3,390	1,910	4,100
Remainder of Average Weekday	21,360	22,090	26,640	27,600
Average Weekday ²	26,420	26,420	32,810	32,810

Notes:

¹ Time period of peak hour varies by location on campus. For analysis purposes, the peak volume at each location has been considered.

² Based upon Tuesday and Thursday conditions.

SOURCE: DKS Associates, 1998 in UC Davis 1998.

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TABLE 3.1-6
2005-06 A.M. AND P.M. PEAK HOUR
CUMULATIVE INTERSECTION OPERATING CONDITIONS

Intersecting Roadways		A.M. Peak Hour		P.M. Peak Hour	
		Delay (seconds)	LOS	Delay (seconds)	LOS
County Road 98	Russell Blvd.	3.1	A	5.0	A
SR 113 SB Ramp	Russell Blvd.	11.4	B	7.8	B
SR 113 NB Ramp	Russell Blvd.	11.0	B	24.1	C
County Road 98	Hutchison Dr.	1.9	A	2.6	A
Hopkins Road	Hutchison Dr.	1.1	A	1.9	A
SR 113 SB Ramp	Hutchison Dr.	15.1	D	1.4	A
SR 113 NB Ramp	Hutchison Dr.	6.3	B	2.4	A
La Rue Road	Hutchison Dr.	12.3	B	18.4	C
La Rue Road	Russell Blvd.	15.3	C	22.4	C
La Rue Road	Orchard Park Dr.	12.0	B	13.0	B
La Rue Road	Garrod Dr.	0.7	A	1.3	A
California Avenue	Russell Blvd.	0.8	A	0.6	A
California Avenue	Old Davis Road	126.8	F	14.7	F
Old Davis Road	I-80 WB Ramp	4.0	A	2.9	A
Old Davis Road	I-80 EB Ramp	28.7	D	9.5	B
Mrak Hall Dr.	Old Davis Road	3.3	A	6.2	B
Oak Avenue	Russell Blvd.	2.3	A	13.3	B
Howard Way	Russell Blvd.	12.4	B	15.3	C
A Street	Russell Blvd.	4.1	A	6.2	B
B Street	Russell Blvd.	15.9	C	13.3	B
B Street	Third Street	2.6	A	15.3	C
A Street	First Street	3.3	A	6.2	B
A Street	Old Davis Road	11.4	C	11.9	C
B Street	First Street	63.8	F	21.4	B
D Street	First Street	6.5	B	8.7	A
Richards Blvd.	First Street	85.6	F	161.5	F
Richards Blvd.	Olive Drive	87.8	F	>180	F
I-80 EB Ramps	Richards Blvd.	42.8	E	157.0	F
Research Park Dr.	Richards Blvd.	24.7	C	117.6	F
Health Sciences Dr.	Hutchison Dr.	1.0	A	212.3	C

SOURCE: DKS Associates 1999

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- *California Avenue and Old Davis Road* would operate at LOS “F” during the a.m. and p.m. peak hours
- *B Street and First Street* would operate at LOS “F” during the a.m. peak hour
- *Richards Boulevard and First Street* would operate at LOS “F” during the a.m. and p.m. peak hours
- *Richards Boulevard and Olive Drive* would operate at LOS “F” during the a.m. and p.m. peak hours
- *Richards Boulevard and 1-80 Eastbound Ramps* would operate at LOS “E” during the a.m. peak hour and LOS “F” during the p.m. peak hour
- *Richards Boulevard and Research Park Drive* would operate at LOS “F” during the p.m. peak hour

In order to mitigate cumulative level of service impacts identified in the 1994 LRDP EIR, as amended, implementation of 1994 LRDP EIR Mitigation Measures 4.3-1(a) and (b) was required. Mitigation Measure 4.3-1(a) requires continued campus support for Transportation Systems Management strategies to reduce campus motorized vehicle trips and encourage use of alternative modes of transportation. Mitigation Measure 4.3-1(b), as revised by the 1997-98 Major Capital Improvement Projects SEIR, included proposed physical improvements to problem intersections. Both mitigation measures are included on pages 44 and 45 of the TIS in Appendix A.

Tables 3.1-7 and 3.1-8 summarize a.m. and p.m. peak hour operating conditions with the implementation of the physical improvements proposed in 1994 LRDP Mitigation Measure 4.3-1(b), as revised. Implementation of Mitigation Measure 4.3-1(b) as part of the 1994 LRDP would reduce impacts to less-than-significant levels at three of six impacted intersections, but the impact would remain significant and unavoidable at three intersections. These intersections are the Richards Boulevard and 1-80 Eastbound ramps, Richards Boulevard and Olive Drive, and Richards Boulevard and First Street. The 1997-98 Major Capital Improvement Projects DSEIR further discusses the feasibility of potential physical improvements to these intersections on pages 8-23 to 8-31. At this time, no improvements have been identified to improve the level of service at these intersections.

**TABLE 3.1-7
CUMULATIVE A.M. PEAK HOUR INTERSECTION
OPERATING CONDITIONS WITH MITIGATION**

Intersecting Roadways		Without Mitigation		With Mitigation	
		Delay (seconds)	LOS	Delay (seconds)	LOS
California Ave.	Old Davis Rd.	126.8	F	10.2	B
B St.	First St.	63.8	F	14.5	B
Richards Blvd.	Research Park Dr.	24.7	C	18.7	C

Source: DKS Associates, 1999.

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TABLE 3.1-8
CUMULATIVE P.M. PEAK HOUR INTERSECTION
OPERATING CONDITIONS WITH MITIGATION

Intersecting Roadways		Without Mitigation		With Mitigation	
		Delay (seconds)	LOS	Delay (seconds)	LOS
California Ave.	Old Davis Rd.	144.7	F	23.4	C
B St.	First St.	21.4	D	13.7	B
Richards Blvd.	Research Park Dr.	117.6	F	40.0	D

Source: DKS Associates, 1999.

Therefore, cumulative impacts of development under the 1994 LRDP would result in level of service standard exceedances. As a result, cumulative impacts to the future transportation network would be considered significant. However, because the level of service at the six intersections described above would be the same in both the a.m. and p.m. peak hours, with or without the project, the proposed project's incremental contribution to this cumulative impact would be minimal and therefore considered less than significant.

Mitigation Measures

No mitigation required.

3.2 AIR QUALITY

This section addresses the potential effects of the proposed project operation on air quality, including criteria pollutants and toxic air contaminants. All other air quality impacts are adequately addressed in the TIS (Appendix A) prepared for this project. All relevant information, including applicable environmental and regulatory settings, standards of significance, and mitigation measures identified in Section 4.5 of the 1994 LRDP EIR, in Section 4.2 of the WWTP Replacement Project EIR and in Chapter 8 of the Major Capital Improvement Projects SEIR, is incorporated by reference and summarized below as appropriate.

3.2.1 Environmental Setting

There are a number of factors that determine local and regional air quality. These include meteorological, topographic, and geographic conditions, as well as the quantity, type, and location of pollutant sources. A description of climatic and meteorological conditions that affect the campus is provided on page 4.5-16 of the 1994 LRDP DEIR. General background information regarding air pollutants, sources and characteristics (including health-related effects), and ambient air standards is presented on pages 4.5-1 through 4.5-15 of the 1994 LRDP DEIR. Information from these discussions is incorporated by reference.

The following discussion provides updated information pertaining to criteria air pollutant standards and emissions and toxic air contaminants as they relate to the proposed facilities.

3.2.1.1 Criteria Air Pollutants

The project site is located in the Sacramento Valley Air Basin (SVAB) within the jurisdiction of the Yolo-Solano Air Quality Management District (YSAQMD). Although there are many criteria air pollutants for which federal and state ambient standards have been established (please see pages 4.5-2 through 4.5-4 of the 1994 LRDP DEIR), the criteria air pollutants of greatest concern in the SVAB include ozone (O₃), carbon monoxide (CO), and particulate matter greater than 10 microns in diameter (PM₁₀). Current federal and state ambient criteria air pollutant standards for these three major pollutants are shown in Table 3.2-1. As of 1996, the YSAQMD has been designated as non-attainment for state and federal ozone and state PM₁₀ standards. All portions of the YSAQMD are designated as unclassifiable/attainment for CO.

On July 18, 1997, the EPA issued the revised federal standards for ozone and PM₁₀. The EPA promulgated a standard of 0.08 ppm of ozone averaged over eight hours. The 8-hour ozone standard would apply once an area complies with the federal 1-hour ozone standard. However, on May 14, 1999, the U.S. Court of Appeals for the District of Columbia put the eight-hour ozone standard on hold pending further clarification from the EPA on how it selected the specific level of the standard (*American Trucking Associations, Inc. v. USEPA*, Nos. 97-1440 and 97-1441). The Court left the eight-hour standard in place, but prevented the EPA from enforcing it. The EPA and the U.S. Department of Justice have since requested a review of the case before the U.S. Supreme Court. That request is still pending. The California Air Resources Board (CARB) expects that the eight-hour ozone standard will ultimately be implemented either because it is upheld on appeal or because the EPA provides the clarification requested by the Court (YSAQMD 2000).

**TABLE 3.2-1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS
FOR MAJOR CRITERIA AIR POLLUTANTS**

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone	1-hour	0.12 ppm	0.09 ppm
Carbon Monoxide	1-hour	35 ppm	20.0 ppm
	8-hour	9 ppm	9.0 ppm
PM ₁₀	24-hour	150 µg/m ³	50 µg/m ³
	Annual	50 µg/m ³	30 µg/ m ³

Notes:

ppm - parts per million

µg/m³ - micrograms per cubic meter

SOURCE: California Air Resources Board, 1996.

EPA has added a new 24-hour and an annual National Ambient Air Quality Standard (NAAQS) for PM_{2.5} (particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers). The EPA had also revised the form for the pre-existing 24-hour PM₁₀ standards but not the level of the standards. The Court in the above case vacated the changes in the federal PM₁₀ standards, leaving the old PM₁₀ standards in place. The Court upheld the new PM_{2.5} standards.

As stated on page 4.5-7 of the 1994 LRDP DEIR, the CARB and the YSAQMD maintain ambient air quality monitoring stations at numerous locations throughout the SVAB. These stations measure criteria pollutant levels and assist in the determination of agricultural "burn" days. Three monitoring stations record data for ozone, CO, and PM₁₀ in the vicinity of the proposed project. Table 3.2-2 is a summary of the highest annual concentrations of O₃, CO, and PM₁₀ for the most recent six-year period for which data are available (1994-99). As shown in Table 3.2-2, O₃ and PM₁₀ levels have consistently exceeded state ambient standards, while CO levels have not. Redesignations for the federal PM_{2.5} standards are expected to occur between 2002 to 2005, after three years of monitoring data becomes available that are quality assured and that come from air quality monitors which use the federal reference method or equivalent. YSAQMD began to monitor for PM_{2.5} as of February 1999, but it is too soon to know whether the YSAQMD is in attainment of the federal PM_{2.5} standards.

3.2.1.2 Toxic Air Contaminants (TACs)

Toxic air contaminants (TACs) are generated by various sources including: stationary sources, such as dry cleaners, gas stations, and laboratories; mobile sources, such as automobiles, aircraft, and railroads; natural sources, such as wind-blown dust and wildfires; and area sources, such as farms, construction sites, and residential areas. At UC Davis, TAC emission sources include research laboratories, boilers, the veterinary medicine incinerator, sterilizers, the wastewater treatment plant (WWTP), a flare that is used as an emissions source control for the campus landfill gas treatment system, and gasoline dispensing facilities. Background TAC

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concentrations for the campus or the City of Davis have not been developed, as stated on page 4.5-13 of the 1994 LRDP DEIR.

TABLE 3.2-2

CRITERIA AIR POLLUTANT MONITORING SUMMARY, 1994-99

Pollutant	Monitoring Data by Year ¹					
	1994	1995	1996	1997	1998	1999
Ozone (O₃)						
State 1-hour Standard (ppm)	0.09	0.09	0.09	0.09	0.09	0.09
Highest 1-Hour Average (ppm)	0.10	0.11	0.12	0.10	0.12	0.09
Violations of Standard	4	19	24	1	9	3
Carbon Monoxide (CO)						
State 1-Hour Standard (ppm)	20.0	20.0	20.0	20.0	20.0	20.0
Highest 1-Hour Average (ppm)	10.0	5.0	2.0	3.0	n/a	n/a
Violations of Standard	0	0	0	0	0	0
State 8-Hour Standard (ppm)	9.0	9.0	9.0	9.0	9.0	9.0
Highest 8-Hour Average (ppm)	6.6	3.1	1.9	1.8	1.1	1.0
Violations of Standard	0	0	0	0	0	0
Particulate Matter (PM₁₀)						
State 24-Hour Standard (µg/m ³)	50	50	50	50	50	50
Highest 24-Hour Average (µg/m ³)	84	145	77	126	130	56
Violations of Standard	6	11	7	2	10	1
State Annual Geometric Mean Standard (µg/m ³)	30	30	30	30	30	30
Annual Geometric Mean (µg/m ³)	30	29	23	24	23	17

Note: Values in boldface are in excess of California standards.

¹ Ozone data for 1994-99 are from the UC Davis campus monitoring station. PM₁₀ data are from the Woodland – Sutter Street monitoring station. CO data for 1994-95 are from Davis - Russell Boulevard monitoring station. CO data for 1996-99 are from the UC Davis campus monitoring station.

ppm - parts per million

µg/m³ - micrograms per cubic meter

n/a - data not available

SOURCE: California Air Resources Board website (www.arb.ca.gov), Interactive Air Quality Data Summaries, 1994-99.

TAC emissions may cause short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects. Unlike criteria pollutants, there are no specific minimum levels for TACs below which exposure can be considered safe; any exposure has the potential to have adverse health effects. TACs emitted from automobiles are considered the major source of TAC emissions in the project area. Frequent crop burning at agricultural fields in the region probably contributes as well (see pages 4.5-11 and 4.5-14 of the 1994 LRDP DEIR).

UC Davis conducted a health risk assessment (HRA) to identify potential health risks associated with TACs due to development under the 1994 LRDP (ENSR Consulting and Engineering 1994). The analysis (referred to in this EIR as the 1994 HRA) concluded that development of specific projects under the 1994 LRDP would not result in any carcinogenic TAC emissions that

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would pose a potential human health hazard and would not cause significant adverse acute or chronic non-carcinogenic TAC health effects (see Impact 4.5-5 on pages 4.5-24 through 4.5-28 of the 1994 LRDP DEIR).

The 1994 analysis was updated in 1996 to include the following new or modified sources not evaluated in the 1994 HRA: relocation of the WWTP to a site not anticipated under the 1994 LRDP; a decrease in the number of on-campus pathological waste incinerators from two to one; and operation of the campus landfill treatment system that would use a flare to control emissions. The 1996 HRA estimated that the cancer risk associated with development allowed under the 1994 LRDP, including the new and modified emissions sources, would be 0.4648 in one million, which is below the campus standard of significance of 10 in one million. The 1996 HRA also showed that the acute and chronic non-carcinogenic health risk hazard exposure indices would be 0.00929 and 0.00197, respectively (UC Davis 1996). Both of the indices are less than the Campus standard of significance of 1.0.

The 1994 HRA (as amended by the 1996 HRA) analysis was again updated in 1998 for the 1997-98 Major Capital Improvement Projects SEIR to reflect additional laboratory space and the location of laboratory space not anticipated in the 1994 HRA. The 1998 HRA relies on a less detailed screening methodology that produced conservative overestimates. The total maximum theoretical cumulative cancer risk from the 1997-98 Major Capital Improvement Projects in combination with development under the 1994 LRDP was estimated to be 0.5458 in one million. This below the campus standard of significance of 10 in one million. The 1998 HRA also showed that the acute and chronic non-carcinogenic health risk hazard exposure indices would be 0.00929 and 0.00744, respectively (UC Davis 1998). Both these indices are well below the campus threshold of 1.0.

A detailed description of the components of the 1994, 1996 and 1998 screening-level health risk assessments and their methodologies is presented in the 1994 LRDP DEIR (Appendix D), in the WWTP Replacement Project DEIR (Appendix G), and in the 1997-98 Major Capital Improvement Projects DSEIR (pages 4.6-7 through 4.6-9), respectively.

3.2.1.3 Sensitive Receptors

As discussed on page 4.5-16 of the 1994 LRDP DEIR, sensitive receptors on the campus include student and family housing complexes, a few day care centers, recreational areas, and nearby off-campus residential and recreational areas to the north and east of the campus. Individuals in such locations are considered more sensitive to air pollutants than the general public because of the time spent in that location or the type of activities (e.g., residential and recreational areas) or age and susceptibility to illness (e.g., very young children).

The proposed project site is located in the west portion of the Central Campus in the Health Sciences District. It is bordered by academic and administrative uses to the east and north, open space reserve use to the north, Highway 113 to the west and open space teaching and research uses to the south. The closest sensitive receptor is the Campus Arboretum to the south of the site, part of which is designated for recreational use.

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3.2.2 Regulatory Setting

A discussion of the regulatory background, including federal, state and local regulations for criteria air pollutants is found on pages 4.5-2 through 4.5-11 of the 1994 LRDP DEIR. The following information pertaining to criteria air pollutants updates the discussion presented in the 1994 LRDP DEIR.

3.2.2.1 Criteria Air Pollutants

As discussed on page 4.5-7 of the 1994 LRDP DEIR, the YSAQMD was required to prepare a plan that would describe how O₃ attainment would be achieved. The Sacramento Area Regional Ozone Attainment Plan was submitted to the U.S. Environmental Protection Agency (EPA) in November 1994 and was reviewed and approved. This plan was required to demonstrate that the federal ozone standard would be achieved in the Sacramento region by 1999. Attainment could not be demonstrated for the Sacramento region, and a new plan to attain the standard by 2005 must be submitted in accordance with the federal Clean Air Act (UC Davis 1999a). While the plan is designed to bring the Sacramento area into attainment with the ozone standard by 2005, it does not contain additional measures that would apply to the proposed project.

Recently, the EPA added standards in recognition of increased concern over particulate matter 2.5 microns (PM_{2.5}) or less in diameter. According to information provided by the EPA, redesignations for the new PM_{2.5} standards by the EPA will begin in the year 2002 with attainment plans due by 2005 for regions that violate the standards. PM_{2.5} measurements have been conducted as of February 1999 but it is too soon to determine if the YSAQMD is in attainment under the new federal PM_{2.5} standards. The California Air Resources Board (CARB) and local air districts in California have developed a PM_{2.5} monitoring network plan, but to date, no data has been collected.

3.2.2.2 Toxic Air Contaminants

The context within which TAC emissions are regulated at UC Davis is described on pages 4.5-11 through 4.5-13 of the 1994 LRDP DEIR. As explained in the 1994 LRDP DEIR, the YSAQMD is responsible for implementing emissions standards and other requirements of federal and state laws that apply to TAC emissions. No permits are required to operate laboratory fume hoods.

3.2.2.3 Title V Permitting Requirements

Title V of the federal Clean Air Act as amended in 1990 (CAA) provides for the establishment of operating permits for major sources that emit regulated air pollutants. A major source is a stationary source that has the potential to emit a regulated pollutant in quantities equal to or exceeding any of the following thresholds: 100 tons per year of any regulated criteria pollutant (including CO, PM₁₀, and SO_x); 10 tons per year of any one Hazardous Air Pollutant (HAP) or 25 tons per year of any combination of HAPs; or any lesser quantity threshold promulgated by the EPA. Because the YSAQMD has been designated as a severe non-attainment area for O₃, the EPA established major source thresholds for two criteria pollutants (that contribute to ozone formation) of 25 tons per year of nitrogen oxides (NO_x) or Reactive Organic Gases (ROG) emissions for sources within the jurisdiction of YSAQMD.

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The EPA has designated the YSAQMD as the responsible agency for the implementation of Title V permitting requirements for major sources within the boundaries of the district. Major sources must submit a Title V permit application including a list of all equipment that emit regulated air pollutants, quantification of the potential to emit for the facility and each emissions unit, a list of applicable federal regulations, and a certificate of compliance with all applicable regulations.

UC Davis is a major source subject to the requirements of Title V due to emissions of NO_x, SO_x, and ROG_s in excess of EPA thresholds. The campus has submitted a Title V application which would need to be modified to include any equipment with the potential to emit air pollutants (e.g., boilers and internal combustion engines) associated with the proposed project. The application for modification of the Title V permit can be submitted simultaneously with any other required applications for Authority to Construct. Compliance with specific requirements and methods that would be used to control additional contributions from new or changed facilities are determined on a source-by-source basis. The Title V permit would be modified to reflect the incremental contribution from the proposed project and would be subject to YSAQMD approval (Ronemus 1998 *in* UC Davis 1998).

3.2.3 Impacts and Mitigation Measures

3.2.3.1 Standards of Significance

For the purposes of this EIR, a significant air quality impact would occur if the proposed project would:

- cause or contribute substantially to existing or projected violations of state or federal criteria air pollutant standards
- result in exposure of sensitive receptors to substantial pollutant concentrations

As stated on page 4.5-17 of the 1994 LRDP DEIR, a "substantial contribution" to the regional pollutant load is defined as the production of 82 pounds per day (lbs/day) of ROG, NO_x, and PM₁₀, and 550 lbs/day of CO. These pollutants and rates are consistent with current air quality thresholds adopted by the YSAQMD (YSAQMD 1996).

As stated on page 4.5-17 of the 1994 LRDP DEIR, no ambient TAC concentration standards or emissions thresholds exist with which to evaluate the significance of a project's health risk. Consequently, the TAC significance criteria are based on risk levels defined by state and federal agencies. A review of cancer risk management decisions by the federal government has shown that under nearly all circumstances, no action was taken to reduce cancer risks to less than one in one million and action was taken in every studied case with risk exceeding 10 in one million. Regulations promulgated by the California Health and Welfare Agency under Proposition 65 define a significant cancer risk as any risk exceeding 10 in one million. Because the methods and assumptions used in health risk assessment tend to overestimate the emissions levels, the Proposition 65 standard of 10 in one million was considered to be an appropriate measure of significant risk for carcinogenic toxic air contaminants emissions.

To evaluate non-carcinogenic (chronic and acute) health risks, change in ground-level concentration of pollutants emitted from the campus that exceed relevant non-cancer effect

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criteria would be considered significant. For the purposes of this EIR, the non-cancer effect criteria is a hazard index greater than 1.0.

With the exception of criteria pollutants, state and federal agencies do not provide alternative toxicity estimates for sensitive population, if such exist. Thus, chronic cancer and non-cancer risks are calculated for a hypothetical maximally exposed individual (MEI) living at the point of highest off-site concentration for an entire 70-year lifetime.

3.2.3.2 Project-Specific Impacts and Mitigation Measures

3.2-1 Operation of the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Facilities would generate ROG, NO_x, PM₁₀, and CO emissions from vehicle exhaust and energy use. This is considered a *less-than-significant impact*.

Emissions of criteria air pollutants would be caused by increased traffic associated with the project and the addition of new combustion sources.

As discussed in Section 3.1, Transportation and Circulation, the proposed project is estimated to generate 78 daily vehicle trips due to the anticipated increase in resident student population of 36 individuals and one employee. Vehicle exhaust and entrainment of road dust generated by the addition of these vehicle trips would generate O₃ precursors (ROG and NO_x) and PM₁₀. Vehicle exhaust would also generate CO. For the evaluation of additional traffic emissions, vehicle emission factors published by the YSAQMD for use in screening-level air quality assessments (YSAQMD 1996) were used. Table 3.2-3 presents the resulting estimated emissions of ROG, NO_x and PM₁₀ using a weighted vehicle mix for the year 2005 and an assumption of 10 miles per vehicle trip. Peak hour emissions assumed the higher of the additional anticipated AM and PM peak traffic: 6 additional trips per hour. Daily emissions assumed 78 additional trips per day. Table 3.2-3 shows daily emissions of ROG, NO_x and PM₁₀ associated with the proposed project to be extremely small compared to YSAQMD significance thresholds. Vehicle emission factors for CO are not provided in the YSAQMD guidance (YSAQMD 1996) because CO is an attainment pollutant in the YSAQMD, and thus not required to be evaluated. In the case of the proposed project, the additional traffic volume would be small, representing an approximately 0.1 percent increase in vehicle trips on a daily basis, and would not be anticipated to create a significant CO impact.

New combustion equipment includes a fuel-oil-fired 200-kW emergency generator. Potential emissions from this equipment were calculated from EPA emission factors (EPA 1995). Under normal operations, emergency generator was assumed to operate a maximum of 30 minutes per day when being tested. The resulting emissions from these non-emergency operations are shown in Table 3.2-4. When added to the vehicle emissions estimates in Table 3.2-3, the total increased air pollutant emissions associated with the proposed project would be well below the YSAQMD significance thresholds and the impact would be less-than-significant.

Mitigation Measures

No mitigation required.

TABLE 3.2-3

ESTIMATED AIR EMISSIONS FROM INCREASED VEHICLE TRIPS

Period	Trips	Emissions			
		Unit	ROG	NOx	PM ₁₀
Peak Hour	6	Pounds/ hour (lb/hr):	0.098	0.092	0.0132
Daily	78	Pounds/day (lb/day):	1.279	1.193	0.172

Notes:

Emission factors from YSAQMD Air Quality Handbook (1996).

Assumptions:

1. Emissions based on CARB's EMFAC7F (1.1).
2. Emissions are for a weighted fleet mix for the year 2005.
3. Average Trip Length: 10 miles, Speed: 30 MPH, Temperature: 75 F.
4. Emission factors are average of winter time and summer time rates.
5. 60% cold start, 40% hot start.

TABLE 3.2-4

ESTIMATED AIR EMISSIONS FROM COMBUSTION SOURCES

Equipment	Capacity		Hours Per Day	Emissions (lb/day)				
				ROG	NOx	PM ₁₀	CO	SO ₂
Emergency Generator	200	kW		0.34	4.14	0.30	0.90	0.28

Notes:

1. Emission factors for uncontrolled industrial diesel IC engines (EPA AP-42, 1995, Table 3.3.-1)
2. Conversion: g/kW-hr (AP-42 factor) = (lb/kW-hr)/453.59.

3.2-2 Operation of the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Facilities could expose campus occupants and Davis-area residents to TAC emissions from laboratory uses. This is considered a *less-than-significant impact*.

Emissions of toxic air contaminants associated with the proposed project would occur with chemical usage in new laboratories. The proposed Veterinary Medicine Laboratory and Equine Athletic Performance Facilities would include approximately 24,698 assignable square feet (asf) for laboratory uses that was assumed in the 1994, 1996 and 1998 HRA. However, as assumptions of the development under the 1994 LRDP were refined, an updated HRA was performed in 1999 to reflect a more accurate distribution of new laboratory space on campus. The 1999 HRA took into account the additional laboratory space to be added by the USDA Western Human Nutrition Research Center and four other buildings (Center for Companion Animal Health, Vet Med 3A, the Valley Building, and the Genome and Biomedical Sciences Facility) in the Health Sciences District, and the proposed facilities. The detailed methodology and description of the findings of the 1999 HRA is included in the *USDA Western Human Nutrition Research Center Updated Health Risk Assessment of Air Emissions*, which is available

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for review at the UC Davis Planning and Budget Office, 376 Mrak Hall (UC Davis 1999c). As shown in Table 3.2-5, the updated 1999 HRA estimated that the cancer risk associated with development allowed under the 1994 LRDP (including the proposed facilities) would be 0.4755 in one million, which is below the campus standard of significance of 10 in one million (UC Davis 1999c). According to the same HRA, the acute and chronic non-carcinogenic health risk hazard exposure indices would be 0.00929 and 0.00337, respectively (UC Davis 1999c). Both indices are less than the campus standard of significance of 1.0.

TABLE 3.2-5
SUMMARY OF CUMULATIVE RISKS FOR THE 1994 LRDP

Description	1994 LRDP as Updated in 1999 ¹	1994 LRDP Standards of Significance
Acute Hazard Index	9.29×10^{-3}	≥ 1.0
Chronic Hazard Index	3.37×10^{-3}	≥ 1.0
Cancer Risks	0.4755 per 10^6	≥ 10 per 10^6

¹ Cumulative risk values including anticipated development in the Health Sciences District.
Source: UC Davis , 1999c.

As the estimated cancer risk and acute and chronic non-carcinogenic hazard indices for the proposed project in combination with development under the 1994 LRDP do not exceed campus standards of significance, the proposed project would not result in an exceedance of the standards of significance on its own. Therefore, the proposed project would not be anticipated to pose an adverse human health risk and the impact would be *less-than-significant*.

Mitigation Measures

No mitigation required.

3.2.3.3 Cumulative Impacts and Mitigation Measures

The cumulative context for the evaluation of increased operational air emissions is the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Facilities project, combined with buildout under the 1994 LRDP and growth anticipated in the Sacramento Valley Air Basin.

3.2-3 The proposed Veterinary Medicine Laboratory and Equine Athletic Performance Facilities, in conjunction with 1994 LRDP development, the WWTP Replacement Project and cumulative development in the region, would result in increased emissions of criteria pollutants. The project's contribution to this significant and unavoidable impact would be de minimis.

Implementation the proposed project, in conjunction with other growth in the region, would result in increased air emissions from the use of motor vehicles and combustion equipment. Emissions from vehicular traffic and other stationary sources generated by uses developed under the 1994 LRDP including the proposed project would exceed thresholds of significance for criteria air pollutant emissions (1994 LRDP EIR Impact 4.5-6; see Table 3.2-6).

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**TABLE 3.2-6
CUMULATIVE LRDP EMISSIONS IMPACTS**

Pollutant	YSAQMD Significance Guideline ¹	LRDP Buildout (2005)-No Build (2005)							
						Emissions (lbs/day)			Guideline Exceeded?
						Mobile ²	Energy Use ³	Total	
ROG	82					80	2.2	82	Yes
NO _x	82					93	167.4	261	Yes
PM ₁₀	82					349	5.4	354	Yes
CO	550					1392	30.1	1422	Yes

Notes:

¹ These guidelines were obtained from the YSAQMD's Air Quality Thresholds of Significance.

² Mobile-Source emissions were based upon the cumulative campus trip generation figures produced for the Traffic and Circulation analysis. Emissions from vehicle exhaust and tire wear were derived using the CARB's URBEMIS5 model. PM₁₀ emissions resulting from entrainment of road dust by motor vehicles were estimated based upon a factor presented in the South Coast Air Quality Management District's (SCAQMD's) CEQA Air Quality Handbook.

³ Emissions related to campus-wide energy usage were estimated based on emission factors presented in the above-described SCAQMD handbook.

SOURCE: EIP Associates, 1998.

As discussed above, Yolo County is in non-attainment of state and federal ozone standards and state PM₁₀ standards. The YSAQMD 1991 Air Quality Attainment Plan (AQAP) was developed with the intent to bring the District into compliance with the federal and state ambient air quality standards for ozone pollution; however, even with the AQAP's implementation of all feasible pollution control measures, the YSAQMD found that the significant anticipated growth expected in the area would prevent attainment of air quality standards. In 1994, the YSAQMD was included with four other air districts in the Sacramento Area Regional Ozone Attainment Plan (Plan), which was headed up by the Sacramento Metropolitan Air Quality Management District (SMAQMD). The Plan was submitted to and approved by the EPA. The Plan sets "rate-of-progress" or "milestones" emission reduction targets and dates to gauge whether the nonattainment area was making reasonable further progress toward attainment. Milestone reports were to be prepared starting in 1996 and every 3 years thereafter until the attainment deadline.

The 1996 Milestone Report showed that the districts had adopted many measures to control ROG and NO_x, but because achieving attainment for ozone by 1999 was found later to be infeasible, the EPA "bumped up" the Sacramento nonattainment area from a "serious" to a "severe" classification. This redesignation allowed the area an additional six years, from 1999 to 2005 to reach attainment but imposed additional requirements on the Sacramento area. The 1999 Milestone Report has been completed and adopted by the SMAQMD. The next Milestone Report will be due for the 2002 reporting year.

The 1994 LRDP EIR identified the following mitigation measure to reduce the magnitude of this cumulative air quality impact:

4.5-6(a) *Implement Mitigation measures 4.5-3(a) and (b).*

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- 4.5-6(b) *The Sacramento Air Basin includes a large number of jurisdictions, including the greater Sacramento metropolitan area. In the Basin, air quality is regulated by the Sacramento Metropolitan Air Quality Management District, YSAQMD, and a number of other Air Pollution Control Districts. Pursuant to rules, regulations, and policies of those AQMDs and APCDs, as well as adopted general plans throughout the Basin, it is within the jurisdiction of each local government or district to take actions to ensure compliance with the federal Clean Air Act and the California Clean Air Act.*

Mitigation Measure 4.5-3(a) involves implementing transportation-related 1994 LRDP EIR Mitigation Measures 4.3-1 and 4.3-5. As discussed in the previous section, Mitigation Measure 4.3-1(a) required implementation of measures on the campus to maintain and expand use of non-vehicular modes of transit to, from, and within the campus. Mitigation Measure 4.3-5, included in the 1994 LRDP EIR, requires continued campus support of public transportation services. These measures would result in a corresponding reduction in the potential increase in criteria pollutant load described in this impact. Specific types of measures undertaken by the campus to reduce the number of automobiles used include:

- a comprehensive bicycle circulation network
- parking fees
- transit planning and subsidies
- promotion of carpools, vanpools, park and ride, and rideshare programs and incentives
- shuttle bus systems
- telecommuting, and
- public awareness programs.

Consistent with 1994 LRDP EIR Mitigation Measure 4.3-1(a), the campus has prepared two Transportation Systems Management Plans since 1994: (1) the November 1996 Transportation Management Plan, and (2) the January 1997 Ten Year Campus Access Plan. The 1997 Plan provides a summary of the current parking program and a detailed plan for development to meet future campus parking needs. This plan also provides a summary of the existing campus Alternative Transportation Program and identified future efforts to be investigated and considered for inclusion in the program. As discussed in Section 3.1, consistent with 1994 LRDP Mitigation Measure 4.3-1(b), as revised, the campus conducted monitoring at 30 key intersections in the campus vicinity. The results of this monitoring are shown in Table 3.1-3 of this Focused Tiered DEIR. This measure would also result in physical changes to roadways and intersections (which would result in increased speed, less idling time, etc.). Such improved operations tend to decrease the level of pollution generated by vehicles using the particular road or intersection.

Mitigation Measure 4.5-3(b) included in 1994 LRDP EIR calls for the acquisition of permits for stationary and area sources as required by the YSAQMD. As discussed above, the emergency generator would need to be listed in the campus Title V permit.

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Although the above-mentioned mitigation measures are to be implemented as part of the 1994 LRDP, cumulative development, including the proposed project, would contribute to the continued exceedance of air quality standards. Furthermore, the actions of other jurisdictions are not within the control of the campus. Although on a cumulative regional level, this impact would be *significant and unavoidable*, the project's contribution (based on the analysis reported under Impact 3.2-1) would be de minimis, and therefore, less-than-significant.

Mitigation Measures

No additional mitigation is available.

3.2-4 Development allowed under the proposed project, in conjunction with 1994 LRDP development, the WWTP Replacement Project and cumulative development in the region, would result in increased cumulative CO concentrations at intersections, but would not exceed state or federal air quality standards. This is considered a *less-than-significant impact*.

As discussed under Impact 3.2-1, vehicle emission factors for CO are not provided in the YSAQMD guidance (YSAQMD 1996) because CO is an attainment pollutant in the YSAQMD, and thus not required to be evaluated. In the case of the proposed project, the additional traffic volume would be extremely small, representing an approximately 0.1 percent increase in vehicle trips on a daily basis, and would not be substantial enough to cause an exceedance of state or federal air quality standards. Therefore, this cumulative impact remains *less than significant*.

Mitigation Measures

No mitigation required.

3.2-5 Operation of the proposed facilities, in conjunction with development anticipated under the 1994 LRDP, could expose campus occupants and Davis-area residents to TACs emitted from laboratory uses. This is considered a *less-than-significant impact*.

Development under the 1994 LRDP would result in an increase in laboratory space on campus that could result in increased TAC emissions. The proposed project would contribute to that increase. As previously discussed under Impact 3.2-2, the 1994 HRA and subsequent updates did not specifically address the refined anticipated growth in the Health Sciences District. The 1999 HRA took into account the additional laboratory space to be added by the USDA Western Human Nutrition Research Center and additional development in the Health Sciences District that included the proposed facilities. As presented in Table 3.2-5, the updated 1999 HRA estimated the cancer risk associated with development allowed under the 1994 LRDP (including the proposed facilities) to be 0.4755 in one million, which is below the campus standard of significance of 10 in one million (UC Davis 1999c). According to the same HRA, the acute and chronic non-carcinogenic health risk hazard exposure indices would be 0.00929 and 0.00337, respectively (UC Davis 1999c). Both indices are less than the campus standard of significance of 1.0.

As a result, the proposed project, in combination with development under the 1994 LRDP, would not produce a significant cancer risk or cause adverse acute or chronic non-carcinogenic human health effects. Although the campus would incrementally contribute to toxic air contaminant

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emissions, the estimated cumulative emissions would not exceed the campus significance thresholds. Therefore, cumulative project impacts would be *less than significant*.

Mitigation Measures

No mitigation required.

3.2-6 Development allowed under the proposed project, in conjunction with 1994 LRDP development, the WWTP Replacement Project and cumulative development in the Davis area, may generate unacceptable cumulative TAC health risks. Inadequate methods exist to assess the magnitude of this impact, and it is therefore considered too speculative to determine the precise level of significance. This is considered a significant and unavoidable impact.

As reported by the 1999 HRA and discussed above, the carcinogenic health risk and the acute and chronic non-carcinogenic hazard indices associated with development allowed under the 1994 LRDP (including the proposed project), are well below the campus standards of significance. The cumulative context for TACs in the vicinity of the campus includes many other stationary sources and mobile sources such as local roadways and freeways. The 1994 LRDP EIR noted that currently no adequate acceptable methodology is available to assess TACs from mobile sources, or to cumulatively assess mobile and stationary sources of air toxics. It would therefore be speculative to attempt to determine a precise level of significance for cumulative TACs. Section 15145 of the CEQA Guidelines states that when an impact is too speculative for evaluation, it is appropriate to note this conclusion and terminate discussion of the impact.

Therefore, based on the above factors, including the fact that there is currently no acceptable methodology to assess cumulative effects from mobile and stationary sources, the 1994 LRDP EIR concluded that the impact is considered too speculative to evaluate and designated it *significant and unavoidable* to preserve the most conservative approach. The proposed project would contribute to this significant and unavoidable impact. Because as explained above, it is not possible to calculate the cumulative TAC health risk from all sources in the region, it is not possible to determine whether the proposed project's contribution to the impact would be cumulatively considerable or otherwise. Consequently, this DEIR conservatively concludes that the project's contribution would be cumulatively considerable and also notes that this specific impact was adequately analyzed in the LRDP EIR and addressed by the Findings and Overriding Considerations adopted by the Regents in connection with its approval of the 1994 LRDP.

Mitigation Measures

No mitigation currently available.

3.3 HAZARDOUS MATERIALS AND PUBLIC SAFETY

This section addresses the potential impacts of the proposed project related to routine use of hazardous materials (including chemicals, radioactive materials, and biohazardous materials) laboratory animals, and hazardous wastes generated on public health and safety. For a discussion of other hazardous materials and public safety impacts such as risk of accident or upset conditions, hazardous materials transportation and emergency response, please see Checklist Item 7 of the Tiered Initial Study included in Appendix A of this EIR. All relevant information, including applicable environmental and regulatory settings, standards of significance, and mitigation measures identified in Section 4.6 of the 1994 LRDP EIR and in Section 4.3 of the WWTP Replacement Project EIR, is incorporated by reference and summarized below as appropriate.

3.3.1 Environmental Setting

As shown in Table 2.4-1, the proposed project would consist of a Veterinary Medicine Laboratory facility, a lecture hall, large and small animal holding facilities, a canine blood donor housing facility, and an Equine Athletic Performance Laboratory facility and associated animal holding facilities. Hazardous materials use would mainly be confined to the laboratory space of which there would be approximately 24,698 assignable square feet. While it is impossible to forecast the exact types and quantities of hazardous materials to be used at the proposed facilities, it is reasonable to assume that hazardous materials use would roughly approximate use at the current veterinary surgery training facilities and cardiovascular and respiratory physiology labs (including existing treadmills).

A number of properties may cause a substance to be hazardous, including toxicity, ignitability, corrosivity, and reactivity. The term “hazardous material” is defined in different ways for different regulatory programs. This EIR uses the definition given in the California Code of Regulations (CCR), which defines hazardous material as:

a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

Toxic, ignitable, corrosive, and reactive materials are all subsets of hazardous materials and are defined on pages 4.6-2 and 4.6-3 of the 1994 LRDP DEIR. By convention, most hazardous materials are thought to be hazardous chemicals, but radioactive materials and biohazardous materials, as defined on page 4.6-3 of the 1994 LRDP DEIR, are also hazardous. This EIR considers hazardous materials to include hazardous chemicals (non-radioactive), radioactive materials, and biohazardous materials. A description of the types of hazardous materials found on the UC Davis campus is provided on pages 4.6-7 to 4.6-24 in the 1994 LRDP DEIR. Information from these discussions is incorporated by reference. The following discussion provides information pertaining to hazardous materials as they relate to the proposed facilities.

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3.3.1.1 Hazardous Chemicals (Non-Radioactive)

UC Davis is required to include an inventory of hazardous chemical materials stored on campus when it files its annual Business Plan with the Yolo County Office of Emergency Services. Campus Office of Environmental Health and Safety (EH&S) maintains a computerized inventory of hazardous chemical materials that is accessible through the worldwide web for authorized personnel. The inventory lists the names and quantities of all hazardous chemical materials found on campus in quantities greater than 55 gallons of liquid, 500 pounds of solid, or 200 cubic feet of gas per building. Examples of the types of hazardous chemicals found at UC Davis are presented in Table 4.6-1 of the 1994 LRDP DEIR. Roughly 254,000 gallons of hazardous liquids, 92,500 pounds of hazardous solids, and 1,350 cylinders of compressed gasses are distributed among more than 200 buildings on the Main Campus (UC Davis 1999d).

Hazardous chemical materials are currently used in small quantities at the existing veterinary surgery teaching facilities and animal cardiovascular and respiratory physiology research and instruction labs discussed above. A list of these chemicals along with their uses and their associated health risks due to exposure by contact and/or inhalation are presented below.

Anesthetic gases and liquids (halothane, isoflurane, nitrous oxide, pentobarbiturate)

Anesthetic gases and liquids are used to sedate laboratory animals for surgeries and research experiments. Anesthetic gases used at the existing facilities include halothane and isoflurane (Pauli 2000). Elevated levels of exposure to halothane are known to cause liver damage (Berry 2000). Excess anesthetic gases not used during a surgery or experiment are scavenged by the delivery machine and piped out of the room and released outside. Once released to the outdoors, the gases are diluted in air to such a point where they are no longer harmful. Pentobarbital sodium is an anesthetic that is delivered to the subject by injection. This sedative drug could cause liver and/or kidney damage (Gosselin et al. 1984). Overdoses of all these anesthetic drugs, through inhalation or systemic administration, could be fatal. However, anesthetics would only be administered to subjects being studied at the facilities, limiting possible exposure to humans.

Disinfectants/cleaning solvents (acetone, bleach, lysol, xylene, iodine)

Various solvents are used for cleaning and disinfecting laboratories, equipment, laboratory animals and animal holding areas. Acetone is used for cleaning and is useful for dissolving oils (Pauli 2000). It is also used to clean grease off horse skin prior to an experiment or surgery (Berry 2000). It is a flammable liquid and can cause irritation of the eyes, nose, and throat as well as headaches and dizziness if inhaled or dermatitis if contacted (Sittig 1985).

Ethyl alcohol is a flammable liquid also used as a disinfectant in laboratories. At very high concentrations it is considered to be a mild irritant. Contact with the liquid could produce dermatitis (Settig 1985).

Isopropyl alcohol (70 percent) is a widely used compound and is used at the existing facilities as a disinfectant. It is flammable and is considered a mild irritant (Sittig 1985).

Sodium hypochlorite or household bleach is used as a disinfectant and cleaner in existing laboratories. It is a corrosive agent and an irritant. Direct contact with skin could produce

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dermatitis or vesicular eruptions and inhalation could produce severe pulmonary irritation or pulmonary edema (Gosselin 1984).

Lysol is also used at existing laboratories. It is a disinfectant of mild toxicity (Gosselin 1984).

Xylene is a flammable liquid. Small quantities of the solvent are currently used on occasion to clean glass instruments such as test tubes (Pauli 2000).

Glutaraldehyde is the active ingredient in the cold sterilization solutions used at the existing laboratories (Berry 2000). It can cause irritation of the skin, eyes, nasal passages and upper respiratory tract (Settig 1985).

One-percent available iodine is used for the preparation of a cutaneous surface prior to a surgical incision (Pauli 2000). At higher concentrations or with prolonged exposure iodine could cause irritation of the eyes and nose, tearing, headaches, skin burns and cutaneous hypersensitivity (Sittig 1985).

Lubricants

Small quantities of trichloroethylene and ethyl ether are used to clean and lubricate electric clippers (Pauli 2000). Trichloroethylene, also used for extracting caffeine from coffee and as a dry-cleaning agent, is a carcinogen. Ethyl ether is a flammable liquid. Exposure to the vapors of both substances could be mildly irritating to the eyes, nose, and throat while contact with the liquids could produce dermatitis (Settig 1985).

Acetylene

Acetylene is a flammable gas that is burned in air or oxygen and used for welding. It is considered non-irritating to mucous membranes and skin (Settig 1985).

Alkaline Solutions

Alkaline solutions are used to process x-ray film. These solutions are irritants and are known to cause dermatitis, skin sensitization, and nasal and bronchial irritation with contact (Patty 1963).

Compressed Gases (oxygen, air, nitrous oxide, and carbon dioxide)

Compressed gas cylinders are used during anaesthetisation and in the operation of some dental equipment. These gases are under a great amount of pressure and could present a serious physical hazard if the cylinders or valves ruptured. Cylinders containing pure oxygen could explode if subject to high temperatures (Sax 1975).

3.3.1.2 Radioactive Materials

Radioactive materials are useful in certain types of research. They contain atoms that spontaneously emit radiation from the transformation of unstable atomic nuclei, which result in chemically different substances that may or may not be radioactive. These radioactive atoms are called "radionuclides" or "radioisotopes." Because radioactive materials emit ionizing radiation,

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their presence can be detected easily. Researchers take advantage of this easy detectability by using radioactive materials to learn about chemical processes. (For example, radioactive isotopes were used to trace glucose through metabolic pathways.)

Radioactive materials are constantly decaying, and each radioisotope has a characteristic half-life, which is the time for one half the radioactivity to decay. For example, phosphorous-32 (^{32}P) has a half-life of about two weeks (in other words, half of the radioactivity of a quantity of ^{32}P disappears every two weeks). Maximum current permitted storage limits for radioactive isotopes currently used on campus are shown in Table 4.6-3 of the LRDP DEIR (on page 4.6-12). Approximate typical purchases of radioactive materials are shown in Table 4.6-4 of the 1994 LRDP DEIR (on page 4.6-13).

In accordance with the campus Broadscope Radioactive Materials License, prior to obtaining radioactive materials, each principal investigator applies for a Radiation Use Authorization. The UC Davis Health Physics Program, which is required by the Radiation Control Law, is designed to provide adequate protective measures against exposure. Routine monitoring (including wipe samples, radiation leak detection, and visual inspection) is conducted for sealed radiation sources which exceed 100 microcuries. Sources which are less than 100 microcuries do not require specific routine monitoring.

The only radioactive materials present at the existing facilities are at the biochemistry lab in Haring Barn. Currently a small amount of carbon-14 (^{14}C) is stored in a refrigerator at the biochemistry lab. In the past, this radioisotope was injected into animals and used to trace and measure CO_2 output during research experiments. However, the ^{14}C has not been used in the last 10 years. It is clearly marked and is routinely monitored for leaks by EH&S as per standard procedure. Also in the biochemistry lab is a sealed nickel-63 (^{63}Ni) source in the gas chromatograph used for the analysis and separation of chemical mixtures. These two radioactive substances sources would be transferred to the biochemical and analytical laboratory in the proposed Equine Athletic Performance Laboratory facility.

Another source of radioactivity at the existing veterinary medicine surgeries facilities are gamma rays emitted from x-ray machines. Although x-ray machines emit radiation, they do not contain any radioactive material. Standard precautions are taken to limit exposure of staff and students to radiation when x-rays are being taken of animals. Radiographic units may only be operated by authorized personnel and radiation dosimetry is required for all personnel working with radiographic units to measure the operator's exposure to radiation. All individuals in the room during exposure must wear protective aprons and gloves which are inspected annually. Dental x-ray machines are inspected annually while regular x-ray machines for animals are inspected every two years (UC Davis 2000).

3.3.1.3 Biohazardous Materials

Various biologically hazardous substances such as infectious agents, parasites, and other biological agents are used for research on campus. The UC Davis Biosafety Program is intended to minimize community and worker exposure to the hazards from such materials. UC Davis implements various policies and practices to minimize exposure to biohazardous materials through skin contact, ingestion, and inhalation. In accordance with campus policy, laboratory coats and gloves are worn to prevent exposure by skin contact when employees work with

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biohazardous materials. UC Davis policy bans eating, drinking, and smoking in laboratories and requires proper washing. Activities that create the potential for biohazardous aerosols are conducted in biosafety cabinets, which filter all released air to remove biohazardous materials. Biosafety cabinets and equipment with HEPA filters to remove biological agents are tested regularly.

Although the existing facilities do generate biohazardous waste in the form of sharps (devices capable of cutting or piercing) and animal carcasses, no other biohazardous substances are used at the existing facilities and none are expected to be used at the proposed facilities (Mitchell 2000). All animals used for surgery instruction and for research at the existing facilities are healthy. All diseased animals are treated at the Veterinary Medical Teaching Hospital. As a result, no infectious agents exist in the facilities. All animals entering campus are first quarantined for a period of time to ensure that they are free of disease before being allowed to be housed with other animals in holding facilities.

Laboratory Animal Use

Animals on campus are housed in approximately 1,200 rooms, pens, paddocks, or pastures, including nearly 200 buildings that contain animal rooms. The approximate number of vertebrate animals participating in research projects annually is presented in Table 4.6-5 of the 1994 LRDP DEIR (pages 4.6-16 to 4.6-17).

The proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities would be utilized for surgical instruction of veterinary medicine students and for research and instruction in cardiovascular and respiratory physiology of horses. Currently, animals used for surgical instruction and cardiovascular and respiratory physiology research are housed at Haring Barn and the Veterinary Medicine Kennel in the Central Campus and holding facilities at the Animal Resource Services facilities on the South Campus. Veterinary surgery students are mainly trained on dogs, cats, goats, cows, sheep, llamas and horses.

To ensure proper animal care, the campus has an Animal Use and Care Administrative Advisory Committee (AUCAAC) that includes member representatives from the campus faculty and staff and public community. The AUCAAC's focus is the safe housing and handling of research animals. Campus animal care activities are summarized in Table 3.3-1.

The campus presently has full accreditation from American Association for the Accreditation of Laboratory Animal Care (AAALAC), a private agency with no regulatory authority, to which the campus voluntarily applies for accreditation. As a condition of accreditation, AAALAC requires correction of any deficiencies, in either program or physical facilities, that they observe during site visits.

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**TABLE 3.3-1
ANIMAL CARE FACILITIES**

Entity	Inspection Frequency	Notes
Animal Care Committee	Twice yearly	Quality control committee composed of campus faculty, staff (including the campus veterinarian), and students, as well as public representatives. Inspects animal facilities for compliance with the Animal Welfare Act and National Institutes of Health guidelines. Reviews quality of care criteria for initiating new research projects.
	Annually	Reviews all proposed new and continuing projects for humane care and use of animals.
US Department of Agriculture	Twice yearly (minimum), up to four times a year	Unannounced inspections by the Animal and Plant Health Inspection Service for compliance with the Animal Welfare Act.
American Association for the Accreditation of Laboratory Animal Care	Once every three years	Quality control committee that monitors compliance with the Animal Welfare Act and National Institutes of Health guidelines.
National Institutes of Health	Inspections are connected to funding. Institutions may choose method.	Methods include (1) outside inspection by American Association for the Accreditation of Laboratory Animal Care or (2) self-assurance by the institution.
US Food and Drug Administration	Irregular, inspections for cause only	Inspections emphasize animal record-keeping system, food storage, employee training documentation, and compliance with Good Laboratory Practice requirements.
Centers for Disease Control	Unannounced, when circumstances dictate	Inspects quarantine facilities.
California Public Health Service	Unannounced, when circumstances dictate	Requires quarantine of all primates coming into the State.

SOURCE: UC Davis, 1993.

3.3.1.4 Hazardous Waste Generation

Hazardous wastes are generated at campus locations where hazardous materials are used. Research and teaching activities produce most of the hazardous waste generated annually by the campus. To facilitate safe management, hazardous wastes are generally subcategorized into groups with similar or closely related properties. Hazardous wastes generated on campus are grouped into three major categories: non-radioactive chemical waste, radioactive waste, and biohazardous waste. Mixed wastes contain hazardous chemical and radioactive wastes. Types of wastes generated at UC Davis and examples of waste materials typical of these wastes are presented in Table 4.6-7 of the 1994 LRDP DEIR (on page 4.6-19).

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All hazardous chemical and radioactive waste generated on campus is collected and managed by EH&S through the campus Environmental Services Facility (ESF). EH&S personnel collect wastes from laboratory buildings and other generation points and transport them to the ESF. Before EH&S picks up materials, they must be packaged and labeled properly, which includes placing them in appropriate sealed containers, segregating incompatible materials, and identifying all components with approximate concentrations. Campus plans, policies, and training stress that hazardous wastes are not to be placed in the trash or poured down a drain. (Empty, rinsed, and defaced chemical containers may be discarded with the trash). EH&S has developed and implemented a hazardous waste minimization program on campus. This program stresses the proper management of laboratory hazardous materials inventories and development and implementation of laboratory procedures to reduce hazardous materials usage and properly manage generated wastes. EH&S has also implemented a chemical exchange program to reduce the disposal of useable radioactive and non-radioactive chemicals.

As discussed above, the carbon-14 stored in a refrigerator at the biochemistry lab in Haring Barn is not currently utilized and is not anticipated to be used. Furthermore, the nickel source in the gas chromatography machine is sealed and is never removed from the instrument. Once the machine is no longer functioning or is replaced, it is shipped back to the manufacturer. As a result, no radioactive waste is generated at the existing facilities and no radioactive waste is expected to be generated once the new proposed facilities are operational.

The existing facilities generate biohazardous waste in the form of sharps and animal carcasses. Sharps are defined by the California Health and Safety Code §25026.5 as devices capable of cutting or piercing, such as hypodermic needles, razor blades, and broken glass. Due to the potential hazard of these devices to injure people, sharps are disposed in special containers that are clearly marked and maintained throughout the facilities for this purpose alone. Sharps containers are shipped off-site for disposal by a medical waste hauler, and are then sterilized, shredded and landfilled. Sharps from these facilities are not considered infectious, as all animals involved in veterinary medicine instructional surgeries or in the treadmill experiments are healthy. Animal carcasses are placed in lined 50-gallon containers and stored in a refrigerated area on-site until they are collected by a commercial waste hauler.

Because the existing facilities do not involve use of biohazardous materials such as infectious agents, other waste associated with surgeries or animal care are disposed with regular solid waste at the campus landfill or in the sanitary sewer system. For example, animal bedding, uneaten food and protective disposable gloves are all landfilled while blood samples and animal excreta from cages are disposed in the sanitary sewer system where the effluent is then treated at the campus wastewater treatment plant. Waste of larger animals is disposed as solid waste.

3.3.1.5 Hazardous Materials Contamination

Existing hazardous materials contamination known or suspected on the campus is described on pages 4.6-24 to 4.6-30 of the 1994 LRDP DEIR. As a result of past and current land uses on campus, several locations are known to have soil or groundwater contamination, and other areas are suspected of being contaminated. Campus areas with known environmental contamination include the site of the current campus landfill, a pesticide storage building, and the South Campus Disposal Site (SCDS) (including the former Laboratory for Energy-Related Health Research (LEHR), an inactive campus landfill, and an old campus wastewater treatment plant

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site). Existing conditions at the SCDS are discussed in Chapter 7 of the 1994 LRDP DEIR, Effects Related to the South Campus Disposal Site. Contamination from these areas may extend to adjacent areas, but the project site is too far from the sites to be affected.

A Phase 1A preliminary site assessment was performed for this project as part of the due diligence process for the project site. No hazardous materials were encountered and no evidence of soil or groundwater contamination was found at the proposed site.

3.3.1.6 Safety Program Administration

The campus has charged EH&S with the responsibility of promoting a safe and healthy environment. EH&S has an obligation, through administrative channels, to require abatement of any condition or operation that could endanger people or facilities on campus or result in violations of pertinent federal or state laws or campus policies concerning health and safety.

Areas covered by the roughly 30 (full-time equivalent) EH&S technical staff at the campus include industrial hygiene, toxicology, chemical safety, physical safety, radiation safety (i.e., health physics), biohazard safety, hazardous waste management, animal care, and environmental protection. EH&S develops specific campus policies in these areas such as establishing procedures for packaging hazardous wastes and authorizing the use of radioactivity.

The principal investigators or supervisors of laboratories are responsible for ensuring that their laboratories are inspected by laboratory personnel at least twice each year. EH&S provides a checklist for this purpose. In general, EH&S does not conduct routine health and safety audits or inspections on or off campus, except for facilities that use radioactive materials, biohazardous materials, regulated chemical carcinogens, or generators of hazardous waste. EH&S staff audit facilities using biohazardous materials or regulated chemical carcinogens annually or semiannually, depending on the types of materials used. In accordance with the UC Davis Broadscope Radioactive Materials License, laboratories in which radioactive materials are used are subject to inspection by EH&S staff with frequencies from once a month to once a year. EH&S staff use a Facility Monitoring Report when inspecting labs and other campus facilities where radioactive materials are used. These audits are to ensure compliance with applicable codes and policies and to be certain of conformity with applicable radioactive, biohazardous, or regulated chemical carcinogenic material handling standards.

3.3.2 Regulatory Setting

Hazardous materials handling and hazardous waste management are subject to numerous laws and regulations at all levels of government. These laws apply to the classroom activities, research-related activities, maintenance work, and other activities on campus just as they do to other hazardous materials users. Laws and regulations related to health and safety are discussed in detail in Appendix E of the 1994 LRDP DEIR. A brief summary of these regulations is described below.

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Hazardous Materials Management

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment.

Worker Safety

The California Occupational Safety and Health Administration (Cal/OSHA) and the federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. In California, Cal/OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices.

Hazardous Waste Handling

The California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the Resource Conservation and Recovery Act (RCRA) and the California Hazardous Waste Control Law. These regulations are implemented at the local level by Yolo County Environmental Health Services, a designated Certified Unified Program Agency.

Radioactive Materials

The Radiologic Health Branch of the California Department of Health Services administers the federal Atomic Energy Act, the California Radiation Control Law, and related regulations, which govern the receipt, storage, use, transportation, and disposal of sources of ionizing radiation (radioactive material) and provide for protecting the users of these materials and the general public from radiation hazards.

Biohazardous Materials and Animals

The United States Department of Health and Human Services Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health prescribe containment and handling principles for use in microbiological, biomedical and animal laboratories. Although following these guidelines is not legally required for most activities, all UC Davis laboratories operate with the intent to follow these good hygienic practices. Federal and state laws such as the Animal Welfare Act specify standards for registration, record keeping, handling, care, treatment, and transportation of animals. Such laws are enforced by the US Department of Agriculture and the California Department of Fish and Game.

Medical Waste Handling

Medical (biohazardous) waste is generally regulated in the same manner as hazardous waste, except that special provisions apply to storage, disinfection, containment, and transportation. The California Department of Health Services Medical Waste Management Program enforces the Medical Waste Management Act and related regulations.

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3.3.3 Impacts and Mitigation Measures

3.3.3.1 Standards of Significance

For the purpose of this EIR, an impact is considered significant if the proposed project would:

- involve the use, production, or disposal of materials in a manner that poses a hazard to people, or to animal or plant populations in the area affected;
- expose employees to working situations that exceed health standards; or
- involve violating applicable laws intended to protect human health and safety.
- create a significant hazard to the public or the environment through the routine use of laboratory animals.

3.3.3.2 Project Impacts and Mitigation Measures

3.3-1 Implementation of the proposed project would eventually lead to an increase in hazardous chemical use at UC Davis that could expose campus occupants to potential health or safety risks. This is considered to be a *less-than-significant impact*.

Development of the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory facilities is projected to increase hazardous materials use slightly as the number of students using the facilities increases. A scientific research facility cannot reasonably predict in advance every possible chemical or combination of chemicals it might conceivably use, but the range and nature of chemical use is not expected to change from use at the existing veterinary surgery teaching facilities and cardiovascular and respiratory physiology research and instruction facilities.

Various chemicals pose different levels of hazards in their use. Some substances, such as acetone, are flammable while others, can be quite toxic. Some non-radioactive chemicals have the potential for causing cancer or acute and chronic illnesses. The properties and health effects of chemical substances are unique to the individual materials, although they often can be grouped by chemical types. No classifications exist to rate the level of hazard posed by all substances under all circumstances. While some substances may present little potential for hazard, others may be capable, in certain situations, of causing severe health effects.

Workers might be exposed to hazardous chemicals through inhalation, skin absorption (contact), ingestion, and injection (cuts). UC Davis policies and procedures address the procurement, handling, and disposal of carcinogenic, controlled, volatile, flammable, and explosive substances. EH&S is charged with implementing measures, directly and through campus departments, designed to ensure compliance with applicable laws and regulations and to impose additional, more stringent UC Davis policies to further reduce the potential for human harm.

To minimize exposure of students, researchers, and other workers to anesthetic gases, excess gases not administered are piped out of the room in question and released outdoors. Dilution of the gases in air outside renders them harmless. Due to the relative low volatility of chemicals to be used at the proposed facilities, fume hoods would not be required, although one is proposed in

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the Equine Athletic Performance Laboratory to contain odors from excised animal tissues. As part of the project, engineering controls (such as ventilation systems) would be required to meet Cal/OSHA requirements. Proper use of engineering controls would keep indoor laboratory air toxics concentrations below the suggested guidelines of the American Conference of Governmental Industrial Hygienists Threshold Limit Values and the legal limits of the OSHA Permissible Exposure Levels.

To prevent exposure through skin contact, campus policy is that protective clothing, such as laboratory coats, gloves, and safety glasses must be worn while handling hazardous materials and wastes. Proper washing after handling chemicals is also required. Also, in accordance with state laws and campus policy, eating, drinking, applying cosmetics, chewing gum or tobacco, and smoking are not allowed in laboratories using radioactive, carcinogenic or biohazardous materials; these restrictions are imposed to prevent the potential ingestion of chemicals.

Campus departments are primarily responsible for ensuring that safe work practices are followed; EH&S supports departments with this responsibility. EH&S also reviews proposed laboratory designs for non-structural seismic safety concerns and compliance with Cal/OSHA requirements to provide appropriate protection for the workers.

Potential health impacts related to possible chemical exposure of people off-campus are also addressed in Section 3.2, Air Quality. In contrast, the extent that students and workers are exposed to hazardous materials is related to the training they receive, how conscientiously they follow given safety procedures, and the extent that compliance is supervised and enforced. Implementation of the proposed project would eventually expose more people to potential hazards as the project would involve hiring one additional employee and would allow expansion of the Doctor of Veterinary Medicine class size.

Compliance with all state and federal laws and regulations as well as campus policies would reduce the impact of increased hazardous materials use to a less-than-significant level. Environmental and health and safety laws and regulations are dynamic and have been revised and added to in recent years. The various federal, state, and local agencies that monitor campus regulatory compliance require time to receive, interpret, and transmit changes to the regulated community. In turn, regulated entities such as UC Davis require some time to receive proper notice, to understand changed laws and regulations, to acquire proper equipment, to inform campus workers, and to train or hire new staff to comply with the changes. Hence, compliance is an evolutionary and perpetual process. UC Davis is committed to providing a safe environment for the campus and the local community by implementing the laws and regulations regarding the use of hazardous materials.

The 1994 LRDP EIR recommended implementation of Mitigation Measure 4.6-1(a) through (c), prior to occupying the first project approved following adoption of the 1994 LRDP that involved the use of hazardous materials to reduce this impact to a less-than-significant level. Pursuant to 1994 LRDP EIR Mitigation Measure 4.6-1(a), the campus has strengthened its programs to improve compliance with the laws and regulations applicable to the use of hazardous materials. The UC Davis EH&S website currently contains information on the types and quantities of hazardous materials on the UC Davis campus and an online chemical inventory system accessible to authorized users. The campus also submits annual chemical inventory reports to the County fulfilling Community Right-to-Know and Business Plan requirements. In addition, Waste Minimization, Injury and Illness Prevention, Chemical Hygiene, and Emergency Action

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Plans have been developed and implemented and a waste minimization coordinator position has been created (Oatman 2000).

Consistent with 1994 LRDP EIR Mitigation Measure 4.6-1(b), the campus has established a self-audit mechanism and a reporting system to document the compliance status of campus departments and units. The Certified Unified Program Agency (CUPA) self-audit program has been implemented and checklists are downloadable from the EH&S website. Consistent with 1994 LRDP EIR Mitigation Measure 4.6-1(c), biennial audits of EH&S are conducted by individuals independent of the campus (such as from other agencies or other campuses).

Due to the many controls, procedures, and plans currently in place on campus to minimize risk of exposure to hazardous chemicals, the impact of increased hazardous chemicals use at the proposed project site would result in a *less-than-significant* impact to campus occupants.

Mitigation Measures

No mitigation required.

3.3-2 Implementation of the proposed project could lead to an increase in the generation of hazardous chemical waste at UC Davis that could expose campus occupants to potential health or safety risks. This is considered to be a *less-than-significant impact*.

As described in the setting section, hazardous chemical wastes are generated whenever hazardous chemicals are used. General types of hazardous chemical wastes include spent solvents from laboratories, discarded laboratory reagents and reaction products, and contaminated materials such as gloves and containers. The extent that students and workers are exposed to hazardous waste is related to the training they receive, how conscientiously they follow safety procedures, how well engineering controls are maintained and operated, and the extent that compliance is supervised and enforced.

The campus has prepared guidelines for proper disposal of hazardous wastes based on regulations established by the Environmental Protection Agency and the Department of Toxic Substances Control. To facilitate safe management, hazardous wastes are subcategorized into groups with similar or closely related properties. Before EH&S picks up materials, they must be packaged and labeled properly, which includes placing them in appropriate sealed containers, segregating incompatible materials, and identifying all components with approximate concentrations. Hazardous materials transported to the ESF are separated into subcategories based on the handling methods employed, storage locations at the facility, and the ultimate destination of the materials. Flammable wastes (mostly solvents), corrosives (acids and bases), certain oils, poisons, heavy metals, and oxidizers are shipped off-site for recycling, treatment, or disposal. Chemical wastes, once packed for disposal, are further categorized according to their off-campus disposal methods.

The proposed project is expected to generate hazardous chemical waste in amounts similar to, or slightly greater than, the amounts generated by the existing veterinary surgery and treadmill facilities. This increase would be related to the increase in DVM class size. Due to the small amounts and limited types of hazardous chemicals anticipated to be used at the proposed facilities, hazardous chemical waste generation is expected to be minor. Furthermore, treatment,

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storage, and disposal facilities are available with the capacity to accept UC Davis chemical waste.

The 1994 LRDP recommended implementation of Mitigation Measure 4.6-2(a), (b), or (c), in combination with Mitigation Measure 4.6-2(d), prior to occupying the first project approved following adoption of the 1994 LRDP that involved the use of hazardous materials to reduce the level of this impact to less-than-significant level.

In conformance with 1994 LRDP EIR Mitigation Measure 4.6- 2(b), the Environmental Services Facility, a new handling facility for campus hazardous wastes, has been constructed and is operational. In addition, a Waste Minimization Coordinator position has been created and EH&S has developed and implemented a hazardous waste minimization program on campus pursuant to 1994 LRDP EIR Mitigation Measure 4.6-2(d). This program stresses the proper management of laboratory hazardous materials inventories and development and implementation of laboratory procedures to reduce hazardous materials usage and properly manage generated wastes. EH&S has also implemented a chemical exchange program to reduce the disposal of useable radioactive and non-radioactive chemicals.

Due to the programs and controls currently implemented on campus to provide safe handling, treatment and disposal of hazardous chemical waste, this impact is considered *less than significant*.

Mitigation Measures

No mitigation required.

3.3-3 Storage of radioactive materials and operation of x-ray machines at the project site could expose campus occupants to potential health or safety risks. This is considered to be a *less-than-significant impact*.

As discussed in the setting, three sources of radioactivity would be present at the proposed project site. The carbon-14, although no longer used, would be relocated to the proposed Equine Athletic Performance Laboratory Facility. The gas chromatograph and gamma ray-emitting x-ray machines would be transferred to the new facility as well. While the proposed project would not result in an increase in radioactive materials use, due to the increase of one employee and 36 new students, more people would eventually be at risk of exposure at the proposed facilities. The potential human health effects from radiation exposure range from no known health effects to minor skin irritations or headaches to cancerous tumors.

Average background radiation exposure in the United States is about 163 millirem per year (UC Davis 1994). Typical average doses to workers at campus facilities are less than 30 millirem per year, a level below naturally occurring or background radiation and below applicable standards (UC Davis 1994). While implementation of the proposed project could increase the number of people exposed to this typical dose, it would not be anticipated to change the typical dose level.

Radiation poses a health risk to those who are exposed, but exposure can be prevented with proper protective equipment and procedures. Radioactive materials are monitored closely. In accordance with the UC Davis Broadscope Radioactive Materials License, prior to obtaining radioactive materials, each principal investigator must apply for a Radiation Use Authorization from the Radiation Use Committee, which specifies the particular radioisotopes to be used and

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maximum quantities to be possessed. The UC Davis Radiation Safety Program, which is required by the Radiation Control Law, is designed to provide adequate protective measures against exposure to these sources for visitors, students, faculty, staff, and the community at large. Together, these existing measures are designed to reduce the risk of illness and accidents. Continued implementation of these measures is part of the proposed project.

Given that the radioisotopes to be located at the proposed facilities would be present in very small amounts and would not be utilized, and that adequate safety controls, plans and procedures are in place to limit exposure to radiation from the carbon-14, nickel-63 and/or x-ray machines, the potential of the proposed project to expose campus occupants to health or safety risks is low. This impact is therefore considered to be *less-than-significant*.

Mitigation Measures

No mitigation required.

3.3-4 The proposed project would increase the use of laboratory animals at UC Davis, thereby increasing the risk of animal bites and escapes. This is considered to be a *less-than-significant impact*.

Animals to be used at the proposed facilities would be housed on-site at the large and small animal holding facilities, the canine blood donor housing facility and the equine holding facility. As described in the project description, the large animal holding facility would house large animals including horses, large ruminants (mainly cows, goats and sheep), and camelids (e.g., llamas). The facility would include 32 stalls for cows and horses to be used in teaching and research, and 12 smaller stalls to house sheep and goats. The small animal holding facility would hold dogs and cats and the canine blood donor facility would also hold dogs. The equine holding facility would hold up to 20 horses.

The increased use of animals in UC Davis research laboratories could pose potential hazards to workers and building occupants if contacts between humans and animals were not properly managed. The animals at the proposed facilities would present physical safety hazards, such as bites and scratches, but would not pose the risk of disease, as all animals used would be healthy. Types of animal-related incidents that can be expected include getting knocked down, bumped, bitten or scratched.

UC Davis policy requires that the Campus Veterinarian oversee safety measures to ensure the safety of campus occupants and animals. Before any research involving live vertebrate animals can be initiated, a protocol for the activity must be prepared by the principal investigator and approved by the department chair, the Campus Veterinarian, and the UC Davis Animal Use and Care Administrative Advisory Committee. Approved protocols must comply with federal and state requirements as well as the National Institutes of Health *Guide for the Care and Use of Laboratory Animals* (please see Appendix C for more information on this guide). Vertebrate animals cannot be obtained for research until experimental protocols are approved. Animal housing facilities must also conform to the National Institutes of Health guidelines and the Animal Welfare Act.

On-campus use of animals for research could result in potential hazards offsite if animals escaped. However, escaping animals would only present physical hazards, such as bites, because no animals at the proposed facilities would be considered infectious. Very few incidents of

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escapes from the campus have been known to occur (UC Davis 1994). Potential off-site effects of animal use are primarily controlled by containing the animals, either in cages or behind fences or by blocking them behind doors, depending on the appropriate method for the species as prescribed by the guidelines. Generally, animals are kept indoors, behind closed doors. Physical barriers, such as fences and cage covers, minimize contact in outdoor cages. Furthermore, animal facilities are subject to the design approval oversight of the Campus Veterinarian. The proposed facilities would meet these guidelines. For these reasons, no significant impacts are expected to result from animal escapes.

To further minimize risks to the community, animal cages are washed with detergent and treated with a disinfectant solution. Detergent and disinfectant solutions are believed to be effective against viruses and bacteria. Depending on the circumstances, cages may be steam cleaned with a steam gun, put through a cage washer at an elevated temperature, autoclaved, or washed by hand with detergent. Then cages are rinsed with a disinfectant. Infectious agents generally cannot survive disinfectant cage washing. The effluent from these washing processes undergoes further treatment at the wastewater treatment plant and is greatly diluted before reaching the plant.

Controls intended to ensure the safety of animal care workers also minimize opportunities for physical injury. National Institutes of Health animal care guidelines specify the use of protective wear and safe handling of the animals to decrease the chance of work-related hazards through incidents such as bites or needle sticks. Training is provided to workers to ensure proper animal and cage handling, surgical procedures, and personal hygiene.

Compliance with animal care and use guidelines, as overseen by the Campus Veterinarian, serves to minimize potential hazards; however, some campus injuries and illness have been associated with animal bites and scratches. Increased campus research with animals could result in a greater number of individuals being exposed to potential hazards. The 1994 LRDP EIR identified implementation of Mitigation Measures 4.6-1(a) through (c) to reduce this impact to a *less-than-significant level*. As explained under Impact 3.3-1, these mitigation measures have been implemented. Therefore, given the controls, policies, and plans currently in place to minimize physical hazards from increased laboratory animal use, this impact is considered *less than significant*.

Mitigation Measures

No mitigation required.

3.3-5 The proposed project could lead to an increase in the generation of biohazardous waste at UC Davis that could expose campus occupants to potential health or safety risks. This is considered to be a *less-than-significant impact*.

Biohazardous waste expected to be generated at the proposed facilities would include sharps and animal carcasses. While these wastes would be considered biohazardous they would not be considered infectious. Non-infectious sharps carry the risk of physical injury such as cuts. Sharps are disposed of in specific sharp containers that are picked up by a private treatment and disposal company. They are then sterilized, shredded and landfilled. Animal carcasses are considered hazardous due to the decaying tissue and the microorganisms involved in the process of decomposition. Carcasses are bagged, placed in 50-gallon lined containers, and stored in a

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refrigerator or freezer until they are picked up by a commercial waste hauler. All other animal-related waste such as laboratory tissues, fluids, cultures and excreta would not be considered biohazardous or infectious as all animals at the facilities would be healthy.

All biohazardous waste expected to be generated at the proposed facilities would be non-infectious, and existing health and safety practices would minimize the potential for adverse health effects of such waste prior to disposal. Because these practices are expected to continue under the proposed project, increased biohazardous waste generation is considered *a less-than-significant impact*.

Mitigation Measures

No mitigation required.

3.3-6 Hazardous materials used at the proposed facilities may be inadvertently released to the sewer or disposed with non-hazardous solid waste. This is considered to be a less-than-significant impact.

Pouring hazardous wastes down drains and disposing of hazardous materials with ordinary solid waste are prohibited by law. Such activities are traditionally difficult to avoid at large institutions where there is a high turnover of personnel, particularly in laboratories. UC Davis actively discourages drain and garbage disposal of hazardous wastes.

One of the elements of the revised Waste Discharge Requirements (order number 97-236) for the wastewater treatment plant is the establishment of a Pretreatment Program. UC Davis is currently implementing this effort to monitor influent and effluent from non-domestic sources (e.g., laboratories). The campus monitors wastewater from established quadrants on campus. If elevated levels of pollutants are detected in wastewater from a certain quadrant, the area is examined in greater detail to isolate the source of the pollutants (Oatman 2000).

Furthermore, UC Davis has sampled its wastewater for all EPA priority pollutants and has begun preparing a list of non-domestic dischargers. The campus has determined local limits for individual dischargers and implemented an ongoing compliance program (UC Davis 1994). In addition, EH&S promotes appropriate disposal methods by providing campus hazardous waste disposal services and training to waste generators.

The campus manages its own sewage through a campus wastewater treatment plant in accordance with Central Valley Regional Water Quality Control Board (CVRWQCB) guidelines. No evidence exists that disposal of hazardous materials to the wastewater system is causing a significant impact on water quality and the campus wastewater treatment plant has not experienced major wastewater disposal problems. However, data collected to date is insufficient to fully evaluate whether improper disposal of hazardous wastes has affected discharge water quality. As part of future projects, accidental spills would be unlikely to enter the sewer system because new laboratories would not have floor drains. Implementation of the Pretreatment Program serves to minimize the risk of hazardous material release to the wastewater disposal system.

Non-hazardous solid waste generated by UC Davis is disposed in the campus landfill. Incidents of inappropriate disposal of hazardous waste in the landfill have occurred occasionally. In 1991, the Environmental Health Services Division of the Yolo County Department of Environmental

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Health, acting as the Local Enforcement Agency for the UC Davis Landfill, issued the campus a Notice and Order of Compliance for the landfill that cited various violations of the Solid Waste Facilities Permit (issued in 1978). The campus has taken steps to correct the deficiencies noted by the County in the Notice and Order. Specifically, according to the Terms and Conditions of the Notice and Order of Compliance that Yolo County issued the campus, the campus submitted a draft Comprehensive Waste Exclusion Program Plan to the County in May 1994. This plan included an updated and revised Load-Checking Program Plan. The Plan was approved in June 1994 and has been implemented since then (Oatman 2000).

The 1994 LRDP EIR identified Mitigation Measures 4.6-24(a) and (b) to reduce this impact to a less-than-significant level. Consistent with Mitigation measures 4.6-24(a), the campus has established a Pretreatment Program pursuant to the revised Waste Discharge Requirements. Although the campus is in compliance with most of the Waste Discharge Requirements, it is currently in violation of established copper thresholds (Oatman 2000). A new wastewater treatment plant has recently been constructed and is now operational. The new plant will be more reliable to operate and will help the campus comply with the Waste Discharge Requirements.

Consistent with Mitigation Measures 4.6-24(b), the campus has implemented a waste exclusion program at the campus landfill (Oatman 2000). As a result of controls currently in place to detect inadvertent release of hazardous material to the sanitary sewer and/or landfill, this impact is considered *less than significant*.

Mitigation Measures

No mitigation required.

3.3.3.3 Cumulative Impacts and Mitigation Measures

The cumulative context for the evaluation of hazardous materials and waste impacts is the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities project, combined with buildout under the 1994 LRDP and growth anticipated in the Davis region.

3.3-7 Increased use of hazardous chemical materials related to cumulative development in the region would increase the number of people exposed to health hazards associated with such use. *The project's contribution to this significant and unavoidable impact would be de minimis.*

Potential health and safety effects related to hazardous materials use at UC Davis are generally limited to those individuals using the materials or persons in the immediate vicinity of the use. (The potential for cumulative effects of toxic air contaminant emissions is discussed in Section 3.2 of this EIR). For the most part, potential impacts associated with such development would be localized, but cumulative development could result in more people being exposed to hazardous chemicals, which would be considered a significant impact.

The 1994 LRDP EIR recommended implementation of the same mitigation measures as those recommended to reduce project-specific impacts of hazardous chemicals use (1994 LRDP EIR Mitigation Measure 4.6-1(a) through (c)). The 1994 LRDP EIR noted that while the mitigation

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measures would address the campus' contribution to this significant impact, the campus cannot guarantee that additional hazardous chemicals used at off-campus locations outside the control of the University would be managed safely because this authority falls within other jurisdictions to monitor and enforce. For this reason, the University conservatively considered the impact significant and unavoidable. However, as described under Impact 3.3-1 of this DEIR, the proposed project would involve only a slight increase in use of hazardous chemicals over current conditions related to the increase in DVM class size. Therefore, the project's contribution to this cumulative regional impact would be de minimis and as a result, less than significant.

Mitigation Measures

No mitigation required for the proposed project. No additional mitigation available for the regional cumulative impact.

3.3-8 Implementation of the LRDP and other developments in the region that generates hazardous chemical waste could place an additional load on hazardous waste management facilities. The project's contribution to this significant and unavoidable impact would be de minimis.

With respect to cumulative hazardous waste generation at facilities on campus, the 1994 LRDP EIR noted that the campus' cumulative hazardous waste, together with waste generated by cumulative development in California and the rest of the nation, could be managed at facilities that are not in compliance with applicable environmental laws and thus may cause human and environmental health hazards. It also discussed the complexity of applicable laws and the limited ability of generators to determine compliance status of the disposal facilities, and conservatively concluded that the impact of cumulative waste generation would be significant.

The 1994 LRDP EIR further identified mitigation measures (1994 LRDP EIR Mitigation Measures 4.6-4(a) and (b)) to address the campus' contribution to the cumulative regional impact. In compliance with these mitigation measures, a Hazardous Waste Minimization Program has been implemented and the new ESF has been completed and is operational. However, the 1994 LRDP EIR conservatively noted that the actions of the campus alone could not mitigate this impact, and other government entities would need to take steps to mitigate this impact. For example, local governments could implement and facilitate hazardous waste minimization programs, states could set mandatory waste reduction targets, and state or federal governments could operate treatment or disposal facilities. However, the feasibility and implementation of such measures could not be guaranteed by the University of California because they fall within other jurisdictions to enforce and monitor. For this reason, the University conservatively considered the impact significant and unavoidable, even after implementation of mitigation measures. As described under Impacts 3.3-1 and 3.3-2 of this DEIR, the proposed project would use small quantities of a few types of chemicals and would generate hazardous chemical waste in volumes similar to, or slightly greater than, existing instructional veterinary surgery and treadmill facilities. Therefore, the project's contribution to the cumulative regional impact would be de minimis and as a result, less than significant.

Mitigation Measures

No mitigation required for the proposed project. No additional mitigation available for the regional cumulative impact.

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3.3-9 Implementation of the proposed project, in conjunction with other development in the region that generates biohazardous waste, would place an additional load on available biohazardous waste management facilities. This is considered to be a *less-than-significant impact*.

As discussed in Impact 3.3-4, the impact of increased biohazardous waste generation at the proposed facilities would be less than significant provided that appropriate waste management policies and practices continue to be followed. Much of the biohazardous waste generated on campus is sterilized immediately at the point of generation, thereby precluding any cumulative impact associated with similar waste generation nearby. Some biohazardous waste must be shipped off campus for treatment, and certain other activities in the region also generate biohazardous waste that must be treated and disposed. For instance, any increase in hospital, convalescent care, clinical laboratory, or biological research facility operations in the region could also generate biohazardous waste. However, adequate treatment capacity exists in the region to support reasonably foreseeable cumulative increases in biohazardous waste generation. The potential cumulative impact of increased biohazardous waste generation in the region is therefore considered *less-than-significant*.

Mitigation Measures

No mitigation required.

3.4 BIOLOGICAL RESOURCES

This section addresses the potential effects of the proposed project on burrowing owls, Swainson's hawks, and other raptors that nest or forage at or near the project site. All other impacts on biological resources are adequately addressed in the TIS (Appendix A) prepared for this project. All relevant information, including applicable environmental and regulatory settings, standards of significance, and mitigation measures identified in Section 4.7 of the 1994 LRDP EIR, in Section 4.4 of the WWTP Replacement Project EIR, in Chapter 8 of the 1997-98 Major Capital Improvement Projects SEIR, Item 7 of the Center for the Arts Tiered Initial Study and Mitigated Negative Declaration and Item 8 of the USDA Western Human Nutrition Research Center Tiered Initial Study and Negative Declaration, is incorporated by reference and summarized below as appropriate.

3.4.1 Environmental Setting

The proposed 7.6-acre project site is located between other veterinary medicine facilities to the east and Highway 113 to the west. It is surrounded by development to the north, east, and west. The Arboretum Waterway and Campus Arboretum are located to the south of the site. The project site is currently used as a cross-country equestrian riding course. As a riding course the site is fairly undeveloped except for the series of man-made obstacles, jumps, and a hill. The habitat on the site consists of Ruderal/Annual Grassland. It is routinely mowed and ground squirrels populations are controlled. There are no trees, streams, ponds, or wetlands on the site, although one large oak tree is located immediately west of the site.

A complete description of habitat types found on the campus can be found on pages 4.7-2 to 4.7-8 in the 1994 LRDP DEIR and they are illustrated in Figure 4.7-1 on page 4.7-3.

3.4.1.1 Ruderal/Annual Grassland

The Ruderal/Annual Grassland habitat type found on the proposed project site is the result of regular mowing as part of the management of the site as a cross-country course for the campus Equestrian Center. It is an open, treeless vegetation type composed primarily of annual species. The composition of the Ruderal/Annual Grassland habitat consists largely of non-native introduced annual grasses and forbs. Because of the aggressive nature of these introduced plants, the virtual extirpation of many native species, and continued disturbance, they have become naturalized as the dominant species and have excluded the growth of native perennial grassland species that occurred prior to settlement and cultivation of the area. Small mammals, reptiles, and birds can be found in this habitat type. Because of its recent decline in the region, the burrowing owl is perhaps the most notable wildlife species that has been observed nesting and foraging in Ruderal/Annual Grassland on campus.

3.4.1.2 Special Status Species

Special status species are addressed in the 1994 LRDP DEIR on page 4.7-8. For the purposes of the EIR, special status species were defined as those taxa that are listed as threatened or endangered under either the California or Federal Endangered Species Acts, species that are candidates for either state or federal listing, and species afforded protection under the Fish and

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Game Code of California. Also included as special status species, are California Department of Fish and Game (DFG) “Species of Special Concern.” Tables 4.7-1 and 4.7-2 in the 1994 LRDP DEIR (pages 4.7-9 through 4.7-13) provides a list of special-status plants and animals that could occur on the campus.

Many of the special-status species listed in Tables 4.7-1 and 4.7-2 in the 1994 LRDP DEIR have been assigned a low probability of occurrence on the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities site because they require soil conditions, habitats, or habitat elements that are no longer found in the highly modified lands on the proposed project site. Limited field surveys have been conducted for the majority of special-status species potentially occurring on campus as part of the environmental evaluation of the site. The following section discusses only those special-status species known to occur, or having the potential to occur on the proposed project site because suitable habitat is present. Three special status species may potentially occur on or near the site, valley elderberry longhorn beetle (VELB), burrowing owl, and Swainson’s hawk.

3.4.1.3 Special-Status Plants

Based on information in the California Natural Diversity Data Base, nine special-status species are known to occur in the vicinity of the UC Davis campus (CDFG 1998 *in* Jones and Stokes 1999). A rare plant survey for special status species was conducted to determine their presence or absence at the proposed project site. The site was visited as part of a larger plant survey conducted in May and June 1999. The survey was generally performed according to CDFG guidelines. The survey confirmed that the area consists of non-native grassland which is mowed and noted that there were some ornamental plantings around the margins of the site. The report concluded that no special-status plant species were present and that no habitat was present that would be suitable for special-status plant species (CDFG 1984 *in* Jones and Stokes 1999).

3.4.1.4 Special-Status Wildlife

Of the species identified in Table 4.7-2 in the 1994 LRDP DEIR as having the potential to occur on campus, the project site provides suitable foraging habitat for raptors, including burrowing owls and Swainson’s hawks, potential nesting habitat for burrowing owls, and could be the site of shrubs that are host plants for the valley elderberry longhorn beetle. The occurrence of these species on and in the vicinity of the project site is described below.

Burrowing Owls

The burrowing owl is fully protected against “take” (the term is defined in Section 3.4.2 below) pursuant to Section 3503.5 of the California Fish and Game Code and is a Department of Fish and Game (DFG) Species of Special Concern. Burrowing owls are small birds with the relatively unique habits of being active during the day as well as in the evening and nesting underground. They typically use burrow systems formerly occupied by ground squirrels or other large burrow-dwelling rodents. Their diet is usually dominated by insects but may also include small mammals, reptiles, and amphibians. Burrowing owls generally forage in open fields with relatively sparse, short vegetation; their foraging ability is disrupted by dense tall vegetation.

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Nesting burrowing owls have been recorded at various Central Campus locations, including the Health Sciences District since 1981. No information is available on the status of burrowing owls on the Central Campus prior to 1981. A significant reduction in the number of breeding pairs on the Central Campus has occurred since 22 pairs were observed in 1981. Only 12 pairs were observed in 1986, and breeding was not observed on the Central Campus from 1992 through 1997. Only one burrowing owl was observed in the Health Sciences District of the Central Campus for about two weeks in 1992 (Biosystems Analysis, Inc. 1989, *in UC Davis 1998*).

As described on pages 4.7-15 and 4.7-16 of the 1994 LRDP DEIR, the declining population of burrowing owls on the campus persisted longest on the open fields in and around the Health Sciences District. These lands were used for agricultural research, including many orchards, until the construction of the veterinary and medical Schools and the multi-lane Highway 113, from the early 1960s through the mid-1970s. Undeveloped lands to the east and north of the veterinary and medical Schools had been actively farmed for decades, typically in dryland crops such as safflower and oats. As a result of farming practices, the entire area was disced on an annual basis and the dense crops were unsuitable foraging and nesting habitat for burrowing owls during most of the year. More recently, these lands have been managed primarily for weed control, a practice that prevents growth of tall, dense vegetation, keeping it open and potentially suitable for nesting and foraging by burrowing owls. Since at least the mid-1980s, campus management of these fields has considered the presence of burrowing owls. Typical weed control activities include identifying the location of burrows occupied by burrowing owls, mowing the fields once or twice a year away from the burrows, and, when needed to keep the habitat open, trimming the vegetation immediately around active burrows with hand equipment. The fields are also managed to control ground squirrels. The field immediately north of Medical Sciences 1A Building (Tupper Hall) and west of Parking Lot 54 has been posted with signs identifying the area as burrowing owl habitat and generally has been mowed instead of disced to control weeds. Posting the area with signs was intended to benefit burrowing owls by minimizing disturbance by people walking through the fields.

The campus has been monitoring the area around the Health Sciences District including the proposed project site. The area surveyed is bordered by Highway 113 to the west, Orchard Park to the north, Dairy Road to the east, and the Equestrian Center to the south (UC Davis 1997). The burrowing owl surveys were conducted in accordance with the burrowing owl protocol survey guidelines recommended by the DFG. From 1992 through 1998, burrowing owl surveys were conducted from February through November so that owls could be observed during the entire nesting season. Beginning January 1999, surveys have been conducted approximately once every three weeks. Surveys were conducted on foot during the recommended time of day to locate burrowing owls and potential burrows.

In 1993, 1994, 1995, and 1996, no burrowing owls were observed in the survey area. In 1997, burrowing owls were observed sporadically between March and November in the field east of the Health Sciences District south of the bicycle path. Nesting was not documented in 1997. Also during March field surveys, pellets and white wash were identified at a burrow entrance (UC Davis 1997). In 1998, a single pair of burrowing owls nested near the intersection of Garrod Drive and Veterinary Medicine Drive, the first recorded nesting pair on the Central Campus since 1991. This site is approximately 1,400 feet northeast of the proposed project site on the opposite side of the veterinary and medical schools. In addition, during February and March 1998 a single bird was observed in the vicinity of Hutchison Drive and La Rue Road,

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approximately ½ mile from the project site. This apparently unmated bird was not observed subsequently in 1998. During January through August 1999, two pairs of burrowing owls were observed in the fields east of the Health Sciences District and the two pairs produced young. The nearest birds to the project site were located approximately 1,300 feet to the east of the veterinary school. No owls were recorded on the project site from 1992 through March 2000.

Swainson's Hawk

The Swainson's hawk is listed as a threatened species under the California Endangered Species Act and is also fully protected against “take” pursuant to Section 3503.5 of the Fish and Game Code of California and the Federal Migratory Bird Treaty Act. The Swainson's hawk is a relatively large bird-of-prey that typically nests in large trees in riparian corridors as well as in isolated trees remaining in or adjacent to agricultural fields in the Central Valley. However, in the City of Davis, and on the Central Campus, these hawks also nest in large trees among buildings, roads, and dwellings.

Swainson's hawks forage in open grassland habitats and have adjusted to foraging in certain types of agricultural lands. The value of foraging habitat can be affected by a variety of characteristics including density and availability of prey, proximity to disturbing features, and distance to nesting territories. Published information indicates these raptors typically forage within a 10-mile radius of nest sites but may range up to 18 miles from a nest site in search of suitable foraging habitat and available prey (Estep 1989). Formal studies have shown that Swainson's hawks will spend the majority of foraging time in close proximity to the nest site when high quality foraging habitat (measured by the abundance and availability of prey) is present (Estep 1989; Michael Brandman Associates 1993; Woodbridge 1991).

The occurrence of the Swainson's hawk in and around the campus is well documented. Surveys for Swainson's hawk nests on the campus and within one-half mile of the Central Campus have been conducted annually since 1990. The results of these surveys documented up to 46 different nest trees on the campus during that period (UC Davis 1993). Most of the Swainson's hawk nests are located in the Putah Creek riparian corridor, although nests are located sporadically throughout the campus and City of Davis.

Between 1994 and 1999, six active Swainson's hawk nests have been recorded within one-half mile of the proposed project site. Two nests are located west of the project site across Highway 113, one of which is along the old North Fork of Putah Creek immediately next to an active barn. Both look down directly on Highway 113. Therefore, both are at a distance from the site and are habituated to high levels of human activity and noise. Three additional nest sites are at least ¼ mile from the project site and are to the southeast along the Arboretum Waterway. All three of these nest sites are screened from the project site by several layers of tall trees and are in areas with high levels of activity.

The sixth nest site is located immediately adjacent to the site on the west. In the last 10 years, Swainson's hawks used this nest only in 1998. The nest is at the intersection of Highway 113 and Garrod Drive in a large oak tree that overlooks both roads. Thus, the birds at this nest site are also habituated to high levels of human activity and noise.

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Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (VELB) is listed as a threatened species under the federal Endangered Species Act. This species requires its host plant, the Mexican elderberry shrub, for its complete life cycle. The USFWS considers all elderberry shrubs within the historic range of VELB (the Central Valley and foothills up to 2,000 feet in elevation) as potential habitat for this species. No elderberry shrubs were located on or adjacent to the site (Jones & Stokes 1999).

3.4.2 Regulatory Setting

Please refer to pages 4.4-22 and 4.4-23 of the WWTP Replacement Project DEIR for a discussion of federal and state regulations governing protected species and the protection and conservation of biological resources. The following summarizes regulations applicable to the proposed project.

Federal Endangered Species Act

The federal Endangered Species Act (ESA) prohibits the “take” of endangered or threatened wildlife species. The definition of “take” includes harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (16 US Government Code 1532, 50 CFR 17.3). Actions that result in a take could result in civil or criminal penalties.

California Endangered Species Act

The California Endangered Species Act (CESA) is similar to the ESA, but it pertains to state-listed endangered and threatened plant and wildlife species. CESA requires state agencies to consult with DFG when preparing CEQA documents in order to ensure that lead agency actions do not jeopardize listed species. It directs agencies to consult with DFG on projects or actions that could affect listed species, directs DFG to determine whether jeopardy would occur, and allows DFG to identify “reasonable and prudent alternatives” to a project consistent with conserving the species. A lead agency can approve a project that affects a listed species if it is determined that there are “overriding considerations.” However, agencies are prohibited from approving projects that would cause the extinction of a listed species.

3.4.3 Impacts and Mitigation Measures

3.4.3.1 Standards of Significance

For the purpose of this EIR, an impact to biological resources is considered to be significant if the proposed project would:

- result in substantial, or potentially substantial, adverse change in the native flora or fauna, including candidate species and DFG Species of Special Concern from conversion of existing habitat to urban uses or disturbance of areas currently supporting such species.

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- result in the "take" (defined as kill, harm, or harass) of any listed threatened or endangered species or the habitat of such species.
- result in the substantial reduction in acres of habitat (including wetlands) of native fish, wildlife, or plants.
- be in conflict with existing state or federal natural resource protection laws, policies, or guidelines.

3.4.3.2 Project Impacts and Mitigation Measures

3.4-1 Development of the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities site would result in the conversion of approximately 7.6 acres of Ruderal/Annual Grassland which could result in the loss of potential burrowing owl nesting and foraging habitat. This is considered a potentially significant impact.

Construction of the proposed project would result in the conversion of approximately 7.6 acres of Ruderal/Annual Grassland habitat to developed urban area and pasture and the loss of potential burrowing owl nesting and foraging habitat. This conversion of habitat was included under the buildout of the 1994 LRDP. As described above in Section 3.4.1.2, no burrowing owls have been observed nesting at the project site from 1992, when the surveys began, through March 2000. Therefore, based on the current location of burrowing owls in the fields around the Health Sciences District, the proposed project would not affect burrows being used by owls. However, the location of the owls could change prior to the start of construction and impacts to nesting burrowing owls could potentially result if they become established on the proposed project site. Direct take of a nest would be in violation of Section 3503.5 of the Fish and Game Code and is, therefore, considered a *significant impact*.

The 1994 LRDP EIR identified the following mitigation measure to reduce impacts to nesting burrowing owls to a less-than-significant level:

- 4.7-3(b)** *The Campus, in consultation with the DFG, shall conduct a pre-construction breeding-season survey (approximately February 1 through August 31) of proposed project sites during the same calendar year that construction is planned to begin. The survey shall be conducted by a qualified biologist to determine if any burrowing owls are nesting on or directly adjacent to any proposed project site.*

If phased construction procedures are planned for the proposed project, the results of the above survey shall be valid only for the season when it is conducted.

To ensure that the location of nesting burrowing owls is known, the campus will also continue to implement 1994 LRDP Mitigation Measure 4.7-3(a).

- 4.7-3(a)** *The Campus shall continue to monitor the area around the Medical Sciences Complex for the presence or absence of burrowing owls.*

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If either pre-construction surveys or the annual surveys do not identify any burrowing owls on the project site, then no further mitigation would be required. However, should burrowing owls be found nesting on or adjacent to the project site, then 1994 LRDP EIR Mitigation Measure 4.7-3(c) shall be implemented:

4.7-3(c) *During the construction stage, the Campus in consultation with the DFG, shall avoid all burrowing owl nest sites potentially disturbed by project construction during the breeding season while the nest is occupied with adults and/or young. The occupied nest site shall be monitored by a qualified biologist to determine when the nest is no longer used. Avoidance shall include the establishment of a 300-foot to 500-foot diameter non-disturbance buffer zone around the nest site. Disturbance of any nest sites shall only occur outside of the breeding season and when the nests are unoccupied based on monitoring by a DFG approved biologist. The buffer zone shall be delineated by highly visible temporary construction fencing.*

Based on approval by DFG, pre-construction and pre-breeding season exclusion measures may be implemented to preclude burrowing owl occupation of the project site prior to project-related disturbance.

Additionally, the 1997-98 Major Capital Improvement Projects SEIR included the following mitigation measure, as revised in the USDA Western Human Nutrition Research Center Tiered Initial Study, to compensate for loss of burrowing owl habitat:

6.5-3 *In addition to the compensation for the loss of Swainson's hawk foraging habitat identified in the 1994 LRDP EIR Mitigation Measure 4.7-5, the Campus shall also convert either the approximately 55 acres of existing orchards adjacent to Putah Creek at the Russell Ranch, or a portion of the 85-acre designated habitat restoration and research area to cover type suitable for burrowing owl nesting habitat.*

The campus will conduct pre-construction and annual surveys consistent with 1994 LRDP EIR Mitigation Measures 4.7-3(a) and (b) to identify and mitigate for, if necessary, any identified burrowing owl nests. Implementation of 1994 LRDP EIR Mitigation Measure 4.7-3(c) would ensure that the location of burrowing owls on or adjacent to the project site is known, that occupied burrows would not be harmed, and that active burrows would be protected during the nesting season. Implementation of the 1997-98 Major Capital Improvement Projects SEIR Mitigation Measure 6.5-3, as revised, would compensate for the loss of burrowing owl habitat. Therefore, this impact would be reduced to a *less-than-significant level* through the implementation of the above-mentioned mitigation measures.

Mitigation Measures

No additional mitigation is required.

3.4-2 Development of the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities site would result in the conversion of approximately 7.6 acres of Ruderal/Annual Grassland which could result in the loss of raptor (birds-of-prey) nesting habitat. This is considered a *potentially significant impact*.

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Many species of resident and migratory raptors (besides burrowing owls) have been observed on the campus during the breeding season and, therefore could use on-site habitat for nesting. The 1994 LRDP EIR identified that the conversion of Ruderal/Annual Grassland vegetation in vacant fields or unmaintained field edges could result in the loss of a nest of the ground nesting northern harrier. As no trees exist on the project site the proposed project would not result in the loss of nesting habitat of other tree nesting raptors. Direct take of an active raptor site would be in violation of Section 3503.5 of Department of Fish and Game Code and would therefore be considered to be a *potentially significant impact*.

The 1994 LRDP EIR identified the following mitigation measures to reduce impacts to nesting raptors to a less-than-significant level:

- 4.7-4(a)** *The Campus, in consultation with DFG, shall conduct a pre-construction or pre-tree pruning or removal survey of trees greater than 30-feet tall (proposed activity) during the raptor breeding-season (approximately March 1 through August 31). The survey shall be conducted by a qualified biologist during the same calendar year that the proposed activity is planned to begin to determine if any nesting birds-of-prey would be affected.*

If phased construction procedures are planned for the proposed activity, the results of the above survey shall be valid only for the season when it is conducted.

If the above survey does not identify any nesting raptor species within the area affected by the proposed activity, then no further mitigation is required. However, should any nesting raptor species be found, then 1994 LRDP EIR Mitigation Measure 4.7-4(b), as stated below, shall be implemented.

- 4.7-4(b)** *The Campus shall continue to conduct annual surveys to determine the location of nesting Swainson's hawks on the Campus. If nesting Swainson's hawks are found during the survey at a previously unknown location within one-half mile of a project site and not within 100 yards of a previously documented site, the Campus shall, prior to project construction, contact the California Department of Fish and Game to determine the potential for disturbance to nesting Swainson's hawks and will implement feasible changes in the construction schedule or other appropriate adjustments to the project in response to the specific circumstances.*

If, after five years, a previously recorded nest site remains unoccupied by a Swainson's hawk, it will no longer be considered as a Swainson's hawk nest site subject to this mitigation.

Consistent with 1994 LRDP EIR Mitigation Measure 4.7-4(b), campus-wide raptor nesting surveys have been conducted annually. Survey results in the past five years have not identified ground-nesting raptors or Swainson's hawk nest sites on the project site (impacts to offsite raptor nests are discussed later in this section). Consistent with 1994 LRDP EIR Mitigation Measure 4.7-4(a), site-specific pre-construction surveys for nesting raptors will be conducted. These surveys will be conducted at the beginning of the nesting season in the year in which construction will begin. By conducting site-specific pre-construction surveys, nesting raptors

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will be identified in the project vicinity. If nesting raptors are identified, then consultation with the DFG will occur to determine potential impacts and appropriate site-specific mitigation as required by 1994 LRDP EIR Mitigation Measure 4.7-4(b).

Assuming compliance with 1994 LRDP EIR Mitigation Measures 4.7-4(a) and (b), impacts to nesting raptors would be mitigated to a *less-than-significant level*.

Mitigation Measures

No additional mitigation is required.

3.4-3 Development of the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities site would result in the conversion of approximately 7.6 acres of Ruderal/Annual Grassland which would result in the loss of foraging habitat for Swainson's hawk, and other resident and migratory species. This is considered a *significant impact*.

As described above, six active Swainson's hawk nests have been recorded within one-half mile of the proposed project site. The proposed project would result in the loss of approximately 7.6 acres of potential foraging habitat for Swainson's hawk and other resident and migratory species. The DFG has determined that the loss of suitable foraging habitat within a 10-mile radius of recorded nest sites constitutes take of the species pursuant to the California Endangered Species Act. Currently, DFG guidelines require one acre of foraging habitat be preserved for every acre lost (California Department of Fish and Game 1992). Therefore, the loss of foraging habitat for the Swainson's hawk associated with development of the proposed facilities is considered to be a significant impact because it is in conflict with state resource protection laws and guidelines.

The 1994 LRDP EIR identified the following mitigation measure to reduce impacts on Swainson's hawk foraging habitat to a less-than-significant level:

4.7-5 *As Agricultural Land and Ruderal/Annual Grassland is converted to Campus development under the 1994 LRDP, the Campus will compensate for the loss of Swainson's hawk foraging habitat at a 1:1 ratio of acres lost to acres preserved through the implementation of one or a combination of the following methods.*

- *Approximately 40 acres of Cropland habitat in the "C" tract adjacent to the Putah Creek Reserve on the West Campus will remain Campus agricultural research uses but will be under land use restrictions that will ensure cropland cover types that are suitable as Swainson's hawk foraging habitat. No incompatible uses such as orchards, vineyards, or development will be allowed in the areas set aside for Swainson's hawk foraging habitat. However, normal crop rotations may periodically result in unsuitable cover types of annual crops.*
- *Approximately 20 acres of land within the North Fork Cutoff that currently support livestock enclosures will be restored to a woodland and grassland habitat.*

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- *Approximately 55 acres of existing orchards adjacent to Putah Creek at the Russell Ranch will be removed, converted to a cover type suitable for Swainson's hawk foraging, and added to the Putah Creek Reserve.*
- *Approximately 85 acres at the Russell Ranch that have been designated as a habitat restoration and research area will include the establishment of cover types that are suitable Swainson's hawk foraging habitat.*

Consistent with 1994 LRDP EIR Mitigation Measure 4.7-5, plans are currently being developed for the conversion of Russell Ranch and implementation is expected to begin this year. Compliance with 1994 LRDP EIR Mitigation Measure 4.7-5 would reduce potentially significant impacts associated with the loss of Swainson's hawk and other resident and migratory species foraging habitat to a *less-than-significant level*.

Mitigation Measures

No additional mitigation is required.

3.4-4 Development of the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities site could result in the potential failure of Swainson's hawk nesting efforts. This is considered to be a *potentially significant impact*.

The DFG has established a one-half mile radius around known Swainson's hawk nests as a zone where potential disturbances could disrupt nesting efforts. In many instances Swainson's hawks are tolerant of human activity. As previously discussed, six active Swainson's hawk nests have been recorded within one-half mile of the proposed project site between 1994 and 1999. Two nests are located west of the project site across Highway 113. One of those nests is along the old North Fork of Putah Creek immediately next to an active barn. Both look down directly on Highway 113. Therefore, both are at a distance from the site and are habituated to high levels of human activity and noise. Three additional nest sites are at least ¼ mile from the project site and are to the southeast along the Arboretum Waterway. All three of these nest sites are screened from the project site by several layers of tall trees and are in areas with high levels of activity.

The sixth nest site is located immediately adjacent to the site on the west. In the last 10 years, Swainson's hawks used this nest only in 1998. The nest is at the intersection of Highway 113 and Garrod Drive in a large oak tree that overlooks both roads. Thus, the birds at this nest site are also habituated to high levels of human activity and noise.

While it is likely that the hawks utilizing the nests overlooking Highway 113 are not especially sensitive to disturbance, due to the close proximity of the nest at the intersection of Highway 113 and Garrod Drive to the project site, construction of the project could potentially impact nesting Swainson's hawks. Construction activities at the proposed site could generate noise levels that could cause nest abandonment or other types of reproductive failure. Disturbance to a nest site resulting in nest failure or abandonment of the nest is considered to be a *significant impact*.

The 1994 LRDP EIR identified the following mitigation measures to reduce the potential failure of Swainson's hawk nests to a less-than-significant level:

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- 4.7-6(a)** *The Campus shall conduct a pre-construction breeding season survey of the proposed project site, and within a one-half-mile radius of the site, to determine the presence or absence of any nesting Swainson's hawks.*

If any Swainson's hawks are nesting within a one-half-mile radius of the project site, the Campus shall, in consultation with DFG, determine the potential for disturbance to nesting Swainson's hawks and will implement feasible changes in the construction schedule or other appropriate adjustments to the project in response to the specific circumstances.

- 4.7-6(b)** *The Campus shall continue to conduct annual surveys to determine the location of nesting Swainson's hawks on and within 1/2-mile of the Campus. If nesting Swainson's hawks are found during the survey at a previously unknown location within one-half mile of a project site and not within 100 yards of a previously documented site, the University shall, prior to project construction, contact the California Department of Fish and Game to determine the potential for disturbance to nesting Swainson's hawks and will implement feasible changes in the construction schedule or other appropriate adjustments to the project in response to the specific circumstances.*

If, after five years, a previously recorded nest site remains unoccupied by a Swainson's hawk, it will no longer be considered as a Swainson's hawk nest site subject to this mitigation.

In accordance with 1994 LRDP EIR Mitigation Measure 4.7-6(a) and (b), the campus would conduct pre-construction surveys beginning in March of the year of construction, which is at the beginning of the nesting season. By conducting presence/absence pre-construction surveys, nesting Swainson's hawks within one-half mile of the project site would be identified. If a nesting pair is located during the pre-construction surveys, then consultation with DFG would determine the potential for disturbance. In consultation with DFG, the campus would implement feasible changes to the project in response to the specific circumstances to mitigate impacts to a less-than-significant level.

Assuming compliance with 1994 LRDP EIR Mitigation Measures 4.7-6(a) and (b), impacts to nesting Swainson's hawks would be mitigated to a *less-than-significant level*.

Mitigation Measures

No additional mitigation is required.

3.4.3.3 Cumulative Impacts and Mitigation Measures

The cumulative context for biological resources is loss of suitable habitat as a result of the proposed project combined with buildout under the 1994 LRDP and growth anticipated in the City of Davis General Plan, and the Yolo County and Solano County General Plans.

3.4-5 Development of the proposed Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities Project, in conjunction with 1994 LRDP development, the WWTP Replacement Project and other development planned in Yolo and Solano Counties, would result in the loss of Agricultural Land and Ruderal/Annual Grassland habitat for resident and migratory wildlife species. The project's contribution to this significant and unavoidable cumulative impact would be de minimis.

As the City of Davis and other cities in Yolo and Solano Counties convert Agricultural Land and Ruderal/Annual Grassland habitat to urban uses, a cumulative loss of approximately 1,258 acres of habitat for resident and migratory species would result. With the development of the proposed project, approximately 7.6 acres would be lost which are included in the estimate above. The continued loss of these habitat types around the campus and City of Davis would also contribute to the regional loss of foraging habitat for the Swainson's hawks which may contribute to this species decline in California. The burrowing owl would also be subject to a substantial loss of habitat as development occurs in the region.

Currently Yolo County and the cities of Davis, West Sacramento, Winters, and Woodland are preparing a county-wide habitat management plan for special-status species. UC Davis is participating in this effort in an advisory capacity. The preparation of a regional habitat management plan may ultimately resolve and mitigate the cumulative impacts to special-status species and other wildlife in Yolo County resulting from habitat conversion. However, at the time of this DEIR, no such plan is in place that will ensure the adequate preservation of wildlife habitat in the region to compensate for cumulative impacts.

The 1994 LRDP EIR identified the following mitigation measures to reduce the magnitude of impacts to loss of Agricultural Land and Ruderal/Annual Grassland habitat:

- 4.7-9(a)** *Implement 1994 Mitigation Measures 4.7-1, 4.7-3, 4.7-4, 4.7-5, and 4.7-6.*
- 4.7-9(b)** *The County of Yolo, when implementing the county-wide Habitat Management Plan, should impose a 1:1 mitigation ratio of habitat preserved to that converted on all development projects within their jurisdiction that convert Agricultural Land and Annual Grassland habitat to urban development.*

Mitigation measures listed under 4.7-9(a) have been or are being currently implemented. In accordance with 1994 LRDP EIR Mitigation Measure 4.7-1(a), a rare plant survey has been conducted at the proposed project site as part of the larger plant survey conducted in May and June 1999. The survey concluded that no special-status plant species were present at the project site and no habitat was present that would be suitable for special-status plant species (Jones and Stokes 1999).

Consistent with 1994 LRDP EIR Mitigation Measure 4.7-3(a), the campus conducts routine burrowing owl surveys in the area around the Health Sciences Complex. In accordance with Mitigation Measure 4.7-3(b), pre-construction surveys for burrowing owls would be conducted during the breeding-season during the same calendar year that construction is planned to begin. If nesting owls are present, the campus would avoid or limit disturbance of the nest in accordance with 1994 LRDP EIR Mitigation Measure 4.7-3(c).

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In accordance with 1994 LRDP EIR Mitigation Measure 4.7-4(a), the campus would conduct a pre-construction survey of trees greater than 30-feet tall during raptor breeding-season to identify any nesting raptors. Consistent with Mitigation Measure 4.7-4(b), the campus continues to conduct annual campus-wide raptor nesting surveys.

The campus evaluates each project for potential loss of Swainson's hawk foraging habitat consistent with 1994 LRDP EIR Mitigation Measure 4.7-5.

In accordance with 1994 LRDP EIR Mitigation Measure 4.7-6(a), the campus would conduct a pre-construction survey on the project site and within one-half mile of the site during raptor breeding-season to identify any nesting raptors. Consistent with Mitigation Measure 4.7-6(b), the campus continues to conduct annual campus-wide raptor nesting surveys.

The LRDP EIR concluded that the implementation of 1994 LRDP EIR Mitigation Measure 4.7-9 would reduce the magnitude of habitat loss in Yolo County; however, the feasibility and/or implementation of Mitigation Measure 4.7-9(b) could be guaranteed by the University of California because it falls within other jurisdictions to enforce and monitor. Therefore, the impact would remain *significant and unavoidable*. The proposed project's contribution to this significant cumulative impact would be small because although the site is characterized as ruderal/annual grassland habitat, most of the 7.6-acre site is highly disturbed and does not provide good wildlife habitat. The project's contribution to the impact will not be cumulatively considerable.

Mitigation Measures

No additional mitigation required.

4.1 GROWTH INDUCEMENT

As required by CEQA, an EIR must discuss the ways in which the proposed project could directly or indirectly foster economic or population growth or the construction of additional housing and how that growth could, in turn, affect the environment. Growth can be induced in a number of ways, including eliminating obstacles to growth and stimulating economic activity outside of the project. CEQA Guidelines also note that it must not be assumed that growth is necessarily beneficial, detrimental, or of little significance.

The proposed project involves the construction of new veterinary medicine facilities that would essentially replace old inadequate facilities. Although an additional 82,147 gross square feet (about 46,484 asf) of space would be added to the campus by the project, the new space would be used by programs that are currently operating under space constraints. The project would allow campus employment to increase by only one employee. The proposed project would also provide space and facilities that would allow the class size of the 4-year DVM program to increase in the future from 122 to 131 students per year. However, other improvements would be required before the SVM could formally increase the class size. In essence, the project would directly increase campus population by one person and in conjunction with other projects would facilitate the student population to increase by 36 students in the future. These increases in employee population and student population were anticipated in the 1994 LRDP and the impact of this growth was fully evaluated in the 1994 LRDP EIR. The project would not directly or indirectly result in growth other than that described above.

4.2 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

CEQA requires that an EIR identify any significant impacts that cannot be reduced to a less than significant level through mitigation. All significant project-level impacts can be mitigated to a less-than-significant level.

The proposed project would make a de minimis contribution to significant cumulative regional impacts on air quality (Section 3.2.3.3), biological resources (Section 3.4.3.3), and hazardous materials and public safety (Section 3.3.3.3) that would result from the development planned under the 1994 LRDP and from the projected development in the Davis region. These impacts were fully analyzed in the 1994 LRDP EIR and were found to be significant and unavoidable because the implementation and enforcement of the mitigation measures was within the jurisdiction of other entities and the University of California could not guarantee the implementation of the mitigation measures. The proposed project would also contribute to a significant unavoidable regional impact with respect to toxic air contaminants from mobile and stationary sources on campus and the Davis area (Section 3.2.3.3). This impact was fully addressed in the 1994 LRDP EIR and was found to be significant and unavoidable because inadequate methods exist to assess the magnitude of this impact.

4.3 IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA Guidelines require that an EIR discuss the extent to which a project, during its initial or continued phases (i.e., construction and operations), would commit nonrenewable resources to uses that future generations would be unable to reverse. In this regard, the proposed project would commit about 7.6 acres of land to the proposed uses. Although it is unlikely that once the proposed uses are established, the land would be changed to another use, this would not be an

irreversible commitment of the affected land. In addition, the proposed project would result in the conversion of approximately 7.6 acres of Ruderal/Annual Grassland, the impacts of which include the loss of nesting habitat for burrowing owls and ground-nesting raptors and loss of foraging habitat for burrowing owls, Swainson's hawks and other resident and migratory species. Mitigation measures implemented as part of the 1994 LRDP EIR would minimize impacts on these biological resources.

Implementation of the proposed project would result in an irreversible commitment of energy resources, primarily in the form of fossil fuels, including fuel oil, natural gas, and gasoline for automobiles and construction equipment. The consumption or destruction of other non-renewable resources would also result during construction and operation of the proposed development. These resources include, but are not limited to: lumber, sand and gravel, asphalt, metals, and water. An increased commitment of public services would also result from project implementation such as domestic and utility water, wastewater, storm drainage, electricity and natural gas, and telecommunication services. Irretrievable commitments of the above-named resources are considered justified to achieve the overall goals and objectives of the proposed project as discussed in Section 2.

CEQA requires an EIR to describe and evaluate a range of alternatives to the proposed project or alternatives to the location of the proposed project. The purpose of the alternatives analysis is to disclose other ways that the objectives of the proposed project could be attained while reducing or avoiding significant environmental impacts of the proposed project. This process is intended to foster informed decision-making and public participation in the environmental process.

Alternatives considered in the EIR should be feasible and should attain most, if not all, of the basic project objectives. The objectives of the proposed project are to:

- Provide modern animal surgery teaching facilities in order to allow the School of Veterinary Medicine (SVM) to meet accreditation requirements and ensure full compliance with applicable guidelines and standards
- Provide additional space needed to accommodate a larger student class size
- Consolidate veterinary medicine facilities in one portion of the campus near the Veterinary Medical Teaching Hospital and reduce cross-campus travel by students, faculty and staff
- Move veterinary facilities away from the center of the campus where noises (e.g., barking dogs) and movement of large animals can be disruptive to other nearby teaching facilities
- Allow for the efficient use of land resources on the campus

The range of alternatives studied in the EIR must be broad enough to permit a reasoned choice by decision makers when considering the merits of the project. The analysis should attempt to focus on alternatives that are feasible (i.e., capable of being accomplished in a successful manner within a reasonable period or time, taking into account economic, environmental, social, and technological factors), and should avoid alternatives that are remote or speculative.

The alternatives analyzed for a project should focus on reducing or avoiding significant environmental impacts associated with the project as proposed. Applicable 1994 LRDP EIR mitigation measures are incorporated into and are considered part of the proposed project. As discussed in Section 3, no significant project-level impacts were identified. While, the proposed project would remove burrowing owl nesting and foraging habitat (Impact 3.4-2), remove raptor nesting habitat (Impact 3.4-3), remove foraging habitat for Swainson's hawk (Impact 3.4-4), and could potentially cause the failure of Swainson's hawk nesting efforts (Impact 3.4-5), the impacts would be reduced to a less-than-significant level through incorporation of 1994 LRDP EIR mitigation measures. At the cumulative regional level, the proposed project would contribute to significant impacts on air quality (Impacts 3.2-3 and 3.2-6), biological resources (Impact 3.4-6), and hazardous materials and public safety (Impact 3.3-6) that would result from the buildout of the 1994 LRDP and projected development in the Davis region; the project's contribution to most of the cumulative impacts would be de minimis. The identification and evaluation of alternatives focuses on those alternatives that may reduce or avoid project-level impacts.

The analysis below presents the alternatives that were considered for this project. Three "build" or "action" alternatives were considered. Each alternative was examined for its

ability to meet project objectives with the purpose of carrying forth only those alternatives that would meet the majority of the project objectives. Based on this review, one of the three build alternatives was rejected and two were carried forward for environmental analysis. The No Project alternative was also carried forth for environmental review as required by CEQA Guidelines.

5.1 ALTERNATIVES CONSIDERED BUT REJECTED AS INFEASIBLE

The following alternative was considered but rejected because of its inability to meet the majority of the project objectives.

5.1.1 Construction of the Proposed Facilities at the Current Sites

This alternative would construct the proposed facilities at the sites where the functions are currently provided. Large and small animal surgical training is currently provided in the animal surgery teaching facilities located in Haring Hall and Haring Annex on the Central Campus. Associated animal holding area for livestock and horses is at Haring Barn. Training in food animal surgery is provided in “N” Barn at the ARS facilities on the South Campus. The equine treadmill used for research on horses is located in Haring Barn and the equine treadmill used for clinical instruction and teaching is in a temporary building near the Veterinary Medical Teaching Hospital (VMTH). Canine blood donors are housed at two locations, at the VMTH in the Health Sciences District and at the ARS on the South Campus. This alternative would require that the existing structures at these sites be demolished, the sites cleared and the replacement buildings constructed on the cleared sites.

From a review of the area available at the Haring Hall site, it appears that there would be adequate room to construct the Veterinary Medicine Laboratory. However, there would not be adequate area to place the other related facilities (large and small animal holding facilities, horse stall runs, cow dry lot and the small animal exercise runs) adjacent to the surgery facilities. Similarly, if the research treadmill were housed in a new structure at the site of Haring Barn, there would not be adequate room to provide other facilities such as the equine holding facility, the hot walker, the horse run, and the round pen at the site. Therefore these facilities would have to be constructed at another location on campus (potentially in the Health Sciences District or at the ARS). The food animal surgical suite could be constructed at the ARS and there would be adequate space at that site to locate other related facilities next to the surgical suite. Similarly, the clinical instruction and teaching equine treadmill could be placed in a new structure near the VMTH and there would be adequate area near the structure to site the equine holding facility and a canine blood donor facility. Therefore under this alternative, the proposed facilities would be constructed at four or five separate sites

The alternative would meet the objectives of providing modern facilities that meet accreditation requirements and applicable standards as well as allow for the DVM class size to increase in the future. However, none of the other objectives of the proposed project would be achieved. The facilities would be scattered in four to five separate locations away from the VMTH, and students, faculty and staff would have to continue to travel across the campus. The problems with class scheduling due to the distance between facilities would continue. Inefficiencies due to multiple locations of related functions would remain. This alternative would also leave

veterinary medicine facilities in the core area of the Central Campus where their presence would continue to be disruptive to others, and it would require that animals be moved back and forth between the surgeries and the holding facilities. It would also not allow for the most efficient use of land on the campus. This alternative was rejected because it failed to meet three of the five key objectives of the proposed project. In addition, this alternative would not avoid or minimize any of the impacts of the proposed project and would increase circulation impacts.

5.2 ALTERNATIVES EVALUATED IN DETAIL

This section presents a qualitative evaluation of two “build” alternatives to the proposed project that are considered potentially feasible because they would meet some of the project objectives, and the No Project alternative. For each alternative, a brief description is first presented followed by an impact analysis and a summary comparison with the proposed project.

5.2.1 Alternative 1: Construction of the Proposed Project at an Alternative Location

5.2.1.1 Description of the Alternative

This alternative would involve the construction of the proposed facilities at another location on campus. Several factors were considered in the search for an alternative site with about 5 to 7.6 acres of vacant or underutilized land.

- Given that one of the key objectives of the project is to consolidate veterinary medicine facilities in one portion of the campus, the area searched first was the Health Sciences District where other existing veterinary medicine facilities are located.
- Another consideration in the site search was to preferably find a site within areas designated for academic/administrative uses in the 1994 LRDP so as to avoid the need to amend the LRDP and also avoid other impacts associated with the conversion of land use, especially from open space or teaching and research fields to the proposed use.
- Because another key objective of the project is to relocate veterinary medicine facilities out of the core area of the Central Campus, the site search excluded the Central Campus core area.

All vacant lands in the Health Sciences District (other than the project site) are planned for other projects including the Western Human Nutrition Research Center and the Genome and Biomedical Sciences Facility. There is a small strip of land along the eastern boundary of the district adjacent to Garrod Drive East identified for High Density Academic and Administrative uses in the 1994 LRDP. However, the parcel is too small for the proposed project and it also supports burrowing owl habitat. There is no other vacant parcel in the Health Sciences District.

All vacant lands on the West Campus that are designated for academic/administrative use are needed for specific programs or are too distant to meet project objectives.

Only one potential site was identified on the South Campus at ARS where the proposed project could be located. This site consists of two parcels, one of which would be used to locate the Veterinary Medicine Laboratory and the Equine Athletic Performance Laboratory and a triangular parcel to the south of the first, which would be developed into a parking lot for the DVM students. The first parcel is developed with horse corrals and the second parcel is used to store old broken equipment and scrap materials.

5.2.1.2 Impact Analysis

Transportation. Similar to the proposed project, this alternative would result in a small number of new trips to the campus (one employee and 36 additional students) and the impact would be less than significant. However locating the proposed facilities at the alternate location on the South Campus would cause project-related traffic to be directed to the ARS area. Results of a traffic analysis performed in 1999 for the USDA WHNRC showed that the intersection of California Street and Old Davis Road, located in the vicinity of this alternate site, operated at an LOS C during the a.m. peak hours and at LOS F during the p.m. peak hours, and recommended realignment of the intersection which would improve the LOS to B during the p.m. peak hours. This improvement will be made in 2000 independent of the proposed project. All roadways that would be used to access the site operate at acceptable levels of service. The addition of these trips would therefore not result in significant traffic impacts at roadways used to access the site. As noted in the Section 3.1, the proposed project would eliminate cross-campus trips between the Central Campus core area, the Health Sciences District (where VMTH and Library are located) and the ARS area. This alternative would require the DVM students, staff and faculty to continue cross-campus travel between the Health Sciences District and the ARS area.

Air Quality. Air quality impacts from locating the proposed facilities in the ARS area would be similar to the proposed project and would be less than significant.

Biological Resources. This alternative would avoid all impacts of the proposed project on biological resources. The site does not support nesting or foraging habitat for the borrowing owl or raptors including Swainson's hawk. Although there is a Swainson's hawk nesting site in the vicinity of the I-80 onramp at the Old Davis Road Interchange to the northwest of the project site (the nest was found to be inactive in recent surveys), noise from the project site is unlikely to result in nest failure because of the distance and the presence of intervening structures. There are a few elderberry bushes along the southeastern side of the parcel that would be used for parking under this alternative. These bushes could provide habitat for the valley elderberry longhorn beetle. However, impacts to these bushes could likely be avoided through project design.

Hazardous Materials and Public Safety. Impacts relative to hazardous chemicals, biohazardous waste, and laboratory animal use would be the same as under the proposed project. All impacts would be less than significant.

5.2.1.3 Summary Comparison with the Proposed Project

This alternative would avoid the less-than-significant impacts of the proposed project on biological resources. Impacts with respect to hazardous materials, transportation and air quality would be similar to that of the proposed project. This alternative would displace horse corrals,

and new horse corrals would have to be constructed elsewhere at ARS, an impact that would not occur with the proposed project.

Constructing the project at this site would address three of the five project objectives: provide modern facilities for accreditation; provide space for a larger DVM class size; and move veterinary medicine facilities out of the Central Campus core area. It would not eliminate the problem of cross-campus travel and inefficiencies due to lack of consolidation, and would not represent the most efficient use of land resources on campus.

5.2.2 Alternative 2: Construction of a Reduced Project at the Proposed Site

5.2.2.1 Description of the Alternative

This alternative would involve constructing the proposed project at the proposed site but scaling it down to a smaller project. This reduced alternative could be achieved in two ways: construct the proposed structures with a smaller square footage, or remove one or more elements of the proposed project and either not build those elements or construct them at another location. Scaling down by providing reduced square footage is infeasible because the current project is sized to meet the space standards set by AVMA and AAALAC. Any reduction in space provided would affect the ability of the SVM to meet accreditation requirements.

A reduced project could be constructed at the site by eliminating some project elements or locating them at other locations (such as at ARS). For purposes of this analysis, it is assumed that only the Veterinary Medicine Laboratory and associated ancillary facilities are constructed at the proposed site in the Health Sciences District, and that the Equine Athletic Performance Laboratory is constructed at a site in the ARS area. This manner of siting is logical from the program point of view because the animal surgeries must be located near the other veterinary medicine teaching facilities. The Equine Athletic Performance Laboratory could potentially be located outside this portion of the Health Sciences District without serious inconvenience to the users of that facility.

Given the space needed for the Veterinary Medicine Laboratory and associated ancillary facilities, this reduced project would be constructed on the project site west of Garrod Drive (similar to the proposed project). The potential location for the Equine Athletic Performance Laboratory at ARS would be the same parcel of land considered under Alternative 1 above.

5.2.2.2 Impact Analysis

Transportation. Similar to the proposed project, this alternative would result in a small number of new trips to the campus (one employee and 36 additional students) and the impact would be less than significant. However locating some of the proposed facilities at the alternate location on the South Campus would cause some of project-related traffic to be directed to the ARS area. As noted in Section 3.1, the proposed project would eliminate cross-campus trips between the Central Campus core area, the Health Sciences District (where VMTH and Library are located) and the ARS area. This alternative would require a small number of the DVM students, staff and faculty to continue cross-campus travel between the Health Sciences District and the ARS area.

These trips, although inconvenient for the persons concerned, would not result in significant traffic impacts on roadways used to access the site.

Air Quality. Air quality impacts from locating the proposed facilities at two locations instead of one would be slightly greater (in terms of dust emissions during construction and vehicular emissions due to cross-campus travel) than the proposed project, but would be less than significant.

Biological Resources. Under this alternative, only the area west of Garrod Drive would be disturbed for the new facilities therefore the impacts on burrowing owl nesting and foraging habitat would be reduced to about 6.6 acres, compared to 7.6 acres that would be affected by the proposed project. Similarly, this alternative would affect 6.6 acres of raptor nesting and foraging habitat. Because the western portion of the site would be developed, the impact of this alternative in terms of its potential to cause Swainson's hawk nest failure would be the same as that under the proposed project. As explained above under Alternative 1, there would be no significant biological impacts from siting the facilities at the site in the ARS area.

Hazardous Materials and Public Safety. Impacts relative to hazardous chemicals, biohazardous waste, and laboratory animal use would be the same as under the proposed project. All impacts would be less than significant.

5.2.2.3 Summary Comparison with the Proposed Project

In contrast to the proposed project, this alternative would reduce three of the impacts of the proposed project on biological resources. However, as previously discussed, the proposed project's impact to biological resources would be reduced to a less-than-significant level through incorporation of 1994 LRDP EIR mitigation measures. All other impacts would be similar to that of the proposed project. This alternative would displace horse corrals, and new horse corrals would have to be constructed elsewhere at ARS, an impact that would not occur with the proposed project.

Constructing the proposed facilities at two sites in the manner described above would address three of the five project objectives: provide modern facilities for accreditation; provide space for a larger DVM class size; and move veterinary medicine facilities out of the Central Campus core area. It would not eliminate the problem of cross-campus travel and inefficiencies due to lack of consolidation, and would not represent the most efficient use of land resources on campus.

5.2.3 Alternative 3: No Project Alternative

5.2.3.1 Description of the Alternative

As required by CEQA Guidelines, the No Project alternative was also carried forth for detailed evaluation in this EIR. Under the No Project alternative, although the proposed facilities would not be built, the campus will nonetheless have to implement actions to address the issues raised by the AVMA and the AAALAC. The issues with respect to the surgical facilities included crowded conditions due to growth in class size relative to the space available; inadequate lighting, heating, ventilation and air-conditioning systems; inadequate support and storage areas;

and the fact that the distance between facilities is not conducive to efficient class scheduling. Similar issues are associated with the two equine treadmills.

Under the No Project alternative, the campus would renovate the existing buildings (Haring Hall, Haring Barn, Haring Annex, N Barn and the temporary building for the teaching treadmill) and install improved lighting, heating and ventilation systems. Where possible, the campus would add small structures or displace other users to provide support and storage space for the animal surgeries. Given the space constraints in the existing buildings, under the No Project alternative the campus would at best be able to increase the per student space for surgeries to meet AVMA space standards but it is considered unlikely that additional space could be provided to allow the DVM class size to increase.

5.2.3.2 Impact Analysis

Transportation. Under the No Project alternative, the small number of additional trips to the campus would be avoided. As noted in the Traffic Section, the proposed project would eliminate cross-campus trips between the Central Campus core area, the Health Sciences District (where VMTH and Library are located) and the ARS area. Under the No Project alternative, all facilities would remain at their current locations and the DVM students, staff and faculty would continue to make cross-campus trips between the campus core, Health Sciences District, and ARS. Similarly, animals would continue to be moved between the holding areas and the surgery facilities. These trips, though inconvenient to those concerned, would not result in significant traffic impacts on the campus roadways.

Air Quality. There would be some construction-phase dust emissions from the renovation of existing buildings but the impact, similar to the proposed project, would be minor and less than significant. There would be no increase in lab space and therefore this alternative would avoid the less-than-significant impact of the proposed project with respect to toxic air contaminants. Also because no new employees, students or equipment would be added, the less-than-significant impact of the proposed project relative to criteria pollutants would be avoided.

Biological Resources. This alternative would avoid all impacts of the proposed project on biological resources. Although the renovation of the structure that houses the teaching treadmill would take place in the Health Sciences District near the VMTH, the site of that structure is sufficiently distant from the nearest Swainson's hawk nest and therefore would not have the potential to cause nest failure.

Hazardous Materials and Public Safety. Because there would be no increase in lab space or in the use of hazardous chemicals, or an increase in hazardous chemical and biohazardous waste generation, this alternative would avoid the less-than-significant impacts of the proposed project with respect to hazards and public safety.

5.2.3.3 Summary Comparison with the Proposed Project

In contrast to the proposed project, this alternative would avoid all less-than-significant impacts of the proposed project.

While some improvement over current conditions would be achieved, the No Project alternative would not fully address the issue of overcrowding in the surgical suites and the issue of the

distance between facilities which does not allow proper class scheduling. Failure to address these issues could result in continued problems with accreditation. The No Project alternative would also fail to address the other project objectives of consolidating veterinary medicine facilities in one portion of the campus (Health Sciences District), and moving veterinary medicine facilities away from the core of the Central Campus.

5.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires identification of an environmentally superior alternative in an EIR, that is, the alternative that has no significant impacts or has the least significant impacts on the environment. For the Veterinary Medicine Laboratory and Equine Athletic Performance Laboratory Facilities Project, the No Project is environmentally superior to all alternatives because it avoids all impacts of the proposed project. However, it would not allow for the attainment of project objectives and could potentially cause the existing accreditation problems to continue.

CEQA also requires that the build or action alternative with the fewest significant impacts be identified in the event that the No Project alternative is the environmentally superior alternative. Both build alternatives would avoid or reduce impacts of the proposed project on biological resources. Both build alternatives would require the relocation of horse corrals, an impact that would not occur with the proposed project. However, this new impact would likely be less than significant because a site could be found in the ARS area to build new horse corrals without resulting in environmental impacts. Of the two build alternatives, constructing the proposed facilities at the ARS site is considered environmentally superior because it would avoid the less-than-significant impacts of the proposed project on biological resources.

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