UC DAVIS

RENEWABLE ENERGY ANAEROBIC DIGESTER PROJECT

Final Tiered Initial Study

The following Initial Study has been prepared in compliance with CEQA.

Prepared By:

ENVIRONMENTAL STEWARDSHIP AND SUSTAINABILITY

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TABLE OF CONTENTS

1 PROJECT INFORMATION 1
2 INTRODUCTION 3
   2.1 Initial Study 3
   2.2 Tiering Process 3
   2.3 Public and Agency Review 4
   2.4 Project Approvals 5
   2.5 Organization of the Initial Study 5
3 PROJECT DESCRIPTION 7
   3.1 Regional Location 7
   3.2 Project Overview 7
   3.3 Project Need and Objectives 8
   3.4 Project Elements 8
   3.5 Construction Methods, Schedule, and Staging 16
4 CONSISTENCY WITH THE 2003 LRDP AND 2003 LRDP EIR 17
   4.1 2003 LRDP Scope of Development 17
   4.2 2003 LRDP Land Use Designation 17
   4.3 2003 LRDP Population Projections 17
   4.4 2003 LRDP Objectives 18
   4.5 2003 LRDP EIR Cumulative Impacts Analyses 18
5 ENVIRONMENTAL RESOURCES POTENTIALLY AFFECTED 19
6 DETERMINATION 20
7 EVALUATION OF ENVIRONMENTAL IMPACTS 21
   7.1 Aesthetics 22
   7.2 Agricultural and Forestry Resources 26
   7.3 Air Quality 29
   7.4 Biological Resources 38
   7.5 Cultural Resources 43
   7.6 Geology and Soils 48
   7.7 Greenhouse Gas Emissions 52
   7.8 Hazards & Hazardous Materials 65
   7.9 Hydrology & Water Quality 70
   7.10 Land Use & Planning 80
   7.11 Mineral Resources 83
Appendix A. Proposed Negative Declaration
Appendix B. Revised Air Quality and Greenhouse Gas Emissions Calculations
Appendix C. Greenhouse Gas Regulatory Considerations
Appendix D. Greenhouse Gas Potential of Urea for Use with Selective Catalytic Reduction Systems
Appendix E. Comments and Responses to Comments

LIST OF FIGURES

Figure 1. Regional Location 9
Figure 2. Project Location 14
Figure 3. LRDP Land Use Map 11
Figure 4. Site Plan 12
Figure 5. Process Flow Diagram 35

LIST OF TABLES

Table 1 Estimated Emissions - Operation 34
Table 2 Top Five GHG Producer Countries and the European Union (Annual) 55
Table 3 Annual GHG Emissions in California 57
Table 4 Estimated Operational GHG Emissions 62
Table 5 Estimated GHG Emissions Reductions 63
Table 6 Thresholds of Significance for Noise Evaluations 85
1 PROJECT INFORMATION

Project title:

Renewable Energy Anaerobic Digester Project

Project location:

University of California, Davis
Yolo County, California

Lead agency’s name and address:

The Regents of the University of California
1111 Franklin Street
Oakland, California 94607

Contact person:

A. Sidney England, Assistant Vice Chancellor for Environmental Stewardship and Sustainability, 530-752-2432

Project sponsor’s name and address:

Environmental Stewardship and Sustainability
University of California
One Shields Avenue
436 Mrak Hall
Davis, California 95616-8678

Location of administrative record:

See lead agency.

Identification of previous documents relied upon for tiering purposes:

This environmental analysis is tiered from the Environmental Impact Report (EIR) for the UC Davis 2003 Long Range Development Plan (2003 LRDP) (State Clearinghouse No. 2002102092). The 2003 LRDP is a comprehensive land use plan that guides physical development on campus to accommodate projected enrollment increases and expanded and new program initiatives through the 2015-16 academic year. Section 2.2 provides additional information about the tiering process. The 2003 LRDP and its EIR are available for review at the following locations:

- UC Davis Environmental Stewardship and Sustainability in 436 Mrak Hall on the UC Davis campus
- Reserves at Shields Library on the UC Davis campus
- Yolo County Public Library at 2801 Second Street, in Davis
- Online at http://sustainability.ucdavis.edu/progress/commitment/planning/lrdp.html
Note: Revisions to the Initial Study and Negative Declaration

The proposed project remains substantially unchanged from the project described in the July 2, 2009 Draft Initial Study and Negative Declaration. This version of the Initial Study/Negative Declaration (dated October, 2012) includes updated text regarding the comments that were received during the 30-day public comment period, the comment letters and responses to the comments (in Appendix E), staff initiated changes and corrections made by UC Davis, and minor text changes describing items such as the public comment period in the past tense rather than the present tense.

Since the Draft Initial Study/Negative Declaration was circulated, the power generation technology included in the proposed project has been further evaluated and another technology has been selected. The microturbines are no longer a part of the project. Instead, a low emissions internal combustion engine (ICE) would be used to generate electricity. This change in power generation technology has been incorporated into the project description section of the Initial Study and the environmental effects of using an ICE have been evaluated and incorporated into the Initial Study, specifically Subsections 7.3 Air Quality and 7.7 Greenhouse Gas Emissions. The analysis shows that the selected technology would result in reduced emissions of nitrogen oxide, reactive organic gases, and carbon monoxide compared to the microturbines. Although the emissions of three pollutants (particulate matter 10 microns or less in diameter [PM10], particulate matter 2.5 microns or less in diameter [PM2.5], and sulfur dioxide [SO2]), would be slightly greater than previously reported for the microturbines, the emissions would still be substantially below the thresholds established by the Yolo-Solano Air Quality Management District. Similarly, although the greenhouse gas (GHG) emissions from the ICE would be slightly greater than the emissions reported previously for the microturbines, the total GHG emissions from the project would still be substantially below the applicable threshold. Therefore, recirculation of the Initial Study/Negative Declaration is not required.

Where changes have been made to the Initial Study and Negative Declaration, the format style of adding underline marking for additional text and strikeout marking for deleting the prior text has been used as shown on the following example:

**Example of text changes:**

“This Initial Study and proposed Negative Declaration for the Renewable Energy and Anaerobic Digester project will be circulated for public and agency review from July 2 to August 1, 2012. Copies of this document, the 2003 LRDP, and the 2003 LRDP EIR are made available for review at the following locations:”

Changes were made (as indicated with underlined and strikeout text) in the following sections of this document: Section 2, Section 7, Section 8, Section 9, and Appendix A. A revised Appendix B has been incorporated into the Initial Study.
2 INTRODUCTION

2.1 INITIAL STUDY

Pursuant to Section 15063 of the California Environmental Quality Act (CEQA) Guidelines (Title 14, California Code of Regulations, Sections 15000 et seq.), an Initial Study is a preliminary environmental analysis that is used by the lead agency as a basis for determining whether an EIR, a Mitigated Negative Declaration, or a Negative Declaration is required for a project. The State CEQA Guidelines require that an Initial Study contain a project description, description of environmental setting, identification of environmental effects by checklist or other similar form, explanation of environmental effects, discussion of mitigation for significant environmental effects, evaluation of the project’s consistency with existing, applicable land use controls, and the name of persons who prepared the study.

2.2 TIERING PROCESS

The CEQA concept of “tiering” refers to the evaluation of general environmental matters in a broad program-level EIR, with subsequent focused environmental documents for individual projects that implement the program. CEQA and the State 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.

Section 15168(d) of the State CEQA Guidelines provides for simplifying the preparation of environmental documents on individual parts of the program by incorporating by reference analyses and discussions that apply to the program as a whole. Where an EIR has been prepared or certified for a program or plan, the environmental review for a later activity consistent with the program or plan should be limited to effects that were not analyzed as significant in the prior EIR or that are susceptible to substantial reduction or avoidance (State CEQA Guidelines Section 15152[d]).

This Initial Study is tiered from the UC Davis 2003 LRDP EIR in accordance with Sections 15152 and 15168 of the State CEQA Guidelines and Public Resources Code Section 21094. This environmental document incorporates by reference the discussions in the 2003 LRDP EIR and concentrates on project-specific issues. The 2003 LRDP EIR is a Program EIR that was prepared pursuant to Section 15168 of the State CEQA Guidelines. The 2003 LRDP is a comprehensive land use plan that guides physical development on campus to accommodate projected enrollment increases and expanded and new program initiatives through the 2015-16 academic year. The 2003 LRDP EIR analyzes full implementation of uses and physical development proposed under the 2003 LRDP, and it identifies measures to mitigate the significant adverse program-level and cumulative impacts associated with that growth. The proposed project is a campus support use that would serve the growth that was anticipated in the 2003 LRDP and evaluated in the 2003 LRDP EIR.

By tiering from the 2003 LRDP EIR, this Tiered Initial Study will rely on the 2003 LRDP EIR for the following:

- a discussion of general background and setting information for environmental topic areas;
- overall growth-related issues;
- issues that were evaluated in sufficient detail in the 2003 LRDP EIR for which there is no significant new information or change in circumstances that would require further analysis; and
- assessment of cumulative impacts.
This Initial Study will evaluate the potential environmental impacts of the proposed project with respect to the 2003 LRDP EIR to determine what level of additional environmental review, if any, is appropriate. As shown in the Determination in Section 6 of this document, and based on the analysis contained in this Initial Study, it has been determined that the proposed project would not have any additional effects on the environment that were not previously addressed or adequately addressed in the 2003 LRDP EIR.

This Initial Study concludes that many potentially significant project impacts are addressed by the measures that have been adopted as part of the approval of the 2003 LRDP. Therefore, those 2003 LRDP EIR mitigation measures that are related to, and may reduce the impacts of, this project are identified in this Initial Study. Since these mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they will not be readopted, but rather are incorporated as part of the project. The benefits of these mitigation measures will be achieved independently of considering them as specific mitigation measures of this project. Nothing in this Initial Study in any way alters the obligations of the campus to implement the LRDP mitigation measures.

2.3 PUBLIC AND AGENCY REVIEW

This Initial Study and proposed Negative Declaration for the Renewable Energy and Anaerobic Digester project will have been circulated for public and agency review from July 2 to August 1, 2012. Copies of this document, the 2003 LRDP, and the 2003 LRDP EIR are available for review at the following locations:

- UC Davis Environmental Stewardship and Sustainability in 436 Mrak Hall on the UC Davis campus
- Reserves at Shields Library on the UC Davis campus
- Yolo County Public Library at 315 East 14th Street in Davis

Comments on this Initial Study and proposed Negative Declaration must be received by 5:00 PM on August 1, 2012 and can be e-mailed to environreview@ucdavis.edu or sent to:

Sid England
Assistant Vice Chancellor for Environmental Stewardship and Sustainability
University of California, One Shields Avenue
436 Mrak Hall
Davis, California 95616

During the comment period, comment letters were received from the following agencies:

- California Department of Resources Recycling and Recovery (CalRecycle)
- California Department of Transportation (Caltrans)
- Yolo-Solano Air Quality Management District

The comment letter from CalRecycle indicated that the Project may require a Transfer/Processing permit which will be handled during the permitting process. CalRecycle noted that the project description does not list vehicle trips per day or hours of facility operation. Vehicle trips to deliver feedstock are
discussed in the air quality section, as well as greenhouse gas emissions, noise and traffic sections. The composting and internal combustion engine (ICE) would operate 24 hours a day. Incoming and outgoing trucks typically would observe regular business hours, Monday through Friday, 8:00 AM to 5:00 PM except during times for maintenance. Information was requested regarding use of the Ag Bag system for composting of digestate on site. Additional text was added to the project description that describes the location, size of the windrows needed, amount of bulking (greenwaste) agent, design of leachate system, biofilter, and odor control for the Ag Bag system. CalRecycle requested clarification regarding on-site storage. No on-site storage of wastes is proposed. However, digestate could remain on site in Ag Bags for up to 90 days. The comment letter does not raise issues that have not been addressed and analyzed in the Initial Study.

The comment letter from Caltrans recommended that construction vehicles remain off of State Routes during peak travel periods, which will be taken into consideration during project construction.

The comment letter from the Yolo-Solano Air Quality Management District expressed interest in the amount of emissions the bulking agent would produce if it were used during composting. In addition, estimated emissions from truck transport of the bulking agent were requested. Additional calculations for the bulking agent and transport of the bulking agent were completed and added to the Initial Study. The design parameters were clarified to indicate that the flare would only be in use when the ICE is not functioning. The revised emissions are included in the revised Initial Study and are lower than the emissions previously reported.

2.4 PROJECT APPROVALS

As a public agency principally responsible for approving or carrying out the proposed project, the University of California is the Lead Agency under CEQA and is responsible for reviewing and certifying the adequacy of the environmental document. It is expected that approval of the proposed project will be considered by the University of California Office of the President (UCOP) pursuant to Standing Orders of The Board of Regents of the University of California (The Regents) and Presidential Delegations of Authority. Consideration by the UCOP is anticipated to occur in August October 2012.

2.5 ORGANIZATION OF THE INITIAL STUDY

This Initial Study is organized into the following sections:

Section 1 – Project Information: provides summary background information about the proposed project, including project location, lead agency, and contact information.

Section 2 – Introduction: summarizes the Initial Study's relationship to the 2003 LRDP EIR, the scope of the document, the project’s review and approval processes, and the document's organization.

Section 3 – Project Description: includes a description of the proposed project, including the need for the project, the project’s objectives, and the elements included in the project.

Section 4 – Consistency with the 2003 LRDP: describes the consistency of the proposed project with the 2003 LRDP and 2003 LRDP EIR.

Section 5 – Environmental Factors Potentially Affected: identifies which environmental factors, if any, involve at least one significant or potentially significant impact that has not been previously addressed in the 2003 LRDP EIR and cannot be reduced to a less than significant level.
Section 6 – Determination: indicates whether impacts associated with the proposed project are significant, and what, if any, additional environmental documentation is required.

Section 7 – Evaluation of Environmental Impacts: contains the Environmental Checklist form for each resource area. The checklist is used to assist in evaluating the potential environmental impacts of the proposed project. This section also presents a background summary for each resource area, the standards of significance, relevant impacts, and mitigation measures from the 2003 LRDP EIR, and an explanation of all checklist answers.

Section 8 – Fish and Game Determination: indicates if the project has a potential to impact wildlife or habitat and if an associated Fish and Game filing fee would be paid.

Section 9 – References: lists references used in the preparation of this document.

Section 10 – Agencies and Persons Consulted: provides the names of individuals contacted in preparation of this document.

Section 11 – Report Preparers: lists the names of individuals involved in the preparation of this document.
3  PROJECT DESCRIPTION

3.1  REGIONAL LOCATION

The approximately 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 is composed of four campus units: the central campus, the south campus, the west campus, and Russell Ranch. Most academic and extracurricular activities occur within the central campus. The central campus is bounded generally by Russell Boulevard to the north, State Route 113 (SR 113) to the west, Interstate 80 (I-80) and the Union Pacific Railroad tracks to the south, and A Street 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 by SR 113 to the east, Putah Creek to the south, Russell Boulevard to the north, and extends approximately 0.5 mile west of County Road 98. The south and west campus units are contiguous with the central campus, and are used primarily for field teaching and research. The approximately 1,600 acre Russell Ranch portion of the campus lies to the west, separated from the west campus by approximately one and 0.5 mile of privately owned agricultural land. Russell Ranch was purchased in 1990 for campus uses, including large-scale agricultural and environmental research, study of sustainable agricultural practices, and habitat mitigation. Russell Ranch is bordered roughly by County Road 96 on the east, Putah Creek on the south, Covell Boulevard on the north, and Russell Boulevard and privately owned agricultural land on the west and northwest.

3.2  PROJECT OVERVIEW

UC Davis proposes to install and operate a renewable energy anaerobic digester (READ) at a site on County Road 98 in the west campus area of UC Davis. The proposed waste-to-renewable energy facility would accept agricultural waste, animal manure and bedding, food waste from the campus dining commons, and the organic component of municipal solid waste (MSW) generated on the campus, process the waste in a biodigester, and use the biogas produced in the biodigester and the campus landfill gas to generate electricity in a microturbine a low emissions internal combustion engine (ICE). The organic component of MSW may contain contaminants such as plastics and metals, which would be separated out and properly disposed of, or recycled. The facility would involve five primary processes: (1) material receiving and preparation; (2) anaerobic digestion; (3) refinement of biogas; (4) generation of electricity using biogas and landfill gas; and (5) effluent treatment to process and dispose of any solid or liquid byproducts of the process. The READ facility would be built either initially with a 50 ton per day capacity or in two phases. The Phase 1 facility would be designed and constructed to process up to 25 tons per day of organic wastes. Phase 2 would expand the facility to handle up to 50 tons of organic wastes per day.

The proposed project site is located at the former campus landfill, west of County Road 98 and south of the UC Davis California National Primate Research Center (CNPRC) (See Figure 2). The project site is designated for Support uses in the 2003 LRDP (See Figure 3).

3.2.1  Project Site

The proposed READ project site is located on the west campus on the site of the receiving and weighing area of the former UC Davis campus Class 3 municipal solid waste landfill (see Figure 2). The approximately 0.5-acre proposed project site has been heavily disturbed due to prior landfill activity. A small modular office building and a truck scale are currently located on site. These facilities would be retained for use as part of the proposed project. The site also has a landfill gas collection system and flare that were installed to manage gases generated by the landfill. Landfill gas is piped to the boilers at the CNPRC, and any excess gas is sent to the landfill flare. The site is covered primarily with compacted
gravel and does not support any native vegetation. Some non-native grasses and forbs grow in the exposed areas. Any on-site vegetation is managed to minimize fire hazards.

The landfill ceased receiving waste in August 2011 and is beginning the final closure process to be completed in the summer of 2013. The surrounding land is currently used for campus support and teaching and research fields.

### 3.3 Project Need and Objectives

The facility would contribute to implementation of the following three system-wide goals of the University of California’s Sustainable Practices Policy:

- **Clean Energy** - Provide up to 10 megawatts (MW) of on-site renewable power across all University of California campuses by 2014;
- **Climate Protection Practices** - Reduce greenhouse gas emissions to 2000 levels by 2014; and

The objectives of the proposed project are to:

- create an on-campus, renewable energy facility;
- use campus organic waste to generate renewable energy;
- reduce greenhouse gas emissions by using biogas generated at the READ facility to produce energy;
- increase diversions of solid waste from the regional landfill;
- site the facility close to the campus
  - to minimize waste hauling distances; and
  - to facilitate student and faculty access to accommodate teaching and research projects;
- design to be expandable so the facility can be scaled up if additional feedstocks become available.

### 3.4 Project Elements

#### 3.4.1 Facility Processes and Equipment

As noted above, the facility would be built either initially with a **50 ton per day capacity** or in two phases with a capacity to handle 25 tons of incoming materials in Phase 1 and up to 50 tons per day upon completion of Phase 2. *Figure 4* presents a site plan for the proposed facility. The facility would involve five primary processes: (1) material receiving and preparation; (2) anaerobic digestion; (3) refinement of biogas; (4) electricity generation using biogas and landfill gas; and (5) effluent and solids treatment. Each of these five processes and associated equipment is described below. As described above, the existing modular scalehouse would be retained for use as part of the READ facility.
Site Plan (Phase 1 and Phase 2)

INTERNAL COMBUSTION ENGINES

FIGURE 4

SOURCE: Peabody Engineering – August 2012

APPROXIMATE SCALE IN FEET

AG BAG COMPOSTING AREA

SOLIDS HANDLING AND CONCRETE CONVEYOR PIT W/ DODA SEPARATOR

AD DIGESTER GAS PROCESSING SKID

FLARE

INTERNAL COMBUSTION ENGINES

EXPANSION TANK ADDED FOR 50TPD

TRUCK ACCESS & TURN AROUND AREA

LANDFILL GAS REFINING

SCALE HOUSE

SOURCE: Peabody Engineering – August 2012
Material Receiving and Preparation

The proposed facility would have a feedstock receiving area for preparation and grinding of the arriving materials. The incoming wastes (feedstock) that would be used in the READ facility would come from a variety of sources on the UC Davis campus as well as off campus. Sources include agricultural waste, animal manure, and bedding, food waste from the campus dining commons, and the organic component of municipal solid waste (MSW). Four to five truck trips per day would transfer the feedstock to the facility. No more than 25 tons of feedstock would be received per day in Phase 1a 25-ton-per-day facility and up to 50 tons would be received per day in Phase 2 at full capacity. No on-site storage of the incoming organic wastes is proposed.

There would be two trough conveyors in the receiving area designed to handle liquid and solid waste and allow two trucks to deposit feedstock simultaneously. Each conveyor would be sized to receive one truckload at a time. The feedstock would be immediately unloaded from the waste truck to the conveyors for processing and would not be stored on site for any length of time. The conveyors would deposit the organic material into an 8 by 12 foot bin within a secondary containment pit (constructed of concrete). The organic material would then pass through a Bio Separator. The Bio Separator, which consists of a rotating drum, would remove rocks, plastic, and metals as well as grind up the organic materials. Water would be added to the ground-up organic material to produce a slurry. The slurry material would be pumped into the biodigester tanks for anaerobic digestion as described below.

Anaerobic Digestion

Adjacent to the feedstock receiving and preparation area would be aboveground, anaerobic digestion tanks and skid-mounted control systems. Phase 1 would include a system of four tanks: two 75,000-gallon tanks 28 feet in diameter and 16 feet tall; a 150,000-gallon tank 40 feet in diameter and 16 feet tall; and a 30,000-gallon tank 20 feet in diameter and 16 feet tall. Phase 2 would add one additional 150,000-gallon tank in order to handle more feedstock, for an eventual total of five tanks on site.

The anaerobic digestion process occurs in two stages so that the acid-forming and methane-forming bacteria are provided the optimal environments to thrive. The first stage (Hydrolysis stage) would convert complex organic matter by hydrolysis into simpler organic acids. Some biogas would be produced in the first stage. However, the biogas would primarily be carbon dioxide. During the second stage (Methanogenic stage), organic acids would be converted into biogas, which includes methane and carbon dioxide, as well as water and other end products.

The Hydrolysis phase would use a 75,000-gallon tank and a 150,000-gallon tank in both phases. The Phase 1 system would use a single 75,000-gallon Methanogenic tank, and the Phase 2 system Methanogenic tanks would include this tank and the additional 150,000-gallon tank. The smaller tank would be used, if necessary, as a buffer tank between the two stages. The biogas produced in the digestion tanks would be piped to the biogas refinement system described below. The effluent from the digestion tanks would be managed on or off site, as described further, below.

Biogas Refinement

Anaerobic digestion, described above, produces a variety of different gases, including methane, carbon dioxide, hydrogen sulfide, hydrogen, nitrogen, and oxygen, intermixed with water. The raw biogas may contain 55 to 65 percent methane, 35 to 45 percent carbon dioxide, and 0 to 2 percent hydrogen by volume and approximately 1,000 ppm of hydrogen sulfide (TSS 2012). The biogas refinement system would extract hydrogen sulfide, water vapor, and particulate matter from the biogas produced by the digestion process (Biogas Products 2012). The hydrogen sulfide would be absorbed into a carbon material
in one of the gas processing tanks. The carbon would be changed out twice a year and hauled off site for disposal. The collected water vapor would be cycled back into the tanks. The purified biogas would be piped to the microturbines-ICE or flared as described below.

Electricity Generation

The filtered biogas and the landfill gas would be used to produce electricity. Phase 1 would use three 200-Kw microturbines to generate electricity, and Phase 2 would require an additional 200-Kw microturbine. For use in the microturbines, methane would be compressed, mixed with air, and combusted. The resultant gas would be at high pressure and velocity and would be sent through the microturbine, where the energy would be generated as electricity. Phase 1 would use one 800 kilowatt (Kw), internal combustion engine (ICE). Phase 2 would replace the original ICE with a 1,200 Kw ICE. The electricity produced by the READ facility would be used on at UC Davis via the campus electrical distribution system.

The microturbines-ICE would also generate heat that would be captured and used to warm the anaerobic digestion process. Any excess gas from the digesters or landfill gas from the landfill gas collection systems that could not be used in the turbines-ICE, such as during times of maintenance, would be burned in the atmosphere in a new flare designed to efficiently burn the gases. When the microturbine(s) ICE are is operating, there would be no need for flaring either biogas or landfill gas as there would be no excess gas. The existing landfill gas flare would be kept as a backup to handle the landfill gas in the rare event that the other flare was unavailable.

Effluent and Solids Treatment

On average, approximately 5,000 gallons per day (gpd) of effluent would be produced by the biodigester tanks. The peak demand placed on the sanitary sewer would be approximately 15,000 gpd. The effluent would go through a screw press to separate digestate (solids) from liquids.

The solids would be handled in one of the following manners:

1. Hauled to an existing off-site composting facility;
2. Composted on site using an “Ag Bag” system or an in-vessel composting drum, then packed for wholesale and hauled off site for sale and distribution; or
3. Hauled to an existing off-site facility for pelletizing and distribution as a fertilizer product.

If on-site composting is selected as the method to handle digestate, composting would occur on land to the west of the Bio Separator as shown in Figure 4. No significant grading would be needed to prepare the area for windrows. To compost the solids, 12 Ag Bags approximately 20 feet long by 10 feet wide, would be needed. The total space used for the Ag Bags would be approximately 60 feet by 60 feet. The windrows would be placed on an unpaved surface with 1 to 3 degree grade to facilitate leachate collection. The grade would lead to a collection drain which would feed into a sump pump. The pump would be triggered by a float switch, which senses that there is water present and the water would be pumped into the first hydrolysis tank. Water would not leave the site as a raised concrete barrier would be put in place to direct the flow to the collection drain and the sump.

A bulking agent (green waste) may be used depending on the digestate composition. The largest amount of material composted in an Ag Bag system would 17.9 tons per day, with 8.75 tons per day of bulking agent, for a total of 26.85 tons. Annually the Ag Bags would compost 9,800 tons. The maximum amount
of time that compost can remain on site is 90 days. On a 90-day turnaround time, the maximum amount of compost on the site at any one time would be 2,425 tons.

The liquid fraction would be sent through a sand filter containing zeolite media to recover ammonia and suspended solids. The treated liquid fraction would be handled in one of the following manners:

1. Concentrated and/or treated to form organic liquid fertilizer; or
2. Pumped to the campus wastewater treatment plant.

The zeolite media would be stored in an enclosed vessel on site before removal to an off-site processing facility for distribution as a fertilizer product.

**Odor Control**

Odor control measures include a lid on the receiving bin that would open only when feedstock is unloaded, but would remain closed at all other times. This would reduce odors from the feedstock material prior to processing. The gas produced from the biodigester tanks would be contained under negative pressure within the equipment and not released on site; it would be piped off and combusted either in the microturbine(s) or flare, which together would eliminate any odors associated with the gas.

If the Ag Bag system is constructed and used on site, odors would be minimized by ensuring that the compostable material handling areas are designed based on the nature and quantity of materials to be received and composted, climatological factors, adjacent land use, grading, and drainage controls. Site personnel would be trained to manage all compostable material handling in a manner that minimizes the development of conditions that could lead to objectionable odors.

**3.4.2 Landscaping**

The access road to the facility has a row of trees and there are four trees on site that would not be removed during construction or operation of the facility. No new landscaping would be included in the project.

**3.4.3 Parking and Roadways**

Access to the facility for staff, delivery trucks, and visitors would be from an existing campus roadway that extends west off of County Road 98 and was the delivery entrance to the campus landfill until August 2011, when the campus stopped receiving waste at this site. No new roadway construction would be required. Parking for staff would be available on site. The surface at the project site is currently compacted gravel, and a portion of the area would be paved to accommodate the new equipment.

**3.4.4 Utilities and Infrastructure**

As discussed briefly below and analyzed in Section 7.17, the proposed project would be connected to existing campus utilities and infrastructure including electricity, domestic and fire suppression water, wastewater, and storm drainage. The project would require 1,509 kilowatt-hours per day of electricity. Domestic water required at the project would be up to 3.5 gallons per minute (gpm). It is expected that the sanitary sewer would need to accommodate up to approximately 15,000 gallons per day (gpd) of wastewater, although average flows would be approximately 5,000 gpd. The READ project would
produce 250-800 kilowatts (Kw) during Phase 1 and 500-1,200 Kw during Phase 2, which would be distributed to the UC Davis campus for use.

There currently is no wastewater connection located within or near the project site. To accommodate this need, the existing pipeline used to deliver landfill gas to boilers at the California National Primate Research Center (CNPRC), located less than a mile north of the project site, would be converted to carry wastewater from the READ project to the campus sanitary sewer system. The storm water runoff would be directed via an existing storm water drainage system to a detention pond located to the south of the project site. The other utilities required are immediately adjacent to the proposed facilities or within the footprint of the project site.

3.4.5 Population

Project operations would involve three to four employees.

3.5 Construction Methods, Schedule, and Staging

The project site is an area previously used for receiving and weighing campus wastes when the campus landfill was still operating. The site is currently compacted gravel a portion of which would be paved to provide platforms for the equipment. The proposed biodigester facility would include modular processing equipment that would be manufactured off site and brought to the site by truck for installation. The modular components would be mounted on skids placed on cement pads installed on the site. The tanks would be constructed on site.

Construction of the proposed project is anticipated to begin in as early as summer or fall 2012 and would take approximately three months, completing as early as early November 2012. Construction staging and contractor parking associated with the proposed project would occur on a gravel area on the project site.
4 CONSISTENCY WITH THE 2003 LRDP AND 2003 LRDP EIR

In order to determine the proposed project’s consistency with the 2003 LRDP and 2003 LRDP EIR, the following questions must be answered:

- Is the proposed project included in the scope of the development projected in the 2003 LRDP?
- Is the proposed location of the project in an area designated for this type of use in the 2003 LRDP?
- Are the changes to campus population associated with the proposed project included within the scope of the 2003 LRDP’s population projections?
- Are the objectives of the proposed project consistent with the objectives adopted for the 2003 LRDP?
- Is the proposed project within the scope of the cumulative analysis in the 2003 LRDP EIR?

The following discussion describes the proposed project’s relationship to and consistency with the development projections, population projections, land use designations, objectives, and cumulative impacts analyses contained in the 2003 LRDP and the 2003 LRDP EIR.

4.1 2003 LRDP SCOPE OF DEVELOPMENT

The proposed project would not add any additional new occupied building space to campus but would add equipment and a cogeneration facility on a site designated for support services. The READ facility would not exceed the scope of development included in the 2003 LRDP.

4.2 2003 LRDP LAND USE DESIGNATION

The project site is designated for Support uses under the 2003 LRDP (Figure 3). The READ facility would use biodegradable waste produced by the UC Davis campus to generate electricity for campus use. The proposed project is consistent with the designated Support land use.

The proposed project would include a modular building, tanks, and equipment that would be used to produce electricity. These uses are consistent with the Support Services land use designation.

4.3 2003 LRDP POPULATION PROJECTIONS

The 2003 LRDP projects that, through 2015-16, the on-campus population will increase to include approximately 30,000 students, 14,500 faculty and staff, and 3,240 non-UC employees. In addition, the total number of household members associated with students and employees are expected to increase to approximately 29,803. The 2010-2011 on-campus faculty and staff average headcount was approximately 11,357, and the 2010-2011 on-campus student average population was approximately 28,968 (UC Davis 2011). The proposed project, which would introduce three to four new employees to the campus, in combination with other recently approved and currently proposed projects, would not increase the campus population to a level that would approach that projected for 2015-16. Therefore, the proposed project is well within the 2003 LRDP’s on-campus population projections.

---

1 The on-campus population includes students and employees on the UC Davis main campus and at other University owned and operated facilities in the City of Davis. The campus population is determined based on headcount, a method of counting faculty, staff, and students in which each person is counted as one unit regardless of whether he or she is employed or studying full-time or part-time. Student population figures represent student headcount averaged over the primary three academic quarters (i.e., fall, winter, spring).
4.4 2003 LRDP OBJECTIVES

The primary objective of the 2003 LRDP is to plan for the Davis campus’ share of the University of California’s short- and long-term enrollment demands. In addition, the 2003 LRDP aims to:

- create a physical framework to support the teaching, research, and public service mission of the campus;
- manage campus lands and resources in a spirit of stewardship for the future; and
- provide an environment that enriches campus life and serves the greater community.

The proposed project would support these main 2003 LRDP objectives by planning for the future and developing a way to use organic waste to produce electricity. The READ facility would also provide a unique educational experience for students to investigate a biodigester power plant.

In addition, the 2003 LRDP includes specific objectives that are relevant to the proposed project, including the following:

3. Infrastructure/Support Systems
   - Campus-based Support Systems.
     Continue use of campus-based support systems such as water supply, wastewater treatment, and energy facilities to enable flexibility for future campus growth.

The proposed project supports these specific objectives because the new facility would support the UC Davis campus by producing electricity.

4.5 2003 LRDP EIR CUMULATIVE IMPACTS ANALYSES

In addition to evaluating the environmental effects directly associated with projected campus development, the 2003 LRDP EIR evaluates the cumulative effects of campus development combined with off-campus development through 2015-16. The cumulative context considered in the 2003 LRDP EIR varies, depending on the nature of the issue being studied, to best assess each issue’s geographic extent. For example, the cumulative impacts on water and air quality can be best analyzed within the boundaries of the affected resources, such as water bodies and air basins. For other cumulative impacts, such as hazard risks, traffic, and the need for new public service facilities, the cumulative impact is best analyzed within the context of the population growth and associated development that are expected to occur in the region.

As discussed in Sections 4.1 through 4.4, above, the proposed project is within the scope of campus development projected in the 2003 LRDP EIR. In addition, the campus is unaware of any changes to local growth plans or other changes in the region since certification of the 2003 LRDP EIR that would substantially change the document’s conclusions regarding cumulative impacts. Therefore, the proposed project would incrementally contribute to, but would not exceed, the cumulative impacts analyses included in the 2003 LRDP EIR.
5 ENVIRONMENTAL RESOURCES POTENTIALLY AFFECTED

The following environmental resources, if checked below, would be potentially affected by this project and would involve at least one impact that is a significant or potentially significant impact that has not been previously addressed in the 2003 LRDP EIR. All impacts of the proposed project were adequately addressed in the 2003 LRDP EIR or would be reduced to less than significant with project level mitigation.

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology & Water Quality
- Land Use & Planning
- Mineral Resources
- Noise
- Population & Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities & Service Systems
- Mandatory Findings of Significance
6 DETERMINATION

On the basis of this initial evaluation:

☑️ I find that the proposed project COULD NOT have a significant effect on the environment that has not been previously addressed in the 2003 LRDP EIR, and no new mitigation measures, other than those previously identified in the 2003 LRDP EIR, are required. A NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project COULD have a significant effect on the environment, the project impacts were adequately addressed in an earlier document or there will not be a significant effect in this case because revisions in the project have been made that will avoid or reduce any potential significant effect to a less than significant level. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a potentially significant effect on the environment that was not previously addressed in the 2003 LRDP EIR. A TIERED ENVIRONMENTAL IMPACT REPORT will be prepared to address new impacts not previously identified in the 2003 LRDP EIR.

A. Sidney England
Assistant Vice Chancellor – Environmental Stewardship and Sustainability

6/09/12
7 EVALUATION OF ENVIRONMENTAL IMPACTS

Introduction

The University has defined the column headings in the Initial Study as follows:

- **Potentially Significant Impact**: This column is checked if there is substantial evidence that the project’s effect may be significant. If the project may result in one or more Potentially Significant Impacts, an EIR is required.

- **Less than Significant with Project-level Mitigation Incorporated**: This column is checked where incorporation of project-specific mitigation measures will reduce an effect from “Potentially Significant Impact” to “Less than Significant Impact.” All project-level mitigation measures must be described, including a brief explanation of how the measures reduce the effect to a less than significant level.

- **Project Impact Addressed in the 2003 LRDP EIR**: This column is checked where mitigation measures identified in the LRDP EIR will mitigate any impacts of the proposed project to the extent feasible. All applicable LRDP EIR mitigation measures are incorporated into the project as proposed. The impact analysis in this document summarizes and cross references (including section/page numbers) the relevant analysis in the LRDP EIR.

- **Less than Significant Impact**: This column is checked when the project will not result in any significant effects. The effects may or may not have been discussed in the LRDP EIR. The project impact is less than significant without incorporation of LRDP or project-level mitigation.

- **No Impact**: This column is checked when a project would not result in any impact in the category or the category does not apply. “No impact” answers need to be adequately supported by the information sources cited or should note that the impact does not apply to projects like the one involved (e.g., the project outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on project specific screening analysis).
7.1 AESTHETICS

7.1.1 Background

Section 4.1 of the 2003 LRDP EIR addresses the aesthetics effects of campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.1 of the 2003 LRDP EIR.

Campus

The campus is surrounded by extensive agricultural uses to the west and south, and by residential, institutional, and commercial land uses in the City of Davis to the north and east. Views within the Davis area are generally of two types: open views of agricultural land and supporting facilities with views of hills to the west, and views of developed areas within UC Davis and the City of Davis.

UC Davis consists of four general land units that have distinct visual characters. The central campus is the most developed area of campus and is characterized by varied architectural styles, large trees, and formal landscaping. The west and south campus units and Russell Ranch primarily include teaching and research fields with agricultural buildings, although the west and south campus units also include more developed areas including campus support facilities and academic and administrative facilities such as the CNPSC.

The 2003 LRDP identifies the following as valued visual elements of the central campus: the large, open lawn of the Quad at the heart of the campus; the framework of tree-lined streets, particularly around the Quad where the street tree branches arch to create a canopy overhead; the Arboretum, with its large trees and variety of landscapes along the waterway; the shingle-sided buildings from the founding years of the University Farm; buildings from the second era of campus development such as Hart Hall and Walker Hall; green open spaces that face the community along Russell Boulevard and A Street; bicycles as a distinct and valued visual emblem on campus; and the South Entry area, including the new entrance quad and the Robert and Margrit Mondavi Center for the Performing Arts.

Design review of campus development projects takes place during the project planning, design, review, and approval processes to sustain valued elements of the campus’ visual environment, to assure new projects contribute to a connected and cohesive campus environment, and to otherwise minimize adverse aesthetics effects as feasible. Formal design review by the campus Design Review Committee takes place for every major capital project. This Committee includes standing members from the Offices of Administrative and Resource Management, Architects and Engineers, Grounds, and other departments concerned with potential aesthetic effects, as well as program representatives and invited design professionals with expertise relevant to the project type. Campus design standards and plans that provide the basis for design review include the 2003 LRDP, the Campus Standards and Design Guide manual, the campus Architectural Design Guidelines, and the Campus Core Study.

Project Site

The READ facility would be located on the site of the former receiving and weighing area of the UC Davis landfill in the west campus area. The project site is surrounded on the west, south, and east by the recently closed landfill, with open agricultural land owned by the campus to the north. A row of trees borders the project site on the north side.
7.1.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers an aesthetic impact significant if growth under the 2003 LRDP would:

- Have a substantial adverse effect on a scenic vista.
  
  A scenic vista is defined as a publicly accessible viewpoint that provides expansive views of a highly valued landscape. On campus, the open view across agricultural lands west to the Coast Range is considered a scenic vista. This vista is primarily viewed from public viewpoints along SR 113, Hutchison Drive, La Rue Road, and Russell Boulevard.

- Substantially degrade the existing visual character or quality of the site and its surroundings.
  
  For the campus, this standard is interpreted in terms of the effect of development under the 2003 LRDP on the valued elements of the visual landscape identified in the LRDP, or the effect associated with allowing incompatible development in or near areas with high visual quality such as Putah Creek and the Arboretum Waterway.

- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

An additional standard from the State CEQA Guidelines’ Environmental Checklist (“b” in the checklist, Subsection 7.1.4, below) was found not applicable to campus growth under the 2003 LRDP.

7.1.3 2003 LRDP EIR Impacts and Mitigation Measures

Impacts of campus growth under the 2003 LRDP through 2015-16 on aesthetics are evaluated in Section 4.1 of the 2003 LRDP EIR. The proposed project is within the scope of analysis in the 2003 LRDP EIR. No significant impacts identified in the 2003 LRDP EIR related to aesthetic resources are relevant to the proposed project. As discussed below, the project would not result in any aesthetic impacts and therefore no LRDP Mitigation Measures are relevant to the project.
7.1.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>AESTHETICS</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the project…</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>a) Have a substantial adverse effect on a scenic vista?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☀</td>
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</tr>
<tr>
<td>c) Substantially degrade the existing visual character or quality of the site and its surroundings?</td>
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<tr>
<td>d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?</td>
<td>☐</td>
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</tr>
</tbody>
</table>

a) The 2003 LRDP EIR found that development under the 2003 LRDP together with other development in the region could cumulatively affect local scenic vistas west across agricultural lands to the Coast Range (LRDP Impact 4.1-4). The 2003 LRDP EIR defined a scenic vista as an expansive view of a highly valued landscape from a publicly accessible viewpoint, and identified the only scenic vista on the UC Davis campus to be the view west across agricultural land to the Coast Range. On and near campus, publicly accessible viewpoints along SR 113, Hutchison Drive, La Rue Road, and Russell Boulevard provide scenic vistas to the west across agricultural land to the Coast Range. The proposed project site is not located within these scenic vistas. No impact would occur.

b) Neither the campus nor the project site is located near a state scenic highway or contains designated scenic resources. Therefore, the proposed project would not damage scenic resources, either within or outside of a state scenic highway. No impact would occur.

c) The 2003 LRDP EIR found that development on campus under the 2003 LRDP could degrade the visual character of the campus by substantially degrading the valued elements of the campus’ visual landscape, which are identified above in the background discussion and include specific treed areas, historic buildings, and open space areas (Impact 4.1-2). The proposed project would have no effect on valued elements of the UC Davis visual landscape because it would not be located in an area identified as having valued elements of the visual landscape, nor would it disturb an area of high visual quality. The proposed project would be located entirely within the former landfill area, which is screened by a row of trees from campus facilities to the north. Modular equipment and tanks that would be constructed on site would also be screened by the existing trees to the north and by intervening topography of the former landfill from County Road 98. Thus, the proposed project would not be visible to the general public. Although the visual character of the project site would change slightly, it would not represent a significant adverse effect. The impact would be less than significant.

d) The 2003 LRDP EIR found that development on campus under the 2003 LRDP could create substantial light or glare that could adversely affect daytime or nighttime views in the area (LRDP Impact 4.1-3). Minimal new exterior lighting would be installed on site. In addition, the gas flare would operate occasionally. Due to the nature and scale of proposed facility, the new equipment would not add any major sources of glare such as expansive windows. Trees to the north and the adjacent former landfill screen the site from viewpoints available to the general public and from other
university facilities to the north. Therefore, the impact from light and glare would be less than significant.

Summary

The project will not cause a significant impact to aesthetic resources. No project-specific mitigation measures related to aesthetic resources are required.
7.2 AGRICULTURAL AND FORESTRY RESOURCES

7.2.1 Background

Section 4.2 of the 2003 LRDP EIR addresses the agricultural resources effects of campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.2 of the 2003 LRDP EIR. Since the publication of the 2003 LRDP EIR, checklist questions related to forestry resources have been added to Appendix G, Section II of the State CEQA Guidelines, which require an evaluation of the potential of the proposed project to affect forest land and timberland.

Campus

As discussed in the 2003 LRDP EIR, of the approximately 5,300 acres of campus land, the California Department of Conservation’s Farmland Mapping and Monitoring Program (FMMP) designates approximately 3,700 acres as Prime Farmland and approximately 90 acres as Farmland of Local Importance. The FMMP designates the remaining 1,520 acres of campus land as Urban and Built-Up (approximately 1,400 acres) and Other Land (approximately 120 acres). Most of the campus’ agricultural lands are located on the west and south campuses and at Russell Ranch. The central campus includes land primarily designated as Urban and Built-Up, but small areas within the central campus that are used for teaching and research fields and community gardens are designated as Prime Farmland. There is no forest land or timberland present on the campus.

The 2003 LRDP EIR identifies that development under the 2003 LRDP through 2015-16 could result in conversion of approximately 745 acres of campus land that is considered prime farmland by the California Department of Conservation to nonagricultural uses. Approximately 330 acres of this land would be converted to habitat at Russell Ranch, which would not result in an irreversible loss of prime soil. Mitigation under the 2003 LRDP EIR requires the conservation of prime farmland at a one-to-one (1:1) ratio for prime farmland converted to developed uses and a one-third–to–one (1/3:1) ratio for prime farmland converted to habitat at Russell Ranch.

Project Site

The project site is located on the recently closed UC Davis landfill. The project site itself is considered Urban and Built-Up Land. There are no agricultural resources on the project site. The land directly north of the project site is designated Prime Farmland, as is the land to the east of the former landfill on the east side of County Road 98.

7.2.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considered an agricultural impact significant if growth under the 2003 LRDP would:

- Convert prime farmland, unique farmland or farmland of statewide importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to nonagricultural use.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland considered prime, unique, or of statewide importance to nonagricultural use.
- Conflict with existing zoning for agricultural use or a Williamson Act contract.
7.2.3 2003 LRDP EIR Impacts and Mitigation Measures

Impacts of campus growth under the 2003 LRDP through 2015-16 on agricultural resources are evaluated in Section 4.2 of the 2003 LRDP EIR. As analyzed in Section 4 of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR. However, the significant agricultural impacts identified in the 2003 LRDP EIR are not relevant to the proposed project because the proposed project would not result in the conversion of farmland and no LRDP mitigation measures are relevant to the project.

7.2.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>AGRICULTURAL AND FORESTRY RESOURCES</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the project…</td>
<td></td>
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</tr>
<tr>
<td>a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</td>
<td>☐</td>
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</tr>
<tr>
<td>b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☑</td>
</tr>
<tr>
<td>c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>d) Result in the loss of forest land or conversion of forest land to non-forest use?</td>
<td>☐</td>
<td>☐</td>
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<td>☑</td>
</tr>
<tr>
<td>e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?</td>
<td>☐</td>
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</tr>
</tbody>
</table>

a) The FMMP designates the project site as Urban and Built-Up Land. The proposed project would not convert Farmland to non-agricultural use. No impact would occur.

b) Campus lands are state lands and are not eligible for Williamson Act agreements, nor are they subject to local zoning controls. The project site is designated as Urban and Built-Up Land by FMMP and Support Services in the 2003 LRDP. Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and no impact would occur.

c) The project site is located adjacent to agricultural land; however, operations would be restricted to the project site and would not affect the agricultural research activities taking place at other UC Davis locations. No impact would occur.

d) The State CEQA Guidelines were amended after the 2003 LRDP EIR was certified to add new checklist criteria related to forest lands and agriculture that were not required or considered in the LRDP EIR. The project would not have impacts related to loss or conversion of forest lands because no forest lands are present on or in the vicinity of the project site. There is no agricultural land on the project site. However, land to the north and east of the project site is designated Prime Farmland. The
READ facility would not disrupt any agricultural practices in the area. For this reason and the reasons discussed above, the project would not involve changes to the existing environment that could cause conversion of Farmland to non-agricultural use. No impact would occur.

Summary

The project will have no impact on agricultural or forestry resources. No project-specific mitigation measures related to agricultural or forestry resources are required.
7.3 AIR QUALITY

7.3.1 Background

Section 4.3 of the 2003 LRDP EIR addresses the air quality effects of campus growth under the 2003 LRDP on air quality. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.3 of the 2003 LRDP EIR, updated as appropriate with more recent information.

Campus

The campus is subject to air quality regulation programs under both the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA). Both the federal and state statutes provide for ambient air quality standards to protect public health, timetables for progressing toward achieving and maintaining ambient air quality standards, and the development of plans to guide the air quality improvement efforts of state and local agencies. Within the campus vicinity, air quality is monitored, evaluated, and controlled by the US Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and the Yolo-Solano Air Quality Management District (YSAQMD). The YSAQMD is one of five air districts located in the Sacramento Valley Air Basin (SVAB) and has jurisdiction over air quality in the Yolo County and the northeastern portion of Solano County.

Historically, air quality laws and regulations have divided air pollutants into two broad categories: “criteria pollutants” and “toxic air contaminants.” Federal and state ambient air quality standards have been established for the following the criteria pollutants: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter less than 10 microns in diameter (PM₁₀), lead (Pb), and particulate matter less than 2.5 microns in diameter (PM₂.₅). Ozone is evaluated by assessing emissions of its precursors: reactive organic gases (ROG) and nitrogen oxides (NOₓ).

Toxic air contaminants (TACs) are airborne pollutants for which there are no ambient air quality standards but which are known to have adverse human health effects. TACs are regulated under federal and state statutes, primarily with control technology requirements for stationary and mobile sources and mitigation established following human health risk assessments. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as farms, landfills, construction sites, and residential areas.

Air quality on campus on any given day is influenced by both meteorological conditions and pollutant emissions. In general, meteorological conditions vary more than pollutant emissions from day to day, and tend to have a greater influence on changes in measured ambient pollutant concentrations. Ambient concentrations of CO and PM₁₀, however, are particularly influenced by local emission sources. The EPA has classified the entire SVAB, which includes the campus, as a serious nonattainment area for O₃. Districts in the SVAB requested a voluntary bump-up designation to “severe,” which would result in an attainment deadline of 2018. The EPA approved the voluntary bump-up in May 2010, with the redesignation taking effect in June 2010. The CARB has also designated the area as being in nonattainment under the state ambient air quality standards for O₃ and PM₁₀. The designation of an area as attainment or nonattainment is based on monitored data throughout the SVAB.
### Project Site

The project site is on the west campus on the former UC Davis landfill site. To the east is County Road 98. The project is not located in the vicinity of any sensitive receptors.

### 7.3.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers an air quality impact significant if growth under the 2003 LRDP would:

**Criteria Pollutants**

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation. (According to the YSAQMD, emissions of oxides of nitrogen (NOx) and ROG in excess of 10 tons per year, PM10 emissions of 80 pounds a day, or CO emissions violating a state ambient air standard for CO would be considered significant.)
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

**Toxic Air Contaminants**

- Contribute to the probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeding the AB 2588 and Proposition 65 threshold of 10 in 1 million.
- Result in a noncarcinogenic (chronic and acute) health hazard index greater than the AB 2588 threshold of 1.0.

### 7.3.3 2003 LRDP EIR Impacts and Mitigation Measures

Impacts of campus growth under the 2003 LRDP through 2015-16 on air quality are evaluated in Section 4.3 of the 2003 LRDP EIR. As analyzed in **Section 4** of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR. Significant and potentially significant air quality impacts identified in the 2003 LRDP EIR that are relevant to the proposed project are presented below with their corresponding levels of significance before and after application of mitigation measures identified in the 2003 LRDP EIR. Mitigation identified in the LRDP EIR was adopted as part of the LRDP approval to reduce the magnitude of Impact 4.3-3, but this impact was identified as significant and unavoidable due to uncertainty about the effectiveness of the mitigation.

<table>
<thead>
<tr>
<th>2003 LRDP EIR Impacts</th>
<th>Level of Significance Prior to Mitigation</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR QUALITY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3-3 Emissions from construction activities associated with the 2003 LRDP would exceed YSAQMD thresholds.</td>
<td>S</td>
<td>SU</td>
</tr>
</tbody>
</table>

*Levels of Significance: LS = Less than Significant, S = Significant, PS = Potentially Significant, SU = Significant and Unavoidable*
Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Since these mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are considered part of the project description and will not be readopted. Nothing in this Initial Study in any way alters the obligations of the campus to implement 2003 LRDP EIR mitigation measures.

### 2003 LRDP EIR Mitigation Measures

**AIR QUALITY**

<table>
<thead>
<tr>
<th>4.3-3(a)</th>
<th>The campus shall include in all construction contracts the measures specified below to reduce fugitive dust impacts, including but not limited to the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All disturbed areas, including storage piles, which are not being actively utilized for construction purpose, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.</td>
</tr>
<tr>
<td></td>
<td>All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.</td>
</tr>
<tr>
<td></td>
<td>All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.</td>
</tr>
<tr>
<td></td>
<td>When demolishing buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.</td>
</tr>
<tr>
<td></td>
<td>When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 2 feet of freeboard space from the top of the container shall be maintained.</td>
</tr>
<tr>
<td></td>
<td>All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices also is expressly forbidden.</td>
</tr>
<tr>
<td></td>
<td>Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions by utilizing sufficient water or chemical stabilizer/suppressant.</td>
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</tbody>
</table>

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<thead>
<tr>
<th>4.3-3(c)</th>
<th>The campus shall implement the following control measures to reduce emissions of ozone precursors from construction equipment exhaust:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To the extent that equipment is available and cost effective, the campus shall encourage contractors to use alternate fuels and retrofit existing engines in construction equipment.</td>
</tr>
<tr>
<td></td>
<td>Minimize idling time to a maximum of 5 minutes when construction equipment is not in use.</td>
</tr>
<tr>
<td></td>
<td>To the extent practicable, manage operation of heavy-duty equipment to reduce emissions.</td>
</tr>
<tr>
<td></td>
<td>To the extent practicable, employ construction management techniques such as timing construction to occur outside the ozone season of May through October, or scheduling equipment use to limit unnecessary concurrent operation.</td>
</tr>
</tbody>
</table>
Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>AIR QUALITY</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the project…</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Conflict with or obstruct implementation of the applicable air quality plan?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d) Expose sensitive receptors to substantial pollutant concentrations?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>e) Create objectionable odors affecting a substantial number of people?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**Construction**

The project site is an area previously used for receiving and weighing incoming wastes during landfill operations. The site surfacing is currently compacted gravel that would be paved to provide platforms for the equipment and incoming trucks. The proposed biodigester facility would include modular building and processing equipment that would be manufactured off site and brought to the site by truck for installation. The modular components would be mounted on skids placed on cement pads installed on the site. The biodigester tanks would be constructed on site. The entire project area is approximately 0.5 acre.

Construction of the proposed project is anticipated to begin in late 2012 and would take approximately three months, completing as early as the end of 2012. Construction staging and contractor parking associated with the proposed project would occur on a gravel area on the project site. There would be little or no grading required and only minor earthmoving. Building and architectural coating activities would be limited as most of the equipment would be constructed off site and installed once finished. The exception would be the larger biodigester tanks, which would be built on site. A portion of the project site would also be paved. However, neither construction of the tanks, installation of the modular project equipment nor paving are anticipated to result in substantial emissions of any air quality pollutants.

Emissions would therefore be well below levels that would be considered significant without any mitigation. However, LRDP Mitigation Measure 4.3-3(a) (requiring campus construction contracts to include measures to reduce fugitive dust impacts) and LRDP Mitigation Measure 4.4-3(c) (requiring control measures to reduce emissions of ozone precursors from construction equipment exhaust) are included in the proposed project, further minimizing the emissions. The project’s impact would be less than significant.
Operation

Operational emissions from the proposed project would consist primarily of emissions from the process itself. There would also be emissions from employee travel to the site, though these emissions would be insubstantial (as there would be fewer than 20 vehicle trips per day) and are already captured in the LRDP EIR air quality impact analysis. Therefore mobile emissions from employee commuting were not included in this analysis. There would also be four to five truck trips per day to the site to deliver the feedstock at full operation, as well as occasional truck trips that would be needed to remove solids or other byproducts of the process. Because of the very low number of truck trips, these trips would not be considered a substantial source of air pollution. Furthermore, if the campus organic wastes were not brought to this facility, they would be hauled to another, more distant disposal or composting site and the haul truck trips would still occur, resulting in similar or greater emissions elsewhere in the Air Basin, so the truck trips to deliver feedstock do not represent an increase in total trips occurring, and the truck trips would not be a substantial source of air pollution. Consequently, mobile emissions from trucks were not included in this analysis.

Figure 5, Process Flow Diagram, presents a process flow diagram for the proposed project and shows the three air emissions sources (a new flare, microturbines an ICE, and digestate composting) included in the facility. Emissions from the three process sources were calculated using predicted mass flows and appropriate emissions factors for both the Phase 1 and Phase 2 project configurations. To provide a conservative analysis, the emissions at buildout of Phase 2 are presented as they would be greater than Phase 1 emissions for all pollutants.

The new flare is assumed to combust a combination of biogas from the digester and landfill gas from the existing landfill at the project site. During Phase 2 the mix would be approximately 50 percent biogas and 50 percent landfill gas, for a total capacity of 9.33 million Btu per hour (MMBtu/hr). An H₂S (hydrogen sulfide) treatment unit would be installed between the digester and flare to reduce the amount of H₂S flowing to the flare from approximately 1,000 ppm to 50 ppm.

At buildout of Phase 2, the project would include four Capstone C200 microturbines, which are CARB certified. The CARB certification imposes maximum limits for NOx, CO, and VOC emissions. These limits have been assumed to be the actual emissions for the purposes of this analysis, although source testing for identical units combusting biogas from a wastewater treatment plant indicates that actual emissions would likely be much lower.

Phase 1 would include one ICE rated at 800 Kw. For Phase 2, this engine would be replaced by a similar ICE rated at 1,200 Kw. Both engines have a net heat rate of 8,200 British thermal units per kilowatt hour (Btu/Kwh) and will be fitted with Selective Catalytic Reduction (SCR) emissions controls. The SCR controls result in a 91 percent reduction in NOx emissions and 73 percent reduction in CO emissions. For the purposes of a conservative analysis only the larger 1,200 Kw ICE has been analyzed, as it would have higher emissions than the smaller 800 Kw engine.

The solid byproduct from the digesters may be composted on site, which would also produce emissions. A bulking agent (green waste) may be used as described in the project description. Approximately 8.75 tons per day of green waste would be needed assuming the maximum amount required. To transport the bulking agent, one truck every three days would be required. Emission factors for composting of biosolids (organic waste that has already gone through one cycle of decomposition, such as a digester) were used. It was also assumed that a biofilter with an 80 percent efficiency would be used to control composting emissions. Emissions estimates assume the worst case scenario of 90-day retention time. The emissions in Table 1 reflect the addition of the bulking agent in the digestate composting and the truck trips required to transport the bulking agent to the site.
Maximum estimated emissions from each source are shown below in Table 1 and the total emissions from the facility are compared to YSAQMD significance thresholds. Values for both the flare and ICE in Table 1 assume continuous operation. However, the flare would be used only when the ICE is not functioning as defined by design parameters. Therefore, air emissions from the flare would be emitted only when the ICE is not emitting. As the ICE has greater air emissions than the flare, to provide a conservative estimate of total project emissions, the total emissions shown in the table below are a sum of the emissions from the ICE, digestate composting, and truck trips to transport the bulking agent. As the results show, the operation of the proposed project would result in a less than significant impact on air quality.

Table 1
Estimated Emissions - Operation

<table>
<thead>
<tr>
<th></th>
<th>ROG (tons/year)</th>
<th>NOx (tons/year)</th>
<th>PM10 (lbs/day)</th>
<th>PM2.5 (lbs/day)</th>
<th>SOx (tons/year)</th>
<th>CO (tons/year)</th>
<th>NH3 (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flare</td>
<td>2.7</td>
<td>2.9</td>
<td>3.2</td>
<td>3.2</td>
<td>0.6</td>
<td>16.0</td>
<td>-</td>
</tr>
<tr>
<td>Microturbines (4)</td>
<td>4.44</td>
<td>2.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>26.4</td>
<td>10.4</td>
</tr>
<tr>
<td>Engine (1,200 Kw)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digestate (composting)</td>
<td>2.436</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.045</td>
</tr>
<tr>
<td>Truck Trips (bulking agent)</td>
<td>0.008</td>
<td>0.1</td>
<td>0.03</td>
<td>0.02</td>
<td>0.00015</td>
<td>0.03</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total All Sources</strong></td>
<td><strong>9.577</strong></td>
<td><strong>4.916</strong></td>
<td><strong>3.204</strong></td>
<td><strong>3.203</strong></td>
<td><strong>0.6001</strong></td>
<td><strong>42.410.4</strong></td>
<td><strong>3.045</strong></td>
</tr>
<tr>
<td>YSAQMD Threshold</td>
<td>10</td>
<td>10</td>
<td>80</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Exceeds Threshold?</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* As discussed in the text, the flare is not included in the total.

Source: TSS Consultants 2012 and Handbook for Assessing and Mitigating Air Quality Impacts, YSAQMD.

Toxic Air Contaminants

Health Risk Assessment (HRA) calculations performed as part of the 2003 LRDP EIR predicted that the cancer risk from campus operations through academic year 2015-16 would be below 10 in 1 million for both the off-campus and on-campus Maximally Exposed Individual, assuming a 70-year exposure period. The actual risks were estimated to be 7.78 in 1 million off campus and 5.02 in 1 million on campus. The non-cancer health risk was calculated to be below the hazard index of 1.0, with maximum values of 0.07 for chronic risk and 0.16 for acute risk. Therefore, the 2003 LRDP EIR concluded that development under the 2003 LRDP would not exceed either health risk standard, and the impact associated with TAC emissions would be less than significant.
Agricultural Waste/ Food Waste → Proc. 1 Material Separation → Proc. 2 Grinding → Proc. 3 Anaerobic Digester

Proc. 3 Anaerobic Digester → Residuals → Proc. 6 Solid/ Liquid Separation → Proc. 7 Solids Drying (Options: Pelletize, Compost, MBT)

Proc. 3 Anaerobic Digester → Biogas → Proc. 4 H2S Removal → Proc. 5 Cenergy Combustion Engine → Electricity

Proc. 6 Solid/ Liquid Separation → Recycled Water

Proc. 7 Solids Drying (Options: Pelletize, Compost, MBT) → Solid Product

Proc. 6 Solid/ Liquid Separation → Iron Oxide → Proc. 8 Liquid Effluent Reaction with Zeolite Media → Granulated Zeolite Fertilizer

Proc. 8 Liquid Effluent Reaction with Zeolite Media → Solid Product

SOURCE: Clean World Partners – 2012

FIGURE 5 Process Flow Diagram
While the proposed project was not included in the HRA for the 2003 LRDP EIR, it would not add any new TAC sources to the campus or its vicinity and would not change the conclusions of the 2003 LRDP EIR with respect to human health risk from campus operations. None of the air pollutants associated with the proposed project is considered a TAC. Ammonia \((\text{NH}_3)\) emissions would be produced from the composting of the digestate. Ammonia is not considered a hazardous air pollutant or TAC by either federal or California standards. However, ammonia is known to have acute health impacts when there is exposure to high concentrations. High concentrations of ammonia are typically associated with spills or accidental releases of quantities of ammonia used in production processes. The composting of the digestate would result in steady release of small quantities of ammonia and therefore would be highly unlikely to result in high concentrations. Furthermore, the project site is distant from other campus facilities or any off-campus receptors. Therefore, the project will not result in TAC emissions that could affect human health. There would be no impact.

Cumulative Criteria Pollutant Impacts

According to the YSAQMD’s CEQA handbook, project emissions should consider cumulative impacts for ozone and localized pollutants. Any project that individually exceeds the YSAQMD emission thresholds would have a significant cumulative impact. As discussed above, the proposed project would not exceed any emission thresholds. The proposed project would also have no impact on CO concentrations at local intersections as it would not introduce any additional traffic, other than temporary construction workers commuting to and from the project site and occasional equipment deliveries. These trips would be minimal and have no measurable impact on CO concentrations. As noted above, the proposed project does not involve a TAC source. Based on this analysis, the proposed project would result in a less than significant cumulative impact.

e) Odors

The proposed project has the potential to generate objectionable odors. However, the majority of the process would be enclosed, with the loading operation as the main potential source of odors. Loading would be intermittent, with only a minimal potential for causing significant odors. As described in Subsection 3.4, odor control measures include a lid on the receiving bin that would open only when feedstock is unloaded, but would remain closed at all other times. This would reduce odors from the feedstock material prior to processing. The gas produced from the biodigester tanks would be contained under negative pressure within the equipment and not released on site; it would be piped off and combusted either in the ICE or flare, which together would eliminate any odors associated with the gas.

If the Ag Bag system is constructed and used on site for composting the disgestate, odors would be minimized by ensuring that the compostable material handling areas are designed based on the nature and quantity of materials to be received and composted, climatological factors, adjacent land use, grading, and drainage controls. Site personnel would be trained to manage all compostable material handling in a manner that minimizes the development of conditions that could lead to objectionable odors.

Additionally, the proposed project site is a former landfill. The landfill has no history of odor complaints. Since the proposed project would handle substantially smaller amounts of waste materials than the former landfill, it is unlikely that the proposed project would receive odor complaints either. In addition, the project must have an Odor Impact Minimization Plan developed and implemented, and submitted to the Yolo County Local Enforcement Agency, prior to startup of operations (Section 17863.4, Title 14, California Code of Regulations). Therefore the proposed project would have a less than significant impact with regard to objectionable odors.
Summary

The proposed project will have less than significant impact on air quality, either individually or on a cumulative basis. No project-specific mitigation measures related to potential air impacts are required. LRDP Mitigation Measures 4.3-3 (a, c) from the 2003 LRDP EIR are incorporated into the proposed project and would further reduce the less than significant air quality impacts of the proposed project.
7.4 BIOLOGICAL RESOURCES

7.4.1 Background

Section 4.4 of the 2003 LRDP EIR addresses the effects of campus growth under the 2003 LRDP on biological resources. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.4 of the 2003 LRDP EIR.

Campus

The 5,300-acre campus is located in a region that consists primarily of urban areas and agricultural lands that include remnant riparian areas. Habitat types on campus can be classified as Agricultural Lands (including Cropland/Pasture, and Orchard/Vineyard), Valley Foothill Riparian Woodland, Ruderal/Annual Grassland, Open Water Ponds, Riverine, and Urban Landscaping/Developed.

The 2003 LRDP EIR considers special status species to be those taxa that are: (1) listed as threatened or endangered under either the California or Federal Endangered Species Acts; (2) candidates for either state or federal listing; (3) species afforded protection under the Fish and Game Code of California; (4) federal and California Department of Fish and Game (CDFG) “Species of Special Concern;” (5) CDFG “Species of Special Concern” highest and second priority lists; or (6) California Native Plant Society (CNPS) List 1-3 plants.

A database search conducted for the 2003 LRDP EIR identified 15 special status plant species, 8 special status invertebrates, 11 special status fish, 3 special status amphibians, 3 special status reptiles, 26 special status birds, and 7 special status mammals that have the potential to occur on or within a 10-mile radius of the campus. However, only a few of these species are known to occur on campus or have potential habitat present on campus, including Northern California black walnut, burrowing owl, Swainson’s hawk, valley elderberry longhorn beetle, California tiger salamander, Chinook salmon, giant garter snake, steelhead, and northwestern pond turtle.

Project Site

The project site is within a previously disturbed area that was used for receiving and weighing of municipal solid waste at the UC Davis landfill and is covered with compacted gravel. The project site does not provide habitat for special status species. There are four trees located on the project site that are not within the footprint of the READ facility.

7.4.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers a biological resources impact significant if growth under the 2003 LRDP would:

- Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or US Fish and Wildlife Service (USFWS).
- 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 a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFG or USFWS.
- Result in a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, or coastal wetland) through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any native resident or migratory fish, or wildlife species or with established native, resident, or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

- Conflict with any applicable local policies protecting biological resources such as a tree protection policy or ordinance.

An additional standard from the State CEQA Guidelines’ Environmental Checklist (f in the checklist below) was found not applicable to campus growth under the 2003 LRDP.

### 7.4.3 2003 LRDP EIR Impacts and Mitigation Measures

Impacts of campus growth under the 2003 LRDP through 2015-16 on biological resources are evaluated in Section 4.4 of the 2003 LRDP EIR. The proposed project is within the scope of analysis in the 2003 LRDP EIR and the significant and potentially significant biological resources impacts identified in the 2003 LRDP EIR that are relevant to the proposed project are presented below with their corresponding levels of significance before and after application of mitigation measures identified in the 2003 LRDP EIR.

<table>
<thead>
<tr>
<th>2003 LRDP EIR Impacts</th>
<th>Level of Significance Prior to Mitigation</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4-4</td>
<td>Development allowed under the 2003 LRDP could result in the failure of nesting efforts by nesting raptors, including Swainson’s hawks or other birds of prey.</td>
<td>PS</td>
</tr>
<tr>
<td>4.4-5</td>
<td>Development allowed under the 2003 LRDP would result in the loss of active nest sites for Swainson’s hawk.</td>
<td>PS</td>
</tr>
</tbody>
</table>

Levels of Significance: LS=Less than Significant, S=Significant, PS=Potentially Significant, SU=Significant and Unavoidable

Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Since these mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are considered part of the project description and will not be readopted in this Initial Study or Negative Declaration. Nothing in this Initial Study in any way alters the obligations of the campus to implement 2003 LRDP EIR mitigation measures.

**2003 LRDP EIR Mitigation Measures**

<table>
<thead>
<tr>
<th>2003 LRDP EIR Mitigation Measures</th>
</tr>
</thead>
</table>
| 4.4-4(a) The campus shall conduct a pre-construction survey of trees on and adjacent to a project site during the raptor breeding season (approximately March 1 to August 31). Additionally, the campus shall conduct surveys within a 0.5-mile radius of the site to determine the presence or absence of any nesting Swainson’s hawks. The surveys 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 any Swainson’s hawks are nesting within a 0.5-mile radius of the project site or if other raptors are nesting in, on or adjacent to the project site, a qualified biologist shall determine the potential for disturbance to nesting raptors, including Swainson’s hawks. If the biologist determines that there is a significant potential for disturbance, the campus shall implement feasible changes in the construction schedule or make other appropriate
2003 LRDP EIR Mitigation Measures

BIOLOGICAL RESOURCES

adjustments to the project in response to the specific circumstances. If feasible project changes are not readily identifiable, the campus will consult with CDFG to determine what actions should be taken to protect the nesting efforts. 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.

4.4-4(b) The campus shall continue to conduct annual surveys to determine the location of nesting Swainson’s hawks and other birds of prey on the campus outside the Putah Creek corridor. If nesting Swainson’s hawks are found during the survey at a previously unknown location within 0.5 mile of a project site and/or at a location closer to the project or more visually exposed to the project site than a nearby previously documented site, a qualified biologist shall, prior to project construction, determine the potential for disturbance to nesting Swainson’s hawks. If the biologist determines that there is a significant potential for disturbance, the campus shall implement feasible changes in the construction schedule or make other appropriate adjustments to the project in response to the specific circumstances (e.g., relocating noisy equipment or creating temporary sound barriers).

The implementation of LRDP Mitigations 4.4-4(a) and (b) shall be conducted under the supervision of a biologist whose qualifications include:

A bachelor’s degree in biology or a related field;

Two years of field experience related to nesting raptors; and

Prior construction monitoring experience.

Further:

All decisions of the qualified biologist shall be made in consultation with the California Department of Fish and Game;

Monitoring shall be conducted for a sufficient time (minimum of 3 consecutive days following the initiation of construction) to verify that the nesting pair does not exhibit significant adverse reaction to construction activities (i.e., changes in behavioral patterns, reactions to construction noise, etc.); and

Nest site monitoring will continue for a minimum of once a week through the nesting cycle at that nest.

4.4-5 Mitigation 4.4-4(a) and (b) will be implemented, including pre-construction survey of trees on and adjacent to a project site during the raptor breeding season (approximately March 1 to August 31). If a Swainson’s hawk nest tree is present, the tree will be removed outside the nesting season (March-May).
### 7.4.4 Environmental Checklist and Discussion

**BIOLOGICAL RESOURCES**

<table>
<thead>
<tr>
<th>Would the project…</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

#### a) Plants

The 2003 LRDP EIR found that development under the 2003 LRDP could result in the loss of special-status plant species (LRDP Impact 4.4-1). The proposed project would have no effect on sensitive plant species due to the heavily disturbed nature of the site. See item (e), below, for details related to on-site trees. No impact would occur.

#### Wildlife

The 2003 LRDP EIR found that development under the 2003 LRDP could affect several wildlife species, including the burrowing owl, Swainson’s hawk, the valley elderberry longhorn beetle (VELB), the western pond turtle, and special status fish species (LRDP Impacts 4.4-2 through 4.4-7 and 4.4-12 through 4.4-14). Habitat for the burrowing owl, VELB, or fish species does not occur on or near the project site and the project has no potential to affect these species. There is potential nesting habitat for Swainson’s hawk in the row of trees along the northern perimeter of the project site. Although Swainson’s hawk nests have not been found in the area during repeated surveys in the past and construction for the proposed project is expected to be completed before the nesting season...
starts, limiting the potential for impacts, however, if construction of the proposed project does overlap with nesting season, the requirements described in LRDP Mitigation Measures 4.4-4(a-b) and 4.4-5 would ensure that pre-construction surveys are conducted and if active nests are found appropriate measures are taken to ensure that the nesting birds are not disturbed. Implementation of these measures, which are already incorporated into and a part of the proposed project, would reduce potential impacts to nesting Swainson’s hawks to a less than significant level. The level of activity on site during operation of the READ project would be lower than the activities that occurred when the landfill was in operation, further reducing the potential for any long-term impacts.

b,c) There are no riparian habitat or wetland areas within the immediate vicinity of the project site. No effect to riparian habitat or wetland areas would occur.

d) The Putah Creek corridor, which is the southern boundary of the campus, is the principal corridor for the movement of native resident and migratory fish and wildlife through the UC Davis campus. It is the regional connection between the hills in western Yolo County and the Sacramento River. The project is approximately 0.5 mile north of the Putah Creek corridor. Therefore, the project would not interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. No impact would occur.

The existing trees on the project site and the row of trees to the north of the site could provide nesting habitat for birds. However, the proposed project does not include the removal of any, the minimal construction noise associated with the proposed project would not result in disturbance to nesting birds. No impact would occur.

e) The campus performs a tree survey of every project site that contains trees prior to project approval and modifies the project design to the extent feasible to avoid tree removal or provide additional mitigation if removal of heritage or specimen trees cannot be avoided. There are four trees on the project site; however, they are outside of the READ facility footprint and would not be removed. No effect on trees would occur.

f) The campus does not fall within the boundaries of, nor is it adjacent to, an adopted regional Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP). The campus has implemented two low-effects HCPs for Valley Elderberry Longhorn Beetle at Russell Ranch. However, the project site is not located at Russell Ranch. Therefore, the proposed project would not conflict with an adopted HCP or NCCP.

Summary

The proposed project would not exceed the levels of significance of biological resources impacts previously addressed in the 2003 LRDP EIR, nor would it introduce any new significant impacts that were not previously addressed. Mitigation Measure 4.4-4(a-b) and 4.4-5 from the 2003 LRDP EIR are relevant to the proposed project and would reduce the significance of biological resource impacts to a less than significance level. No project-specific mitigation measures related to biological resources are required. No new mitigation measures are required to reduce the impacts of the project.
7.5 CULTURAL RESOURCES

7.5.1 Background

Section 4.5 of the 2003 LRDP EIR addresses the effects of campus growth under the 2003 LRDP on cultural resources. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.5 of the 2003 LRDP EIR.

Campus

Cultural resources on campus include prehistoric and historic resources. Prehistoric resources are those sites and artifacts associated with the indigenous, non-Euroamerican population, generally dating prior to contact with people of European descent. Historic resources include structures, features, artifacts, and sites that date from Euroamerican settlement of the region.

Archaeological Resources

The campus lies in the ethnographic territory of the Patwin. Since 1991, extensive archaeological investigations (survey, testing, monitoring, and/or excavation) have been conducted on campus in conjunction with the development of campus projects (Nadolski 2003). Patwin sites, including burials, have been identified at several locations on the central campus. Areas within 800 feet of the banks of the historic channel of Putah Creek and its tributaries and slough channels, and within 800 feet of specific known archaeological sites, have been identified as archaeologically sensitive zones on campus.

Historic Resources

The earliest direct historic contacts in the Davis area probably occurred during 1806 to 1808. Farming on a large scale began in the Davis area in the 1850s. A “university farm” was established at Davis in 1906, classes began in 1909, and Davis became a general University of California campus in 1959. No properties within the campus are listed on the National Register of Historic Places. Six properties on or near the campus have been recorded with the California Historical Resources Information System. Historic architectural features typically must be at least 50 years of age to be considered for listing on the California Register of Historical Resources (CRHR).

Project Site

There are no buildings on the project site, except for a recently constructed modular scalehouse that would be used as part of the READ facility. The area is heavily disturbed and was used for receiving and weighing waste. There are no known historic or prehistoric resources on site.

7.5.2 2003 LRDP EIR Standards of Significance

In addition to the following archaeological and historical standards of significance identified in the 2003 LRDP EIR, an additional standard from the State CEQA Guidelines’ Environmental Checklist (“c” in the checklist in Subsection 7.5.4, below) was found not applicable to campus growth under the 2003 LRDP.
Archaeological Resources

The 2003 LRDP EIR considers an impact on archaeological resources significant if growth under the 2003 LRDP would:

- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to State CEQA Guidelines § 15064.5.
- Disturb any human remains, including those interred outside of formal cemeteries.

A “unique archaeological resource” is defined under CEQA in Public Resources Code Section 21083.2(g). A unique archaeological resource implies an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it meets one of the following criteria:

- The archaeological artifact, object, or site contains information needed to answer important scientific questions and there is a demonstrable public interest in that information, or
- The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type, or
- The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

For a resource to qualify as a unique archaeological resource, the agency must determine that there is a high probability that the resource meets one of these criteria without merely adding to the current body of knowledge (PRC § 21083.2(g)). An archaeological artifact, object, or site that does not meet the above criteria is a non-unique archaeological resource (PRC § 21083.2(h)). An impact on a non-unique resource is not a significant environmental impact under CEQA (State CEQA Guidelines § 15064.5(c)(4)). If an archaeological resource qualifies as a historical resource under CRHR or other criteria, then the resource is treated as a historical resource for the purposes of CEQA (State CEQA Guidelines § 15064.5(c)(2)).

Section 15064.5 of the State CEQA Guidelines assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under PRC § 5097.98. California Health and Safety Code § 7050.5(b) prohibits disturbance of human remains uncovered by excavation until the Coroner has made a finding relative to PRC § 5097 procedures.

Historical Resources

As mandated pursuant to PRC § 21083.2, the 2003 LRDP EIR considers an impact on an historical resource significant if growth under the 2003 LRDP would:

- cause a significant adverse change in the significance of a historical resource as defined in State CEQA Guidelines § 15064.5.

The standards of significance for historical resources are based on Appendix G and § 15064.5 of the State CEQA Guidelines. Accordingly, historical resources include resources listed in, or determined to be eligible for listing in, the CRHR; resources included in a qualifying local register (such as the City of Davis Register of Historic Resources); and resources that the lead agency determines to meet the criteria.
for listing in the CRHR. These criteria may apply to any historic built environmental feature, and to historic or prehistoric archaeological sites. Properties or sites that are eligible for inclusion in the CRHR are termed “historical resources.” Under the provisions of State CEQA Guidelines § 15064.5(a)(3), generally a lead agency should find that a property is historically significant if it determines that the property meets one or more of the criteria for listing on the CRHR, which extend to any building, structure, feature or site that:

- is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- is associated with lives of persons important in our past;
- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history

With few exceptions, to qualify as a historical resource a property must be at least 50 years old and also must retain physical integrity and integrity to its period of significance. For historic structures and buildings, significantly altering the setting, remodeling, or moving the structure may diminish or destroy its integrity. However, under some conditions, a building that has been moved or altered may still retain its historic significance. Landscaping or landscape features may in some cases contribute to the significance of an historic architectural property. Such elements would be assessed as part of the evaluation of the related historic architectural property. Archaeological sites may also qualify as historical resources under State CEQA Guidelines Section 15064.5(a)(3). Archaeological sites most often are assessed relative to CRHR Criterion D (for potential to yield data important to history or prehistory). An archaeological deposit that has been extensively disturbed and archaeological artifacts found in isolation may not be eligible for listing on the CRHR, because the lack of stratigraphic context may reduce the potential for the resource to yield significant data. A resource that does not meet at least one of the criteria for eligibility to the CRHR is not an historical resource under CEQA, and impacts to such a property are not significant.

7.5.3 2003 LRDP EIR Impacts and Mitigation Measures

Impacts of campus growth under the 2003 LRDP through 2015-16 on cultural resources are evaluated in Section 4.5 of the 2003 LRDP EIR. The proposed project is within the scope of analysis in the 2003 LRDP EIR and significant and potentially significant cultural resources impacts identified in the 2003 LRDP EIR that are relevant to the proposed project are presented below with their corresponding levels of significance before and after application of mitigation measures identified in the 2003 LRDP EIR.

<table>
<thead>
<tr>
<th>2003 LRDP EIR Impacts</th>
<th>Level of Significance Prior to Mitigation</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation of the 2003 LRDP could disturb human remains, including those interred outside of formal cemeteries.</td>
<td>PS</td>
<td>LS</td>
</tr>
</tbody>
</table>

Levels of Significance: LS=Less than Significant, S=Significant, PS=Potentially Significant, SU=Significant and Unavoidable

Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Since these mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are considered part of the project description and will not be readopted in this Initial
Study or Negative Declaration. Nothing in this Initial Study in any way alters the obligations of the campus to implement 2003 LRDP EIR mitigation measures.

2003 LRDP EIR Mitigation Measures

CULTURAL RESOURCES

4.5-4(a) Implement LRDP Mitigation 4.5-1, 4.5-2, and 4.5-3 to minimize the potential for disturbance or destruction of human remains in an archaeological context and to preserve them in place, if feasible.

4.5-4(b) Provide a representative of the local Native American community an opportunity to monitor any excavation (including archaeological excavation) within the boundaries of a known Native American archaeological site.

4.5-4(c) In the event of a discovery on campus of human bone, suspected human bone, or a burial, all excavation in the vicinity will halt immediately and the area of the find will be protected until a qualified archaeologist determines whether the bone is human. If the qualified archaeologist determines the bone is human, or if a qualified archaeologist is not present, the campus will notify the Yolo or Solano County Coroner (depending on the county of the find) of the find before additional disturbance occurs. Consistent with California Health and Safety Code § 7050.5(b), which prohibits disturbance of human remains uncovered by excavation until the Coroner has made a finding relative to PRC 5097 procedures, the campus will ensure that the remains and vicinity of the find are protected against further disturbance. If it is determined that the find is of Native American origin, the campus will comply with the provisions of PRC § 5097.98 regarding identification and involvement of the Native American Most Likely Descendant (MLD).

4.5-4(d) If human remains cannot be left in place, the campus shall ensure that the qualified archaeologist and the MLD are provided opportunity to confer on archaeological treatment of human remains, and that appropriate studies, as identified through this consultation, are carried out prior to reinterment. The campus shall provide results of all such studies to the local Native American community, and shall provide an opportunity of local Native American involvement in any interpretative reporting. As stipulated by the provisions of the California Native American Graves Protection and Repatriation Act, the campus shall ensure that human remains and associated artifacts recovered from campus projects on state lands are repatriated to the appropriate local tribal group if requested.

7.5.4 Environmental Checklist and Discussion

CULTURAL RESOURCES

Would the project…

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
<tr>
<td>d) Disturb any human remains, including those interred outside of formal cemeteries?</td>
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</tr>
</tbody>
</table>

a) There are no historical resources on the project site. No impact would occur.

b) A records search and Native American Consultation were performed for the site as part of Section 106 compliance (Pacific Legacy 2012). The records search indicated that no previously recorded archaeological or cultural sites were documented on or within a half mile of the project site. In
addition, a transect survey was done of the project site that yielded no historic or cultural resources. The project site has been previously disturbed during operation of the landfill, and there is therefore a low possibility for cultural resources to be uncovered during ground disturbing activities. The proposed project does not involve any excavation and would include only minimal grading. Accordingly, the project would not affect intact archaeological resources. No additional analysis is required.

c) During the course of development at UC Davis, extensive excavation for buildings and infrastructure, operation of the landfill, and extensive agricultural operations have not revealed the presence of unique paleontological or geological resources. It appears that the campus lacks unique paleontological and geological resources due to the deep alluvial deposition of fairly uniform soil types in the area. The project site is similar to the rest of the campus and is also underlain by deep alluvial deposits. No impact would occur.

d) The 2003 LRDP EIR found the potential for development under the 2003 LRDP to disturb human remains, including those interred outside of formal cemeteries (LRDP Impact 4.5-4). LRDP Mitigation 4.5-4(a-d), included in the proposed project, would ensure that human remains in archaeological and isolated contexts would be protected from destruction that might take place from development through measures including identification, Native American consultation, preservation in place or recovery, respectful treatment and study, and reinterment. The project site has been heavily disturbed by landfill operations since the landfill began operation in 2001. The proposed project would include only minimal grading and excavation. There is a very low potential for the project to disturb human remains. Therefore, this impact would be less than significant.

Summary

The proposed project would not exceed the levels of significance of cultural resources impacts previously addressed in the 2003 LRDP EIR, nor would it introduce any new significant impacts that were not previously addressed. Mitigation Measures 4.5-4(a-d) from the 2003 LRDP EIR are relevant to the proposed project and would reduce the significance of cultural resources impacts to a less than significant level; no project-level mitigation is required.
7.6 GEOLGY AND SOILS

7.6.1 Background

Section 4.6 of the 2003 LRDP EIR addresses the geology, soils, and seismicity effects of campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.6 of the 2003 LRDP EIR.

Campus

The campus is located within the Putah Creek Plain of California’s Great Valley geomorphic province. Except for the somewhat raised elevation along the levee adjacent to Putah Creek, the campus is topographically flat. Soils on campus generally contain a high amount of silt and clay, and as a result, are moderately to slowly permeable and have slow runoff rates, minimal erosion hazards, and moderate to high shrink-swell potential (the potential for soil volume to change with a loss or gain in moisture). The predominant soil constraint to construction on campus is soil shrink-swell potential.

A series of low foothills, including the Dunnigan Hills, the Capay Hills, and the English Hills, lie approximately 20 miles west of the campus at the eastern base of the Coast Range. The presence of subsurface thrust faults within these regional foothills and within 100 miles of the campus indicates the potential for seismic ground shaking in the Davis region. The Davis region is not located within an Alquist-Priolo Fault Zone as defined in the Alquist-Priolo Earthquake Fault Zoning Act, which is designed to prohibit the construction of structures for human occupancy across active faults. According to the California Geological Survey’s Probabilistic Seismic Hazard Assessment for the State of California, the peak ground acceleration with a 10 percent probability of being exceeded in 50 years is 0.2 to 0.3 g on the central campus, increasing to 0.3 to 0.4 g on the western portion of Russell Ranch (CDOC 1996). By comparison, in most parts of the San Francisco Bay Area, the peak ground acceleration is 0.5 g or greater. Likely effects of ground shaking during a probable maximum intensity earthquake for the area could include structural damage to stucco, masonry walls, and chimneys, which could expose people to risks associated with falling objects and potential building collapse.

Project Site

The project site has been graded nearly flat for past operations of the landfill and has a graveled surface with a small modular building that was used as a scalehouse for the previous landfill operations.

7.6.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers an impact related to geology, soils, and seismicity significant if growth under the 2003 LRDP would:

- Expose people or structures to potential substantial adverse effects involving strong seismic ground shaking.
- Expose people or structures to potential substantial adverse effects involving seismic-related ground failure.
- Result in substantial soil erosion or the loss of topsoil. (Impacts associated with the effect of erosion on water quality are addressed in Section 7.9 Hydrology & Water Quality.)
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soil, creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Additional standards from the *State CEQA Guidelines’ Environmental Checklist* (a,i) and (a,iv) in the checklist below) were found not applicable to campus growth under the 2003 LRDP.

### 7.6.3 2003 LRDP EIR Impacts and Mitigation Measures

Geology, soils, and seismicity impacts of campus growth under the 2003 LRDP through 2015-16 related to geology, soils, and seismicity are evaluated in Section 4.6 of the 2003 LRDP EIR. As analyzed in *Section 4* of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR. No significant impacts identified in the 2003 LRDP EIR related to geology, soils, and seismicity are relevant to the proposed project.

### 7.6.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>GEOLOGY &amp; SOILS</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>ii) Strong seismic ground shaking?</td>
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<td>☐</td>
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<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>iii) Seismic-related ground failure, including liquefaction?</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>iv) Landslides?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☑</td>
</tr>
<tr>
<td>b) Result in substantial soil erosion or the loss of topsoil?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
<td>☐</td>
</tr>
</tbody>
</table>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

a,i) The UC Davis campus and the surrounding area are not located within an Alquist-Priolo Earthquake Fault Zone, and the closest known active fault rupture zones are over 30 miles away. Therefore, no impact would occur.

a,ii) The campus is located in a seismically active area that could experience ground shaking, liquefaction, and settlement. The peak ground acceleration for the main campus is estimated to be 0.2 to 0.3 g. It increases to 0.3 to 0.4 g on the western portion of Russell Ranch. This intensity of seismic ground shaking has the potential to dislodge objects from shelves and to damage or destroy buildings and other structures. In the case of such a seismic event, people on campus and in the area would be exposed to these hazards. The existing modular building has been installed so as to meet seismic safety standards, and the proposed project does not include permanent structures or occupiable buildings. In addition, the campus minimizes hazards associated with damage or destruction to buildings and other structures by reviewing and approving all draft building plans for compliance with the California Building Code (CBC), which includes specific structural seismic safety provisions. The campus also adheres to the University of California Seismic Safety Policy, which requires anchorage for seismic resistance of nonstructural building elements such as furnishings, fixtures, material storage facilities, and utilities that could create a hazard if dislodged during an earthquake. These procedures would be implemented as part of the proposed project. Therefore, the project-level impact associated with risks due to seismic ground shaking would be less than significant.

a,iii) See the discussion in item (c), below.

a,iv) The UC Davis campus and the surrounding area are characterized by flat topography and therefore would not be subject to landslides. No impact would occur.

b) The soil types that occur on the UC Davis campus generally, including the project site, contain a high amount of silt and clay, and these soil types have minimal erosion hazard associated with them (see pages 4.6-1, 2 and Figure 4.6-1 of the 2003 LRDP EIR). Therefore, this impact was determined to be less than significant in the 2003 LRDP EIR. The project site is flat and compacted by previous use for receiving and weighing waste at the former landfill. The potential for soil erosion during construction is addressed in items (a) and (c) in Section 7.9, Hydrology & Water Quality. Once the proposed facility is constructed, the site soils would be compacted or underneath pavement, and there would be minimal potential for soil erosion. The impact is considered less than significant and no further analysis is required.

c) The potential for liquefaction on the campus is generally low because the depth to groundwater is relatively large (30 to 80 feet, depending on the season). Furthermore, as discussed above under item (a,ii), campus policy requires compliance with the CBC and the University of California Seismic Safety Policy, which include structural and nonstructural seismic safety provisions. Therefore, because the project would comply with the CBC and the University of California Seismic Safety Policy, impacts associated with seismic-related ground failure would be less than significant.

d) The soils in several areas of the campus have high shrink/swell potential and could, on a site-specific basis, have the potential to create risk to life or property. Campus policy requires compliance with the CBC, which includes provisions for construction on expansive soils such as proper fill selection,
moisture control, and compaction during construction. The project site is underlain by compacted soil and most project equipment would be mounted on skids on concrete pads. The proposed tanks would be built on concrete pads and would not require subgrade foundations that could be affected by expansive soils. Impacts associated with expansive soils would be less than significant.

e) The 2003 LRDP EIR identifies that an impact would result if soils are incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems; wastewater will be piped to the existing campus sanitary sewer system. No septic tanks or alternative wastewater disposal systems are included in the proposed project, and there would be no impact.

Summary

The project would have a less than significant impact related to geology, soils, and seismicity. No project-specific mitigation measures related to geology, soils, and seismicity are required.
This section discusses the existing global, national, and statewide conditions related to greenhouse gases (GHG) and global climate change and evaluates the potential impacts on global climate from the implementation of the proposed project. The section also provides a brief discussion of the applicable federal, state, regional, and local agencies that regulate, monitor, and control GHG emissions.

The following sources were used to prepare this section:

- UC Davis 2003 Long Range Development Plan (2003 LRDP)
- YSAQMD’s Handbook for Assessing and Mitigating Air Quality Impacts
- The UC Davis 2009-2010 Climate Action Plan

### 7.7.1 Environmental Setting

#### Background

Global climate change refers to any significant change in climate measurements, such as temperature, precipitation, or wind, lasting for an extended period (i.e., decades or longer) (US EPA 2008a). Climate change may result from:

- natural factors, such as changes in the sun’s intensity or slow changes in the Earth’s orbit around the sun;
- natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of GHG and other gases to the atmosphere from volcanic eruptions);
- and
- human activities that change the atmosphere’s composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, desertification).

The primary change in global climate has been a rise in the average global tropospheric temperature of 0.2 degree Celsius per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using 2000 emission rates shows that further warming is likely to occur, which would induce further changes in the global climate system during the current century (IPCC 2007). Changes to the global climate system and ecosystems, and to California, could include:

- declining sea ice and mountain snowpack levels, thereby increasing sea levels and sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere’s ability to hold more water vapor at higher temperatures (IPCC 2007);
- rising average global sea levels primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets (model-based projections of global average sea level rise at the end of the 21st century (2090–2099) range from 0.18 meter to 0.59 meter or 0.59 foot to 1.94 feet) (IPCC 2007);
- changing weather patterns, including changes to precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones (IPCC 2007);
• declining Sierra snowpack levels, which account for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years (Cal EPA 2006);
• increasing the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas located in the Southern California area and the San Joaquin Valley by the end of the 21st century (Cal EPA 2006);
• increasing the potential for erosion of California’s coastlines and sea water intrusion into the Sacramento and San Joaquin Delta and associated levee systems due to the rise in sea level (California EPA 2006);
• increasing pest infestation, which can cause extensive damage to trees in forested areas, thus increasing the fuel load and making California more susceptible to forest fires (Cal EPA 2006);
• increasing the demand for electricity by 1 to 3 percent by 2020 due to rising temperatures resulting in hundreds of millions of dollars in extra expenditures (Cal EPA 2006); and
• summer warming projections in the first 30 years of the 21st century ranging from about 0.5 to 2 degrees Celsius (°C) (0.9 to 3.6 °F) and by the last 30 years of the 21st century, from about 1.5 to 5.8 °C (2.7 to 10.5 °F) (Cal EPA 2006).

The natural process through which heat is retained in the troposphere\(^2\) is called the “greenhouse effect.” The greenhouse effect traps heat in the troposphere through a threefold process as follows: (1) short-wave radiation in the form of visible light emitted by the Sun is absorbed by the Earth as heat; (2) long-wave radiation is re-emitted by the Earth; and (3) GHGs in the upper atmosphere absorb or trap the long-wave radiation and re-emit it back towards the Earth and into space. This third process is the focus of current climate change actions.

While water vapor and carbon dioxide (CO\(_2\)) are the most abundant GHGs, other trace GHGs have a greater ability to absorb and re-radiate long-wave radiation. To gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-emit long-wave radiation over a specific period. The GWP of a gas is determined using CO\(_2\) as the reference gas, which has a GWP of 1 over 100 years (IPCC 1996).\(^3\) For example, a gas with a GWP of 10 is 10 times more potent than CO\(_2\) over 100 years. The use of GWP allows GHG emissions to be reported using CO\(_2\) as a baseline. The sum of each GHG multiplied by its associated GWP is referred to as “carbon dioxide equivalents” (CO\(_2\)e). This essentially means that 1 metric ton of a GHG with a GWP of 10 has the same climate change impacts as 10 metric tons of CO\(_2\).

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\(^2\) The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth’s surface to 10 to 12 kilometers).

\(^3\) All Global Warming Potentials are given as 100-year values.
Greenhouse Gases

State law defines GHGs to include the following compounds:

- **Carbon Dioxide (CO\textsubscript{2}).** Carbon dioxide primarily is generated by fossil fuel combustion from stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources over the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35 percent (US EPA 2008b). Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining the GWP of other GHGs. In 2004, 82.8 percent of California’s GHG emissions were carbon dioxide (California Energy Commission 2007).

- **Methane (CH\textsubscript{4}).** Methane is emitted from biogenic sources (i.e., resulting from the activity of living organisms), incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation (US EPA n.d.[a]). Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21.

- **Nitrous Oxide (N\textsubscript{2}O).** Nitrous oxide is produced by natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 310.

- **Hydrofluorocarbons (HFCs).** HFCs typically are used as refrigerants in both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing particularly as the continued phase-out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs ranges from 140 for HFC-152a to 6,300 for HFC-236fa.

- **Perfluorocarbons (PFCs).** Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a GWP several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years) (Energy Information Administration 2007). The GWPs of PFCs range from 5,700 to 11,900.

- **Sulfur Hexafluoride (SF\textsubscript{6}).** Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a GWP of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio, as compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm] of CO\textsubscript{2}) (US EPA n.d.[b]).
Contributions to Greenhouse Gas Emissions

Global

Worldwide anthropogenic (man-made) GHG emissions are tracked for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Man-made GHG emissions for Annex I nations are available through 2007. Man-made GHG emissions for Non-Annex I nations are available through 2005. The sum of these emissions totaled approximately 42,133 million metric tons of CO$_2$ equivalents (MMTCO$_2$E). It should be noted that global emissions inventory data are not all from the same year and may vary depending on the source of the emissions inventory data. The top five countries and the European Union accounted for approximately 55 percent of the total global GHG emissions according to the most recently available data (See Table 2, Top Five GHG Producer Countries and the European Union [Annual]). The GHG emissions in more recent years may differ from the inventories presented in Table 2; however, the data is representative of currently available global inventory data.

Table 2

Top Five GHG Producer Countries and the European Union (Annual)

<table>
<thead>
<tr>
<th>Emitting Countries</th>
<th>GHG Emissions (MMTCO$_2$E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>7,250</td>
</tr>
<tr>
<td>United States</td>
<td>7,217</td>
</tr>
<tr>
<td>European Union (EU), 27 Member States</td>
<td>5,402</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>2,202</td>
</tr>
<tr>
<td>India</td>
<td>1,863</td>
</tr>
<tr>
<td>Japan</td>
<td>1,412</td>
</tr>
<tr>
<td>Total</td>
<td><strong>25,346</strong></td>
</tr>
</tbody>
</table>


Note: Emissions for Annex I nations are based on 2007 data. Emissions for Non-Annex I nations (e.g., China, India) are based on 2005 data.

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4 The CO$_2$ equivalent emissions commonly are expressed as “million metric tons of carbon dioxide equivalent (MMTCO$_2$E).” The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP, such that MMTCO$_2$E = (million metric tons of a GHG) x (GWP of the GHG). For example, the GWP for methane is 21. This means that the emission of one million metric tons of methane is equivalent to the emission of 21 million metric tons of CO$_2$.

United States

As noted in Table 2, the United States was the number two producer of global GHG emissions as of 2005. The primary GHG emitted by human activities in the United States was CO$_2$, representing approximately 84 percent of total GHG emissions (US EPA 2008a). Carbon dioxide from fossil fuel combustion, the largest source of GHG emissions, accounted for approximately 80 percent of US GHG emissions.6

State of California

The California Air Resources Board compiles GHG inventories for the State of California. Based on the 2006 GHG inventory data (i.e., the latest year for which data are available) for the 2000–2006 GHG emissions inventory, California emitted 484 million metric tons of carbon dioxide equivalent (MMTCO$_2$e) including emissions resulting from imported electrical power in 2006 (CARB 2009). Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute, California’s total statewide GHG emissions rank second in the United States (Texas is number one) with emissions of 434 MMTCO$_2$e excluding emissions related to imported power (CARB 2009).

A California Energy Commission (CEC) emissions inventory report placed CO$_2$ produced by fossil fuel combustion in California as the largest source of California’s GHG emissions in 2004, accounting for 80 percent of the total GHG emissions (California Energy Commission 2006a). Emissions of CO$_2$ from other sources contributed 3.1 percent of the total GHG emissions; methane emissions contributed 6.4 percent; nitrous oxide emissions contributed 7.6 percent; and the remaining 3.2 percent was composed of emissions of high-GWP gases (California Energy Commission 2006a). These high GWP gases are largely composed of refrigerants, with small contributions of SF$_6$ used in connection with insulating materials for electricity transmission and distribution.

The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, and other sources, which include commercial and residential activities. Table 3, Annual GHG Emissions in California, provides a summary of GHG emissions reported in California in 1990 and 2006 separated by categories defined by the United Nations Intergovernmental Panel on Climate Change (IPCC).

Between 1990 and 2008, the population of California grew by approximately 8.1 million (from 29.8 to 37.9 million) (US Census Bureau 2009; California Department of Finance 2010). This represents an increase of approximately 27.2 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from $788 billion in 1990 to $1.8 trillion in 2008 representing an increase of approximately 128 percent (over twice the 1990 gross state product) (California Department of Finance 2009). Despite the population and economic growth, California’s net GHG emissions only grew by approximately 11 percent. The California Energy Commission (CEC) attributes the slow rate of growth to the success of California’s renewable energy programs and its commitment to clean air and clean energy (California Energy Commission 2006a).

---

6 Supra no. 4.
Table 3
Annual GHG Emissions in California

<table>
<thead>
<tr>
<th>Source Category</th>
<th>1990 (MMTCO₂e)</th>
<th>Percent of Total</th>
<th>2008 (MMTCO₂e)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENERGY</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Industries</td>
<td>386.41</td>
<td>89.2%</td>
<td>413.80</td>
<td>86.6%</td>
</tr>
<tr>
<td>Manufacturing Industries &amp; Construction</td>
<td>157.33</td>
<td>36.3%</td>
<td>171.23</td>
<td>35.8%</td>
</tr>
<tr>
<td>Transport</td>
<td>24.24</td>
<td>5.6%</td>
<td>16.67</td>
<td>3.5%</td>
</tr>
<tr>
<td>Other (Residential/Commercial/Institutional)</td>
<td>150.02</td>
<td>34.6%</td>
<td>173.94</td>
<td>36.4%</td>
</tr>
<tr>
<td>Non-Specified</td>
<td>48.19</td>
<td>11.1%</td>
<td>46.59</td>
<td>9.8%</td>
</tr>
<tr>
<td>Fugitive Emissions from Oil &amp; Natural Gas</td>
<td>1.38</td>
<td>0.3%</td>
<td>0.00</td>
<td>0.0%</td>
</tr>
<tr>
<td>Other (Residential/Commercial/Institutional)</td>
<td>2.94</td>
<td>0.7%</td>
<td>3.28</td>
<td>0.7%</td>
</tr>
<tr>
<td>INDUSTRIAL PROCESSES &amp; PRODUCT USE</td>
<td>18.34</td>
<td>4.2%</td>
<td>30.11</td>
<td>6.3%</td>
</tr>
<tr>
<td>Mineral Industry</td>
<td>4.85</td>
<td>1.1%</td>
<td>5.35</td>
<td>1.1%</td>
</tr>
<tr>
<td>Chemical Industry</td>
<td>2.34</td>
<td>0.5%</td>
<td>0.06</td>
<td>0.0%</td>
</tr>
<tr>
<td>Non-Energy Products from Fuels &amp; Solvent Use</td>
<td>2.29</td>
<td>0.5%</td>
<td>1.97</td>
<td>0.4%</td>
</tr>
<tr>
<td>Electronics Industry</td>
<td>0.59</td>
<td>0.1%</td>
<td>0.80</td>
<td>0.2%</td>
</tr>
<tr>
<td>Substitutes for Ozone Depleting Substances</td>
<td>0.04</td>
<td>0.0%</td>
<td>13.89</td>
<td>2.9%</td>
</tr>
<tr>
<td>Other Product Manufacture and Use</td>
<td>3.18</td>
<td>0.7%</td>
<td>1.66</td>
<td>0.3%</td>
</tr>
<tr>
<td>Other (Residential/Commercial/Institutional)</td>
<td>5.05</td>
<td>1.2%</td>
<td>6.39</td>
<td>1.3%</td>
</tr>
<tr>
<td>AGRICULTURE, FORESTRY, &amp; OTHER LAND USE</td>
<td>19.11</td>
<td>4.4%</td>
<td>24.42</td>
<td>5.1%</td>
</tr>
<tr>
<td>Livestock</td>
<td>11.67</td>
<td>2.7%</td>
<td>16.28</td>
<td>3.4%</td>
</tr>
<tr>
<td>Land</td>
<td>0.19</td>
<td>0.0%</td>
<td>0.19</td>
<td>0.0%</td>
</tr>
<tr>
<td>Aggregate Sources &amp; Non-CO₂ Sources on Land</td>
<td>7.26</td>
<td>1.7%</td>
<td>7.95</td>
<td>1.7%</td>
</tr>
<tr>
<td>WASTE</td>
<td>9.42</td>
<td>2.2%</td>
<td>9.41</td>
<td>2.0%</td>
</tr>
<tr>
<td>Solid Waste Disposal</td>
<td>6.26</td>
<td>1.4%</td>
<td>6.71</td>
<td>1.4%</td>
</tr>
<tr>
<td>Wastewater Treatment &amp; Discharge</td>
<td>3.17</td>
<td>0.7%</td>
<td>2.70</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

EMISSIONS SUMMARY

<table>
<thead>
<tr>
<th></th>
<th>433.29</th>
<th>477.74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross California Emissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sinks from Forests and Rangelands</td>
<td>-6.69</td>
<td>-3.98</td>
</tr>
<tr>
<td>Net California Emissions</td>
<td>426.60</td>
<td>473.76</td>
</tr>
</tbody>
</table>

Sources:

7.7.2 Regulatory Considerations

Federal, state, and regional regulations and guidance related to climate change are presented in Appendix C. The local programs and policies are summarized below.
University of California Policy on Sustainable Practices

The University of California Policy on Sustainable Practices was adopted by The Regents in 2006 and revised in March 2007, March 2008, September 2009, and August 2011. The policy is a system-wide commitment to minimize the University of California’s impact on the environment and reduce the University’s dependence on non-renewable energy sources. The University of California Policy on Sustainable Practices promotes the principles of energy efficiency and sustainability in the following areas:

- Green Building Design
- Clean Energy Standard
- Climate Protection Practices
- Sustainable Transportation Practices
- Sustainable Operations
- Recycling and Waste Management
- Environmentally Preferable Purchasing Practices
- Food

The policy guidelines that address these topics recommend that University operations:

- Incorporate the principles of energy efficiency and sustainability in all capital projects, operations, and maintenance within budgetary constraints and programmatic requirements.
- Minimize the use of non-renewable energy sources on behalf of UC’s built environment by creating a portfolio approach to energy use, including use of local renewable energy and purchase of green power from the grid as well as conservation measures that reduce energy consumption.
- Incorporate alternative means of transportation to/from and within the campus to improve the quality of life on campus and in the surrounding community. The campuses will continue their strong commitment to provide affordable on-campus housing, in order to reduce the volume of commutes to and from campus. These housing goals are detailed in the campuses’ LRDPs.
  - Track, report, and minimize GHG emissions on behalf of UC operations.
  - Minimize the amount of University-generated waste sent to landfill.
  - Utilize the University’s purchasing power to meet its sustainability objectives.

The University of California has signed the American College and University Presidents Climate Commitment. Each signatory commits to completing an inventory of GHG emissions within one year, and to developing, within two years, an institutional plan to achieve climate neutrality as soon as possible. The commitment also includes specific interim actions, including requiring that new campus construction will be built to at least the US Green Building Council’s LEED Silver standard or equivalent; purchasing Energy Star appliances; offsetting greenhouse gas emissions generated by institutional air travel; encouraging and providing access to public transportation; purchasing or producing at least 15 percent of the institution’s electricity consumption from renewable sources; supporting climate and sustainability shareholder proposals at companies where the institution’s endowment is invested; and adopting measures to reduce waste.
The 2003 LRDP is the plan for the development of the campus. Although the 2003 LRDP does not contain policies that specifically address GHG emissions, it does contain a number of elements with respect to fuel- and energy-efficiency provisions and elements that would encourage walking and bicycling on campus and in surrounding neighborhoods, all of which would reduce GHG emissions.

UC Davis Climate Action Plan

As discussed earlier in this section, the UC Policy on Sustainable Practices – Climate Protection section targets three goals: reduction of GHG emissions back to 2000 levels by 2014, to 1990 levels by 2020, and ultimately climate neutrality. Climate neutrality is defined in the Policy as the University having a net zero impact on the Earth’s climate, which is to be achieved by minimizing GHG emissions as much as possible and using carbon offsets or other measures to mitigate the remaining GHG emissions.

UC Davis has prepared the 2009–2010 Climate Action Plan (CAP), which includes both the Davis and Sacramento campuses, as well as outlying facilities. The CAP describes and addresses policy and regulatory requirements of (1) the UC Policy on Sustainable Practices, (2) AB 32, (3) the American College and University Presidents Climate Commitment, (4) CEQA, and (5) US EPA reporting requirements. The CAP provides documentation of how campus GHG emissions are calculated, a report of current (2008) emissions, estimates of past (to 1990) and future emissions (to 2020), a statement of GHG emission reduction goals, a characterization of options and methods to reduce emissions, and a blueprint for future action.

The CAP focuses on the 2014 and 2020 targets, with the understanding that climate neutrality will require fundamental shifts in global and national energy policy, energy production, and technologies currently using fossil fuels. Further, the CAP focuses on emissions related to campus operations, instead of commuting and air travel, because emissions related to commuting and air travel are less than one-quarter those of campus operations. The CAP does provide analysis of commuting and air travel reduction options, but does not quantify emissions reductions for those options.

In the CAP, GHG emissions were calculated back to 1990, using hard data whenever possible (and projected data when not), and including nearly every source of emissions. Calculated emissions for all of UC Davis, excluding commuting and air travel, for 2000 are 246,000 MTCO₂E and for 1990 are 142,000 MTCO₂E. In 2008, inventoried emissions (in CCAR), excluding commuting and air travel, totaled 238,000 MTCO₂E, indicating that UC Davis had already met the 2014 target. Thus, the CAP defined a new emissions target of 210,000 MTCO₂E, almost 15 percent below the 2000 emissions, as the new 2014 target. The 2020 target, to reach 1990 emissions, is about 40 percent below the 1990 emissions.

Four years of verified inventories of emissions have shown consistently that the Davis campus contributes about 70 percent of the emissions total, the Sacramento campus contributes about 29 percent of the total, and the outlying facilities contribute about 1 percent of the total.

7.7.3 Standards of Significance

In accordance with Senate Bill (SB) 97, the Natural Resources Agency adopted amendments to the State CEQA Guidelines on December 30, 2009, which includes criteria for evaluating GHG emissions. According to the amended Appendix G of the State CEQA Guidelines, a project would have a significant effect on the environment if it would:

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7 The adopted amendments may be viewed at the following Web site: http://ceres.ca.gov/ceqa/guidelines/. 2009.
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The amended *State CEQA Guidelines* include a new Section 15064.4, which states that, when making a determination of the significance of GHG emissions, a lead agency shall have discretion to determine whether to (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use; and/or (2) Rely on a qualitative analysis or performance based standards. Section 15064.4 also provides that a lead agency may consider the following factors when assessing the significance of GHG emissions on the environment: (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

Under CEQA, “the determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data.” CEQA grants agencies with the general authority to adopt criteria for determining whether a given impact is “significant.” When no guidance exists under CEQA, the agency may look to and assess general compliance with comparable regulatory schemes.

### 7.7.4 2003 LRDP EIR Impacts and Mitigation Measures

Impacts of campus growth under the 2003 LRDP through 2015-16 on greenhouse gas emissions were not evaluated in the 2003 LRDP EIR. The inclusion of greenhouse gas emission as an environmental impact for CEQA analysis has recently evolved. In 2010, modifications to Appendix G of the *State CEQA Guidelines* resulted in the inclusion of detail guidance for CEQA greenhouse gas impact analysis.

### 7.7.5 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>GREENHOUSE GAS EMISSIONS</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Conflict with an applicable plan, policy, or regulation adopted for the purpose or reducing the emissions of greenhouse gases?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- a) In August 2007 the legislature enacted SB 97 (Dutton), which directed the Governor’s Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of greenhouse gas emissions by July 1, 2009 and directed the Resources Agency to adopt the guidelines by January 1, 2010. OPR submitted the Proposed Draft CEQA Guideline Amendments for Greenhouse Gas

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8 *State CEQA Guidelines* Section 15064(b).
Emissions to the Resources Agency on April 13, 2009 (OPR 2009) and the Resources Agency adopted the guidelines on December 30, 2009. During development of the draft guidance, OPR requested that CARB recommend a statewide method for setting thresholds of significance for GHG emissions, which lead agencies may adopt.

On October 24, 2008, CARB issued a Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (Preliminary Draft Staff Proposal). In the Preliminary Draft Staff Proposal, CARB proposed a tiered approach to determine the significance of two types of projects: (1) industrial; and (2) commercial/residential. For industrial projects, CARB proposed a 7,000 MTCO$_2$E threshold. With respect to commercial/residential projects, CARB proposed a four-tiered threshold:

- **Tier 1:** Is the project exempt from further analysis under existing statutory or categorical exemptions? If yes, there is a presumption of less than significant impacts with respect to climate change.

- **Tier 2:** Does the project comply with a previously approved plan that addresses GHG emissions? (The plan must satisfy certain requirements (e.g., be consistent with AB 32 and/or SB 375).) If yes, there is a presumption of less than significant impacts with respect to climate change.

- **Tier 3:** Does the project satisfy certain minimum performance standards relating to construction and operational activities, or include equivalent mitigation measures, and emit no more than a yet to be determined quantity of emissions? If yes, there is a presumption of less than significant impacts with respect to climate change.

- **Tier 4:** The project will have significant climate change impacts.

CARB staff received public comments on the draft thresholds; however, as of this writing, the thresholds remain draft recommendations and CARB has ceased any further development of the threshold. CARB has not indicated when or if it will resume development of the threshold.

The YSAQMD has not adopted any numerical significance thresholds for the evaluation of a project’s GHG emissions at this time. In the absence of any adopted thresholds, this analysis applies the threshold of significance recommended by the Bay Area Air Quality Management District (BAAQMD) for stationary sources, which is 10,000 MTCO$_2$E. This level of emissions is commonly considered a ‘bright line’ indicator of a significant source, with the same value under consideration

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10 The significance thresholds contained in the BAAQMD’s 2010 CEQA Guidelines were challenged by the CA Building Industry Association. On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the Air District had failed to comply with CEQA when it adopted the thresholds contained in the District’s 2010 CEQA Guidelines. The court found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the District to set aside the thresholds and cease dissemination of them until the District had complied with CEQA. The BAAQMD accordingly is not recommending the use of the 2010 significance thresholds to determine the significance of air quality impacts. Instead, the BAAQMD recommends that the lead agency should “determine appropriate air quality thresholds of significance based on substantial evidence in the record.” The Court did not rule on or question the adequacy of the evidentiary basis supporting the significance thresholds that are contained in the 2010 CEQA Guidelines and the BAAQMD-recommended impact assessment methodologies. Therefore, a lead agency has the discretion to use the significance thresholds and methodology for analyzing air quality impacts under CEQA based on the evidence and technical studies supporting the Guidelines or other evidence.
for use in the South Coast, San Luis Obispo County, and Santa Barbara County air districts. This is also the threshold for determining whether a facility must report GHG emissions in the state of California.

Construction activities associated with the project would result in GHG emissions. While numerical thresholds have not been adopted by the YSAQMD for evaluating a project’s GHG emissions, CEQA documents are recommended to provide estimated emissions from all sources of GHGs based on the available emission factors and data. However, as described in the air quality section, construction activities on site would be minimal, and primarily composed of assembling skid-mounted equipment manufactured elsewhere. There would be minimal heavy equipment use, and few other sources of GHG emissions during construction. Consequently, GHG emissions during construction would be minimal (on the order of less than 1 percent of the 10,000 MTCO$_2$E threshold level).

Operational sources of GHG emissions would consist of the flare, microturbines-internal combustion engine (ICE), and composting of digestate. Employee vehicle trips (less than 20 daily trips), feedstock delivery truck trips (4 to 5 truck trips per day), and occasional truck trips associated with the transport of byproducts and the bulking agent (for composting) would also result in GHG emissions. However due to the small number of daily trips involved, the GHG emissions from these vehicle trips were not calculated quantified. The Selective Catalytic Reduction (SCR) emissions control system would also produce a small amount of GHG through the production and use of urea, as described in Appendix D. Based on a lifecycle analysis of urea, emissions from the SCR were estimated to be approximately 30 tons of CO$_2$e per year, most of which would be indirect emissions from the production and transport of the urea. Consequently, this source was considered negligible in the context of total emissions.

For the reasons presented in the air quality section, all emissions estimates are based on the full Phase 2 operational capacity of 50 tons per day with the assumption that emissions from Phase 1 would be less. As noted above, vehicle traffic associated with the project is minimal, and the resulting GHG emissions from mobile sources would not be substantial in the context of the other sources. Estimated emissions from these on-site sources are shown in Table 4. Design parameters indicate that the flare would only be in use when the ICE is not functioning, so that the flare would only be emitting GHGs when the ICE is not emitting any GHGs. Values for the flare and ICE in Table 4 both assume continuous operation. Since the emissions from the ICE are greater than the emissions from the flare, the worst case scenario consists of continuous operation of the ICE with no flaring. Therefore the total project emissions shown are the sum of emissions from the ICE and composting.

### Table 4

**Estimated Operational GHG Emissions**

<table>
<thead>
<tr>
<th>Greenhouse Gas Emissions</th>
<th>CO$_2$e (metric tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flare</td>
<td>2,315.2,226</td>
</tr>
<tr>
<td>Microturbines-ICE</td>
<td>4,4934,762</td>
</tr>
<tr>
<td>Composting Digestate</td>
<td>1,6054,030</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,0982,058</strong></td>
</tr>
<tr>
<td>Threshold</td>
<td>10,000</td>
</tr>
</tbody>
</table>

*As discussed in the text, the flare is not included in the total
Source: Impact Sciences 2012
The estimates given in Table 4 are gross emissions from the proposed project. However, the proposed project would have significant positive impacts on overall GHG emissions that should also be taken into account. The California Climate Action Registry’s (CCAR) General Reporting Protocol states that the combustion of biogas in stationary sources should not be included in inventories as the biogas is biogenic. That is, the carbon released from the burning of biogas is part of the existing natural carbon cycle and does not represent a net input of carbon into the atmosphere. Consequently, the net emissions from the microturbines ICE would be zero, as they would only combust biogas. Additionally the microturbines ICE generates electricity from a renewable source, displacing demand on the electrical grid, which includes electricity from fossil-fueled sources. UC Davis obtains electrical power from a variety of sources through its contracts with the Western Area Power Administration (WAPA) and PG&E. Using the emissions factor provided by the U.S. EPA for the general California electrical grid (CAMX), and assuming the microturbines ICE provides 7,008 10,512 Mwh of power in a year, the displaced electrical power would result in reductions in GHG emissions of approximately 3,150 2,100 MTCO$_2$E. These are indirect emissions from sources off-site from the proposed project that cannot be compared to direct emissions from the proposed project itself, but nevertheless represent actual reductions in GHG emissions attributable to the proposed project. Last, if the green waste were simply sent to a landfill for composting rather than diverted to the proposed project, the resulting emissions would be approximately 2,989 MTCO$_2$E annually. If the composting digestate GHG emissions of 1,070 1,605 MTCO$_2$E are deducted from this number, the net reduction in GHG emissions due to the project would be 1,919 1,384 MTCO$_2$E. All of these estimated reductions are reported in Table 5 below.

<table>
<thead>
<tr>
<th>GHG Emissions</th>
<th>MTCO$_2$E/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microturbines ICE</td>
<td>4,4933,762</td>
</tr>
<tr>
<td>Displaced Power Generation</td>
<td>3,1502,400</td>
</tr>
<tr>
<td>Net green waste composting</td>
<td>1,3844,949</td>
</tr>
</tbody>
</table>

Source: Impact Sciences 2012

Nevertheless, for the purposes of the CEQA analysis gross emissions are reported, rather than the net emissions after applying the reductions credits. As even the gross emissions, assuming full capacity and no credit for use of renewable fuel sources or reductions in indirect emissions, are well below the significance threshold, the proposed project will have a less than significant impact related to GHG emissions.

b) The applicable plan for control of GHG emissions at UC Davis is the UC Davis Climate Action Plan (CAP), which was adopted to allow UC Davis to meet the requirements of AB 32, the UC Policy on Sustainable Practices, and the American College and University Presidents Climate Commitment. The CAP sets goals for GHG reductions as well as policies to meet those goals. A waste-to-energy system utilizing a biodigester is specifically discussed in the CAP as a strategy to pursue in reducing GHG emissions from the campus and thus meet the requirements of the CAP. Consequently the proposed project would not conflict with any plans, policies, or regulations to reduce GHG emissions. No impact would occur.
Summary

The project will cause a less than significant impact related to GHG emissions. No project-specific mitigation measures related to GHG emissions are required.
7.8 **HAZARDS & HAZARDOUS MATERIALS**

7.8.1 **Background**

Section 4.7 of the 2003 LRDP EIR addresses the hazards and hazardous materials effects of campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.7 of the 2003 LRDP EIR.

**Campus**

A variety of hazardous materials are used on campus during the course of daily operations. Hazardous chemicals used on campus include: chemical solvents, reagents, and aromatic hydrocarbons that are used in campus laboratories; pesticides, fungicides, and herbicides used by agricultural programs and in landscape maintenance; relatively small amounts of solvents, paints, and acids used by fine arts programs; gasoline and diesel fuels, oils and lubricants, antifreeze, cleaning solvents and corrosives, paints and paint thinners, and Freon refrigerants used in vehicle and building maintenance. In addition, radioactive materials, biohazardous materials, and laboratory animals are used in teaching and research activities. The use of hazardous materials on campus generates hazardous byproducts that must eventually be handled and disposed of as hazardous wastes.

Generation, transportation, and disposal of hazardous wastes are regulated by various agencies. The lead federal regulatory agency is the Environmental Protection Agency. The State Department of Toxic Substances Control (DTSC) has primary state regulatory responsibility but can delegate enforcement authority to local jurisdictions that enter into agreements with the state agency, as it did with Yolo County Department of Environmental Health (YCDEH) under the Certified Unified Program Agency (CUPA) program.

The campus’ Office of Environmental Health and Safety (EH&S) coordinates most local, state, and federal regulatory compliance functions related to the campus’ health, safety, and environmental issues. EH&S performs safety education and training, regulatory interpretation and applicability, approval of potentially hazardous procedures, resolution of safety problems, surveillance, and monitoring. In addition, EH&S provides guidance for several campus safety programs, including: the Chemical Inventory System, which tracks inventory and use of hazardous materials on campus; the CUPA Self-Audit Program, which complies with the terms of an agreement with the YCDEH; development of laboratory-specific Chemical Hygiene Plans; the Radiation and X-Ray Safety Programs; and the Biological Safety Administrative Advisory Committee. EH&S is also a working partner in such campus administrative advisory groups as the Chemical Safety Committee, the Radiation Safety Committees, the Animal Use and Care Committee, and the Biological Safety Committee. External administrative and benchmarking reviews of the EH&S programs are conducted periodically to identify means of further improving the programs.

**Project Site**

The project site was used for receiving and weighing incoming waste to the former landfill. The site is adjacent to an unlined Waste Management Unit 1 (WMU1), a strip of land along County Road 98 that is considered contaminated. The WMU1 site is believed to be the source of VOCs present in soil and groundwater on the west campus. No hazardous materials are used or stored on site at present.
7.8.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers a hazards and hazardous materials impact significant if growth under the 2003 LRDP would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.
- For a project within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Additional standards from the State CEQA Guidelines’ Environmental Checklist ("f" and "h" in the checklist below) were found not applicable to campus growth under the 2003 LRDP.

7.8.3 2003 LRDP EIR Impacts and Mitigation Measures

Hazards and hazardous materials impacts of campus growth under the 2003 LRDP through 2015-16 related to hazards and hazardous materials are evaluated in Section 4.7 of the 2003 LRDP EIR. The proposed project is within the scope of analysis in the 2003 LRDP EIR. No significant impacts identified in the 2003 LRDP EIR related to hazards and hazardous materials are relevant to the proposed project. As discussed below, the project would not result in any hazards and hazardous materials impacts and therefore no LRDP Mitigation Measures are relevant to the project.
### Environmental Checklist and Discussion

#### Hazards & Hazardous Materials

<table>
<thead>
<tr>
<th>Would the project…</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

#### a) Hazardous Chemicals

The 2003 LRDP EIR found that implementation of the 2003 LRDP would increase routine hazardous chemical use (LRDP Impact 4.7-1), routine generation of hazardous chemical wastes (LRDP Impact 4.7-2), and routine hazardous materials transport to and from the campus (LRDP Impact 4.7-8) by UC Davis laboratories, departments, and maintenance/support operations. These activities would not create significant hazards to the public or the environment. The project is not anticipated to have hazardous materials or hazardous waste transported to, used by, or transported from the facility. Organic material would be brought to the project site. Solid and liquid effluent and zeolite media would be shipped off site for treatment or sale. These materials are not hazardous in nature and would not be a hazard to the public. No impact would occur.
Radioactive Materials

No radioactive materials would be used in connection with the proposed project. No impact would occur.

Biohazardous Materials

No biohazardous materials would be used in connection with the proposed project. No impact would occur.

Laboratory Animals

No laboratory animals would be used in connection with the proposed project. No impact would occur.

b) The 2003 LRDP EIR found that implementation of the 2003 LRDP would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (LRDP Impact 4.7-9). Compliance with all applicable federal and state laws, as well as campus programs, practices, and procedures related to the transportation, storage, and use of hazardous materials, is required for all transport of hazardous material on or to and from the campus, minimizing the potential for an accidental release of hazardous materials and providing for prompt and effective cleanup if an accidental release occurs. However, operation of this facility would not include the transport of hazardous material. No impact would occur.

c) Hazardous materials and waste are not anticipated to be present on site or transported to and from the READ facility. In addition, there are no existing schools within a quarter mile of the project site. The closest school is the Grace Valley Christian Academy, which is approximately 0.8 mile from the project site. No impact would occur.

d) The Laboratory for Energy Related Research/South Campus Disposal site is the only campus site that is listed as a hazardous materials site pursuant to Government Code Section 65962.5. The proposed project would not disturb this site.

The 2003 LRDP EIR found that construction activities under the 2003 LRDP would not expose construction workers and campus occupants to contaminated soil or groundwater (Impact 4.7-12). Campus policy requires that due diligence surveys be performed for all proposed project sites as part of the project planning process. Federal and state regulations require that workers who may be exposed to contaminants during the course of their jobs know of the presence of contamination and be properly trained. In addition, these regulations require that appropriate engineering and administrative controls and protective equipment be provided to reduce exposure to safe levels. The current campus due diligence policy and Cal/OSHA regulations minimize the exposure of construction workers to contaminants. In addition, if contaminants are identified on project sites, the campus would coordinate site remediation. No contamination has been identified on the project site. The WMU1 site adjacent to the project site has been found to have soil and groundwater contaminated with VOCs. UC Davis monitors the site and will continue to do so. There are no potential pathways for exposure of site workers to contamination from this site, as the project would not disturb soil or groundwater at the WMU1 site. In addition, the project would not require extensive construction or excavation on the project site that could disturb soils where there is a potential for unidentified contamination to exist. Neither the existing building nor the proposed equipment would be permanent and would not require
subsurface foundations. The equipment would be skid mounted. Therefore, the impact would be less than significant.

e) The project site is located approximately 0.8 mile west of the University airport. The 2003 LRDP EIR found that development of certain projects on the west campus under the 2003 LRDP could result in safety hazards associated with aircraft. However, the proposed project is not in an area where its development could conflict with airport operations. No impact would occur.

f) The University Airport is a public use airport, not a private airstrip. No other airport facilities are within the immediate vicinity of the campus. No impact would occur.

g) The 2003 LRDP EIR found that implementation of the 2003 LRDP could interfere with the campus’ Emergency Operations Plan through construction-related road closures that would render roads impassable by emergency response vehicles (Impact 4.7-17). Neither construction nor operation of the proposed project would require road closures. No impact would occur.

h) Areas along Putah Creek are the only areas on the campus that could be susceptible to wildland fires. Urbanization would not occur in close proximity to these areas under the 2003 LRDP because land along Putah Creek is designated for Open Space and Teaching and Research Fields, and land adjacent to these open areas is designated primarily for Teaching and Research Fields and low density development. The project site is located approximately 0.5 mile north of Putah Creek and, due to its distance and the absence of permanent or occupiable structures, would not expose people or structures to wildland fire risks. No impact would occur.

Summary

The project would have a less than significant impact related to hazards and hazardous materials. No project-specific mitigation measures related to hazards and hazardous materials.
7.9 HYDROLOGY & WATER QUALITY

7.9.1 Background

Section 4.8 of the 2003 LRDP EIR addresses the hydrology and water quality effects of campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.8 of the 2003 LRDP EIR.

Campus

Surface Water Resources

The UC Davis campus is located in the Lower Sacramento watershed. Putah Creek, the principal waterway in the Davis area, originates from springs in the Mayacamas Mountains northwest of the campus, flows into Lake Berryessa, through Winters, along the southern boundary of Russell Ranch, along the southern boundary of UC Davis’ west and south campuses, and eventually into the Yolo Bypass, an overflow channel for the Sacramento River. The North Fork Cutoff and the Arboretum Waterway on campus follow the historic channel of Putah Creek, but currently have no natural flow. The North Fork Cutoff is a typically dry stream channel on the west campus that is currently occupied by sheep and cattle programs in the Department of Animal Science. The Arboretum Waterway serves as the storm water detention basin for the central campus.

UC Davis is a member of the Solano Project, and currently has rights to purchase 4,000 acre-feet of Putah Creek water from Lake Berryessa per year, although reductions in deliveries can occur during drought conditions. The water is delivered to the southwest corner of the campus via an underground pipeline. UC Davis also has rights to surface water from Putah and Cache Creeks. The campus has not used this water in the recent past, but the tenant farmer at Russell Ranch uses approximately 3,750 acre-feet of water per year from Putah and Cache Creeks (via Willow Canal) for irrigation of commercial crops.

The quantity and quality of flows in Putah Creek are highly variable and depend on releases from Lake Berryessa, precipitation, storm water runoff, and treated effluent discharge. The campus’ tertiary level Wastewater Treatment Plant (WWTP) is the largest discharger of treated effluent to Putah Creek. The plant is regulated under a National Pollutant Discharge Elimination System (NPDES) Waste Discharge Requirement (WDR) permit issued by the Central Valley Regional Water Quality Control Board (CVRWQCB).

Groundwater Resources

The campus is underlain by sand and gravel alluvial deposits that include deep and shallow/intermediate depth aquifers. Deep gravel and sand aquifers underlie the campus between 600 to 1,500 feet below ground surface and supply the campus domestic/fire system. Historic annual domestic water use on campus over the past three decades has ranged from less than 600 million gallons per year (mgy) during drought conditions to nearly 900 mgy (UC Davis 1997). Despite the campus’ significant growth in recent decades, the campus’ deep aquifer demands have not significantly increased since the late 1960s (Ludorff and Scalmanini 2003), a trend that reflects the success of the campus’ water conservation efforts.

Shallow/intermediate depth sand and gravel aquifers underlie the campus at depths from 150 to 800 feet below ground surface and supply the campus utility water system, main campus agricultural water needs, and campus and tenant farmer irrigation needs at Russell Ranch. Over the period from 1992 through 2002, an average of approximately 2,657 acre-feet per year of shallow/intermediate aquifer water was used for agricultural purposes on campus, including approximately 1,813 acre-feet on the main campus.
and approximately 844 acre-feet at Russell Ranch (UC Davis Agricultural Services 2003, UC Davis ORMP 2003a). Water levels in the shallow/intermediate aquifer vary seasonally and strongly correlate to precipitation. A generally upward recharge trend over the period from 1957 to 2002 indicates that there has not been long-term overdraft of the shallow/intermediate depth aquifers (Ludorff and Scalmanini 2003).

Regional groundwater quality is generally characterized as having high mineral content. Calcium, magnesium, and sulfates have been identified as the dominant problematic constituents.

**Flooding & Drainage**

On campus, the South Fork of Putah Creek, the North Fork Cutoff, and the Arboretum Waterway channels are designated as FEMA 100-year floodplain areas. In addition, a portion of Russell Ranch along County Road 31 and a portion of the west campus along County Road 98 are also subject to flooding during a 100-year storm event.

The majority of land in the west and south campuses and at Russell Ranch is used as teaching and research fields and is not drained by a storm drainage system. Irrigation practices on campus teaching and research fields typically do not generate surface runoff. However, large storm events may result in shallow overland flows that flow to temporary shallow ponds in places such as road and field edges. In addition, developed areas on the west and south campuses include storm water conveyance systems that drain to Putah Creek.

To protect the quality of storm water on campus that ultimately drains to Putah Creek, UC Davis construction and industrial activities are subject to the NPDES storm water requirements. Routine maintenance and minor construction activities on campus are subject to the campus’ Phase II Storm Water Management Plan (SWMP).

**Project Site**

The project site is approximately 0.5 acre of disturbed land that has been used for receiving and weighing waste. Existing on-site drainage directs storm water runoff to a retention pond to the south of the project site, and these conditions would continue with development of the READ project.

7.9.2 **2003 LRDP EIR Standards of Significance**

The 2003 LRDP EIR considers a hydrology and water quality impact significant if growth under the 2003 LRDP would:

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site.
- Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
- Expose people or structures to a significant risk of loss, injury, or death involving flooding.

Additional standards from the State CEQA Guidelines’ Environmental Checklist (“g” and “j” in the checklist below) were found not applicable to campus growth under the 2003 LRDP.

### 2003 LRDP EIR Impacts and Mitigation Measures

Hydrology and water quality impacts of campus growth under the 2003 LRDP through 2015-16 on hydrology and water quality are evaluated in Section 4.8 of the 2003 LRDP EIR. The proposed project is within the scope of analysis in the 2003 LRDP EIR, and significant and potentially significant hydrology and water quality impacts identified in the 2003 LRDP EIR that are relevant to the proposed project are presented below with their corresponding levels of significance before and after application of mitigation measures identified in the 2003 LRDP EIR. Less than significant impacts that do not include mitigation measures are not presented here. Mitigation is relevant to reduce the magnitude of project-level impacts 4.8-5 and 4.8-6, but these impacts of full implementation of projected LRDP development were identified as significant and unavoidable in the 2003 LRDP EIR because they cannot be fully mitigated.

#### 2003 LRDP EIR Impacts

<table>
<thead>
<tr>
<th>HYDROLOGY &amp; WATER QUALITY</th>
<th>Level of Significance Prior to Mitigation</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.8-4 Campus growth under the 2003 LRDP would increase discharge of treated effluent from the campus wastewater treatment plant into the South Fork of Putah Creek, which could exceed waste discharge requirements and degrade receiving water quality.</td>
<td>PS</td>
<td>LS</td>
</tr>
<tr>
<td>4.8-5 Campus growth under the 2003 LRDP would increase the amount of water extracted from the deep aquifer and would increase impervious surfaces. This could result in a net deficit in the deep aquifer volume or a lowering of the local groundwater table but would not interfere substantially with recharge of the deep aquifer.</td>
<td>S</td>
<td>SU</td>
</tr>
<tr>
<td>4.8-6 Campus growth under the 2003 LRDP could increase the amount of water extracted from the shallow/intermediate aquifer and would increase impervious surfaces. Extraction from the shallow/intermediate aquifer could deplete groundwater levels and could contribute to local subsidence, and increased impervious coverage could interfere substantially with recharge. This could result in a net deficit in the intermediate aquifer volume or a lowering of the local groundwater table.</td>
<td>SU</td>
<td>SU</td>
</tr>
<tr>
<td>4.8-9 Development under the 2003 LRDP could place non-residential structure within a 100-year floodplain, which could expose people and structures to risks associated with flooding and/or impede or redirect flows, contributing to flood hazards</td>
<td>PS</td>
<td>LS</td>
</tr>
</tbody>
</table>

Levels of Significance: LS=Less than Significant, S=Significant, PS=Potentially Significant, SU=Significant and Unavoidable
Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Because these previously adopted mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are considered part of the project description and will not be readopted. Nothing in this Initial Study in any way alters the obligations of the campus to implement 2003 LRDP EIR mitigation measures.

### 2003 LRDP EIR Mitigation Measures

#### HYDROLOGY & WATER QUALITY

- **4.8-4(a)** The campus shall continue to monitor and modify its pretreatment program, WWTP operation, and/or treatment processes as necessary to comply with WDRs.

- **4.8-4(b)** The campus shall implement a monitoring program specifically targeted at the following constituents: copper, cyanide, iron and nitrate + nitrite, and make appropriate modifications as necessary to the campus pretreatment program to avoid exceedance of permit limits for these constituents.

- **4.8-5(a)** The campus shall continue to implement water conservation strategies to reduce demand for water from the deep aquifer. Domestic water conservation strategies shall include the following or equivalent measures:
  1. Install water efficient shower heads and low-flow toilets that meet or exceed building code conservation requirements in all new campus buildings, and where feasible, retrofit existing buildings with these water efficient devices.
  2. Continue the leak detection and repair program.
  3. Continue converting existing single-pass cooling systems to cooling tower systems.
  4. Use water-conservative landscaping on the west and south campuses where domestic water is used for irrigation.
  5. Replace domestic water irrigation systems on the west and south campuses with an alternate water source (shallow/intermediate or reclaimed water), where feasible.
  6. Install water meters at the proposed neighborhood to encourage residential water conservation.
  7. Identify and implement additional feasible water conservation strategies and programs including a water awareness program focused on water conservation.

- **4.8-5(b)** The campus shall continue hydrogeologic monitoring and evaluation efforts to determine the long-term production and quality trends of the deep aquifer.

- **4.8-5(c)** To the extent feasible, new water supply wells in the deep aquifer should be located on the west campus in sands and gravels that are not used by or available to the City of Davis for deep water extraction.

- **4.8-5(d)** If continued hydrogeologic monitoring and evaluation efforts identify constraints in the deep aquifer’s ability to provide for the campus’ long-term water needs, the campus will treat shallow/intermediate aquifer and/or surface water from the Solano Project to serve domestic water demand.

- **4.8-6(a)** The campus shall continue to implement water conservation strategies to reduce demand for water from the intermediate aquifer. Utility water conservation strategies shall include the following or equivalent measures:
  1. Landscape, where appropriate, with native, drought resistant plants and use lawns only where needed for pedestrian traffic, activity areas, and recreation.
  2. Install efficient irrigation systems including centrally controlled automatic irrigation systems and low-flow spray systems.
  3. Apply heavy applications of mulch to landscaped areas to reduce evaporation
  4. Use treated wastewater for landscape irrigation where feasible.

- **4.8-6(b)** The campus shall continue to monitor shallow/intermediate aquifer water elevations at existing campus wells to ascertain whether there is any long-term decline in water levels.

- **4.8-6(c)** The campus shall continue to participate in regional subsidence monitoring, including by installing an extensometer, to determine the vertical location of local subsidence.

- **4.8-6(d)** If shallow/intermediate aquifer monitoring or subsidence monitoring indicate that campus water use from the intermediate aquifer is contributing to a net deficit in aquifer volume and/or significant subsidence, the campus...
2003 LRDP EIR Mitigation Measures
HYDROLOGY & WATER QUALITY

will reduce use of water from the aquifer by using surface water and/or treated wastewater effluent to irrigate campus recreation fields.

4.8-6(e) The campus shall incorporate the following or equally effective measures into project designs under the 2003 LRDP where feasible, to increase percolation and infiltration of precipitation into the underlying shallow/intermediate aquifers:

(i) Minimize paved surfaces.
(ii) Use grassy swales, infiltration trenches, or grass filter strips to intercept storm water runoff.
(iii) Implement LRDP Mitigation 4.8-3(b), which specifies construction of detention and infiltration facilities in those areas that do not discharge storm water to the Arboretum.

4.8-9(a) Prior to final design, the campus will review the plans for all structures to be constructed in the 100-year floodplain for compliance with the following FEMA requirements for nonresidential structures:

(i) Elevate the lowest floor (including the basement) to or above the base flood level; or
(ii) Together with attendant utility and sanitary facilities, design so that below the base flood level, the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
(iii) Require that fully enclosed areas below the lowest floor that are subject to flooding be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for entry and exit of flood waters.

4.8-9(b) For structures placed within the 100-year floodplain, flood control devices will be designed to direct flows towards areas where flood hazards will be minimal.

7.9.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>HYDROLOGY &amp; WATER QUALITY</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
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<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the project…</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Violate any water quality standards or waste discharge requirements?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
</tbody>
</table>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

f) Otherwise substantially degrade water quality?

h) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

j) Inundation by seiche, tsunami, or mudflow?

a,f) **Construction**

The 2003 LRDP EIR found that construction on campus under the 2003 LRDP would not contribute substantial loads of sediment or other pollutants to storm water runoff (Impact 4.8-1). Construction on campus is covered under the NPDES state-wide General Permit for Discharge of Storm Water Associated with Construction Activity. As part of this permit, campus construction projects managed by outside contractors and/or disturbing over 1 acre (including the proposed project, which would be managed by an outside contractor) must implement Storm Water Pollution Prevention Plans (SWPPPs), which specify Best Management Practices (BMPs) to reduce the contribution of sediments, spilled and leaked liquids from construction equipment, and other construction-related pollutants to storm water runoff. All routine maintenance activities and any construction projects disturbing less than 1 acre that are not managed by outside contractors are covered under the campus’ Phase II Municipal Storm Water Management Plan, which requires BMPs to reduce contribution of pollutants to storm water runoff. Because the UC Davis campus is required to comply with the NPDES state-wide permit and Phase II requirements, the water quality effects associated with construction activities on campus are considered to be less than significant. The project would require very minimal amounts of construction and excavation. In addition, LRDP Mitigation 4.8-1, included as part of the project, requires the campus to implement BMPs to reduce construction-related water quality impacts.

**Operation**

The 2003 LRDP EIR found that campus growth under the 2003 LRDP would increase discharge of treated effluent from the campus WWTP into the South Fork of Putah Creek, which could exceed waste discharge requirements and degrade receiving water quality (LRDP Impact 4.8-4). With current and future discharge control programs and possible operational changes, the increased discharge from the WWTP associated with the proposed project as well as other projects under the 2003 LRDP is expected to comply with NPDES regulations, and therefore will not cause degradation of receiving water quality. The campus will continue to monitor effluent discharge in compliance with the applicable WDRs for the WWTP, and if effluent limits are exceeded, the campus will modify its pretreatment program and WWTP operation as appropriate. These practices are further confirmed in LRDP Mitigation 4.8-4(a), which is included as part of the project. In compliance with LRDP
Mitigation 4.8-4(b), the campus will target monitoring and pretreatment for the contaminants specifically identified as of potential concern by the CVRWQCB. The campus has evaluated the quality of the wastewater expected from the proposed READ facility for its effect on the campus WWTP; with inclusion in the project of the sand filter/zeolite media filtration, wastewater discharged from the process would not cause the WWTP to exceed effluent limits. These measures would reduce the impact to a less than significant level.

The 2003 LRDP EIR found that growth under the 2003 LRDP and other development in the region would increase the cumulative discharge of treated effluent to the Putah Creek watershed, which could degrade receiving water quality (LRDP Impact 4.8-12). However, UC Davis is currently the largest discharger of treated effluent to Putah Creek, and no other major dischargers are expected in the future. LRDP Mitigation 4.8-12, included as part of the project, requires implementation of LRDP Mitigation 4.8-4(a-b), discussed above, which would reduce the impact of increased effluent discharge from the campus WWTP to Putah Creek to a less than significant level. Therefore, with implementation of LRDP Mitigation 4.8-12, which is included in the proposed project, the cumulative impact would be less than significant.

b) Deep Aquifer

The proposed project would increase the demand for domestic and fire suppression water on the campus by approximately 3.5 gallons per minute. The project does not propose drilling of any new wells and would use the domestic water connection that is already on site. This amount is well within the total increase in water demand analyzed in the 2003 LRDP EIR. As noted above, domestic, fire, and irrigation water for use on the west campus is obtained from on-campus wells screened in the deep aquifer. The 2003 LRDP EIR found that campus growth under the 2003 LRDP would increase the amount of water extracted from the deep aquifer and would increase impervious surfaces, which could result in a net deficit in the deep aquifer volume or a lowering of the local groundwater table but would not interfere substantially with recharge of the deep aquifer (LRDP Impact 4.8-5). The deep aquifer is confined with limited lateral and vertical recharge and is overlain by thick clay layers that are relatively impermeable. Because of these characteristics, increased impervious surfaces associated with development under the 2003 LRDP will not significantly affect the recharge capacity of the deep aquifer. The 2001 demand for water from the deep aquifer was approximately 2,671 acre-feet. The annual demand for deep aquifer water projected under the 2003 LRDP, including demand associated with the proposed project, is approximately 5,301 acre-feet through 2015-16 (UC Davis ORMP 2003a). Currently, the campus use of deep aquifer water has decreased to approximately 2,300 acre-feet per year. With the decreased usage, the campus growth since 2003 has not impacted the deep aquifer and the proposed project would use a very small amount of water annually. In total, the existing use of approximately 2,300 acre-feet and the proposed use from the project would remain below 2001 baseline of 2,671 acre-feet. Accordingly, the project’s incremental use of water from the deep aquifer would result in a less than significant impact.

Shallow/Intermediate Aquifer

The approximately 0.5-acre project site is compacted and covered with gravel, limiting the existing aquifer recharge on the site. The project would pave this area and slightly increase the impermeability of the site compared to existing conditions but would not expand the lateral extent of impervious surfaces on the landfill site. The 2003 LRDP EIR Impact 4.8-6 found that the campus’ extraction from shallow/intermediate aquifers could deplete groundwater levels and could contribute to local subsidence. However, because of the limited permeability of the site under existing conditions and the fact that the project would not use water from the shallow/intermediate aquifer, the proposed project would not contribute to or result in an impact on this aquifer.
According to the analysis in the LRDP EIR, the overall annual demand for water from the shallow/intermediate aquifers is anticipated to decrease through 2015-16 (UC Davis ORMP 2003a). However, in the event that LRDP Mitigation 4.8-5(d) is implemented which provides for the use of water from the intermediate aquifer to serve the campus’ domestic water needs, some or all of the project’s water demand could be served by the intermediate aquifer. As the demand for water from the intermediate aquifer could increase, extraction from the shallow/intermediate aquifer could become a contributing factor to local subsidence. The LRDP EIR identified a number of mitigation measures to address this potential impact, but noted that regardless of mitigation, the combination of effects from continued demand for water from the shallow/intermediate aquifer, local subsidence trends, and increased impervious coverage could potentially result in a significant impact on intermediate aquifer groundwater levels. Therefore, LRDP Impact 4.8-6 was determined to be significant and unavoidable. This impact was adequately analyzed in the 2003 LRDP EIR and was fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2003 LRDP. The proposed project would have a minimal effect related to impervious surfaces and would require a small amount of water as compared to the existing demand. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis.

The 2003 LRDP EIR found that growth under the 2003 LRDP and other development in the region would cumulatively increase the amount of water extracted from shallow/intermediate aquifers and would increase impervious surfaces. This could contribute to local subsidence, substantially deplete groundwater supplies, and could interfere substantially with recharge of the shallow/intermediate depth aquifer, resulting in a net deficit in the shallow/intermediate aquifer volume or a lowering of the local groundwater table (LRDP Impact 4.8-14). For reasons presented above, the proposed project would have a minimal impact on the intermediate aquifer and the project would add three or four persons to the campus population, which would have a minimal effect on overall growth in the region. This impact was adequately analyzed in the 2003 LRDP EIR and was fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2003 LRDP. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis.

c) As noted above, the project would pave a portion of the project site and slightly increase the impermeability of the site compared to existing conditions but would not expand the lateral extent of impervious surfaces on the landfill site. Therefore it would not substantially increase the site runoff. Storm water runoff from the developed site would be directed to the existing storm water detention basin to the south of the project site.

The 2003 LRDP EIR found that development under the 2003 LRDP would increase impervious surfaces on the campus and could alter drainage patterns, thereby increasing runoff and loads of pollutants in storm water, which could adversely affect surface water quality (LRDP Impact 4.8-2). The proposed project would establish impervious surfaces on less than 0.5 acre of previously compacted land on the campus landfill and therefore would minimally increase storm water runoff and have a low potential to affect surface water quality. If on-site composting is selected as the method to handle digestate, composting would occur on land to the west of the Bio Separator on an area that is approximately 60 feet by 60 feet. No significant grading would be needed to prepare the area for windrows. The material to be composted would be enclosed in Ag Bags which would be placed in windrows on an unpaved surface with 1 to 3 degree grade to facilitate leachate collection. The grade would lead to a collection drain which would feed into a sump pump. The pump would be triggered by a float switch, which senses that there is water present and the water would be pumped into the first hydrolysis tank. Water would not leave the site as a raised concrete barrier would be put in place to direct the flow to the collection drain and the sump. For these reasons, on-site composting
of the biodigestate would not require substantial grading or result in significant impacts to surface water quality.

The 2003 LRDP EIR found that development under the 2003 LRDP, in conjunction with construction activities, increased impervious surfaces, and alterations to drainage patterns associated with other development in the watershed could increase storm water runoff and could provide substantial sources of polluted runoff, which could adversely affect receiving water quality (Impact 4.8-10). However, the project site would not contribute substantially to an increase in impervious surfaces, and would consequently not change drainage patterns on site. Therefore, the proposed project would have a less than significant effect with regard to erosion and siltation.

d,e) The 2003 LRDP EIR found that implementation of the 2003 LRDP would alter drainage patterns in the project area and would increase impervious surfaces, which could exceed the capacity of storm water drainage systems and result in localized flooding and contribution to off-site flooding (Impact 4.8-3). The proposed project is not located within the floodway designated by the California Department of Water Resources and is not within 10 feet of the levees along the South Fork of Putah Creek. Furthermore, the proposed project would not substantially increase impervious surfaces that would alter drainage or increase storm water runoff. Thus, the READ project would not increase the chance of flooding on or off site. The project would have a less than significant effect on flooding in the area.

The 2003 LRDP EIR also found that implementation of the 2003 LRDP in combination with regional development could alter drainage patterns and increase the rate or amount of surface runoff, which could cumulatively exceed the capacity of storm water drainage systems and result in flooding within the Putah Creek watershed (LRDP Impact 4.8-11). As stated above, the proposed project would not increase the rate of surface water runoff and not cumulatively contribute to flooding.

Storm water runoff pollution is evaluated further in items (a, f) and (e), above.

g) Under the 2003 LRDP, housing (including on-campus student housing and housing within the proposed neighborhood) would be constructed outside the 100-year flood zones on campus (see 2003 LRDP EIR, Figure 4.8-4, 100-Year Floodplain). The proposed project does not include housing. Therefore, no impact would occur.

h, i) The 2003 LRDP EIR found that development under the 2003 LRDP could place non-residential structures within a 100-year floodplain, which could expose people and structures to risks associated with flooding and/or could impede or redirect flows, contributing to flood hazards (LRDP Impact 4.8-9). The project site is located within the 100-year floodplain of Putah Creek. With implementation of LRDP Mitigation 4.8-9 (a) and (b), the risk of flooding to the project structures would be reduced to less than significant.

The campus is located approximately 23 miles downstream of the Monticello Dam (forming Lake Berryessa) and approximately 15 miles downstream of the Putah Diversion Dam. An inundation study prepared by the US Bureau of Reclamation (USBR) shows that, in the highly unlikely case of a dam breach, the campus (as well as the City of Davis) would be inundated under a maximum of 3 to 9 feet of water approximately 3.5 to 4 hours following the breach (USBR 1998). However, the probability of such a release is far less than one in 1 million (USBR 2000). As of June 2000, Monticello Dam was determined to be in satisfactory condition, and the dam exhibited no unusual cracks, seeps, or deformations. In addition, the State Department of Dam Safety evaluates dams regularly, which would give adequate time to respond to any deterioration in the safety of the
structure. Therefore, the risk of flooding on campus as a result of a dam failure is considered to be a less than significant impact.

j) The campus is not subject to inundation by seiche, tsunami, or mudflow. The campus is generally flat and is not located in close proximity to any large water bodies. Therefore, no impact would occur.

Summary

The proposed project would not exceed the levels of significance of hydrology and water quality impacts previously addressed in the 2003 LRDP EIR, nor would it introduce any new significant impacts that were not previously addressed. Mitigation Measures 4.8-4, 4.8-5, 4.8-6, and 4.8-9 from the 2003 LRDP EIR are relevant to the proposed project and would reduce the significance of hydrology and water quality impacts to the extent feasible. No feasible project-level mitigation has been identified to further reduce the potential cumulative impact of the project on ground water supplies. For all other water quality topics, the project has been determined to have no impact or a less than significant impact.
7.10 LAND USE & PLANNING

7.10.1 Background

Section 4.9 of the 2003 LRDP EIR addresses the land use and planning effects of campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.9 of the 2003 LRDP EIR.

Campus

The approximately 5,300-acre UC Davis campus is located within Yolo and Solano counties. Local land use is predominantly agricultural, with small cities and towns. The campus is surrounded by extensive agricultural uses to the west and south and by residential, institutional, and commercial land uses in the City of Davis, to the north and east. The City of Davis is a university-oriented community with over 62,000 residents. The UC Davis campus consists of four general units: the central campus, the south campus, the west campus, and Russell Ranch. In addition, the University of California owns several properties in the City of Davis, including buildings in downtown Davis and buildings and vacant parcels in the South Davis Research Park, located south of I-80.

As a state entity, UC Davis is not subject to municipal policies such as the City of Davis General Plan. Nevertheless, such policies are of interest to the campus. The campus has a tradition of working cooperatively with the local communities and it is University policy to seek consistency with local plans and policies, where feasible.

The 2003 LRDP is the campus’ primary land use planning guide. It designates campus lands for the following uses through 2015-16: Academic and Administrative (High and Low Density); Teaching and Research Fields; Teaching and Research Open Space; Research Park (High and Low Density); Support; Parking; Physical Education, Intercollegiate Athletics, and Recreation (PE/ICA/Recreation); Research Park (High and Low Density); Formal Open Space; Community Gardens; Faculty/Staff Housing, Student Housing; Mixed Use Housing; and Elementary School.

Project Site

The project site is designated for Support uses under the 2003 LRDP. The Support category typically is applied to areas and facilities that are required by the campus, as well as the required setbacks, landscaping, on-site utility services, sidewalks, and parking lots and roads associated with support facilities. Some of the current support facilities include the campus landfill, central heating and cooling plant, thermal energy storage plant, and campus wastewater treatment plant.

7.10.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers a land use and planning impact significant if growth under the 2003 LRDP would:

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.
- Result in development of land uses that are substantially incompatible with existing adjacent land uses or with planned uses.
- Conflict with any applicable habitat conservation plan or natural community conservation plan.
An additional standard from the *State CEQA Guidelines*’ Environmental Checklist (“a” in the checklist below) was found not applicable to campus growth under the 2003 LRDP.

### 7.10.3 2003 LRDP EIR Impacts and Mitigation Measures

Land use and planning impacts of campus growth under the 2003 LRDP through 2015-16 related to land use and planning are evaluated in Section 4.9 of the 2003 LRDP EIR. As analyzed in Section 4 of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR. The 2003 LRDP EIR did not identify any potentially significant or significant land use and planning impacts. The less than significant land use and planning impacts identified in the 2003 LRDP EIR do not require mitigation.

### 7.10.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>LAND USE &amp; PLANNING</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the project…</td>
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</tr>
<tr>
<td>a) Physically divide an established community?</td>
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<td>☐</td>
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<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>c) Conflict with any applicable habitat conservation plan or natural community conservation plan?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>d) Result in development of land uses that are substantially incompatible with existing adjacent land uses or with planned uses?</td>
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</table>

a) The proposed project would have no potential to physically divide an established community. The project site is approximately 1 mile from an established residential community and is surrounded by campus-owned land including the former landfill and agricultural fields. No impact would occur.

b) The applicable land use plan for the campus is the 2003 LRDP. The project site is designated for Support uses under the 2003 LRDP. The proposed project involves the use of an existing modular building, new storage tanks, and new modular equipment that would convert organic material into electricity for the UC Davis campus. These uses are consistent with the Support land use designation. No impact would occur.

c) The campus does not fall within the boundaries of, nor is it adjacent to lands covered by an adopted regional HCP or NCCP. The campus has implemented two low-effects HCPs for Valley Elderberry Longhorn Beetle at Russell Ranch. The project is approximately 3.5 miles from the Russell Ranch. Therefore, the proposed project would not conflict with an adopted HCP or NCCP. No impact would occur.

d) The 2003 LRDP EIR identifies that an impact could result if land uses are developed under the 2003 LRDP EIR that are substantially incompatible with existing adjacent land uses or with planned uses. The proposed project is related to and consistent with the planned uses of the land and the existing adjacent uses at the former landfill. No impact would occur.
Summary

The project would have no land use and planning impacts. No project-specific mitigation measures related to land use and planning impacts are required.
7.11 MINERAL RESOURCES

7.11.1 Background

Section 4.6, Geology, Soils, and Seismicity, of the 2003 LRDP EIR briefly addresses mineral resources issues. The 2003 LRDP EIR concludes that development on campus would not impede extraction or result in the loss of availability of mineral resources.

Sand and gravel are important mineral resources in the region (CDOC 2000). However, natural gas is the only known or potential mineral resource that has been identified on campus. Natural gas can be extracted from wells placed at considerable distances from deposits. No other known or potential mineral resources have been identified on the UC Davis campus. Therefore, development on campus would not impede extraction or result in the loss of availability of mineral resources.

7.11.2 2003 LRDP EIR

Because development on campus would not impede extraction or result in the loss of availability of mineral resources, the 2003 LRDP EIR did not identify any standards of significance, impacts, or mitigation measures associated with mineral resources. As analyzed in Section 4 of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR.

7.11.3 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>MINERAL RESOURCES</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the project…</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tbody>
</table>

a, b) The proposed project, at its proposed location on the former campus landfill, would not impede extraction or result in the loss of availability of a known mineral resource. No impact would occur.

Summary

The 2003 LRDP EIR did not identify any significant impacts to natural resources, nor did it identify any associated mitigation measures. The project would have no impact on mineral resources, and project-specific mitigation measures are not required.
7.12 NOISE

7.12.1 Background

Section 4.10 of the 2003 LRDP EIR addresses the noise effects of campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.10 of the 2003 LRDP EIR.

Campus

The primary noise source in the vicinity of the campus is vehicular traffic using I-80, SR 113, and local roads. Other sources of noise include occasional aircraft over-flights associated with the University Airport located on the west campus and another small airport in the vicinity, agricultural activities, railroads, and landscaping activities. Land use surrounding the campus is primarily agricultural, with residential, commercial, and other uses concentrated along the northern and eastern boundaries of the main campus.

Sound is technically described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB), and the decibel scale adjusted for A-weighting (dB(A)) is a special frequency-dependent rating scale that relates to the frequency sensitivity of the human ear. Community noise usually consists of a base of steady “ambient” noise that is the sum of many distant and indistinguishable noise sources, as well as more distinct sounds from individual local sources. A number of noise descriptors are used to analyze the effects of community noise on people, including the following:

- Leq, the equivalent energy noise level, is the average acoustic energy content of noise, measured during a prescribed period, typically 1 hour.
- Ldn, the Day-Night Average Sound Level, is a 24-hour-average Leq with a 10 dB(A) “penalty” added to noise occurring during the hours of 10:00 PM to 7:00 AM to account for greater nocturnal noise sensitivity.
- CNEL, the Community Noise Equivalent Level, is a 24-hour-average Leq with a “penalty” of 5 dB added to evening noise occurring between 7:00 PM and 10:00 PM, and a “penalty” of 10 dB added to nighttime noise occurring between 10:00 PM and 7:00 AM.

Noise monitoring conducted over a 24-hour period in 2003 at sites located in urban areas on and adjacent to the campus (including areas next to freeways, roads, residences, and academic buildings) reflected CNEL levels ranging from 63 to 65 dB(A) CNEL. Ambient noise levels measured over a short period at various urban sites on campus varied from 49 to 63 dB(A) Leq.

Project Site

The project site is located along the northern edge of the former UC Davis landfill. Noise sources in the immediate vicinity include traffic on County Road 98 and nearby agricultural operations. The nearest sensitive receptors to the project site are the private school and residences located approximately 4,000 feet (0.8 mile) to the northeast along County Road 98 and Russell Boulevard.
7.12.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers a noise impact significant if growth under the 2003 LRDP would result in the following:

- Exposure of persons to or generation of noise levels in excess of levels set forth in Table 4.10-3 of the 2003 LRDP EIR (Table 6 below).

Table 6
Thresholds of Significance for Noise Evaluations

<table>
<thead>
<tr>
<th>Noise Source</th>
<th>Criterion Noise Level(^a)</th>
<th>Substantial Increase in Noise Level(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Traffic and Other Long-Term</td>
<td>65 dB(A) CNEL</td>
<td>&gt;=3 dB(A) if CNEL w/project is &gt;= 65 dB(A)</td>
</tr>
<tr>
<td>Source</td>
<td></td>
<td>&gt;=5 dB(A) if CNEL w/project is 50–64 dB(A)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;=10 dB(A) if CNEL w/project is &lt; 50 dB(A)</td>
</tr>
<tr>
<td>Construction (temporary)</td>
<td>80 dB(A) Leq (8h)(^b) daytime (7:00 AM–7:00 PM)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>80 dB(A) Leq (8h) evening (7:00 PM–11:00 PM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70 dB(A) Leq (8h) nighttime (11:00 PM–7:00 AM)</td>
</tr>
<tr>
<td>Source: 2003 LRDP EIR</td>
<td></td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

\(^a\) At noise-sensitive land use unless otherwise noted. Noise-sensitive land uses include residential and institutional land uses.

\(^b\) Leq(8h) is an average measurement over an 8-hour period.

- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- For a project within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.

7.12.3 2003 LRDP EIR Impacts and Mitigation Measures

Impacts of campus growth under the 2003 LRDP through 2015-16 on noise are evaluated in Section 4.10 of the 2003 LRDP EIR. As analyzed in Section 4 of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR. Mitigation was adopted to reduce the magnitude of LRDP project-level impact 4.10-2 and cumulative impact 4.10-5, but these impacts were determined to be significant and unavoidable because of the uncertainty regarding mitigation feasibility and effectiveness, and because mitigation falls within other jurisdictions to enforce and monitor and therefore cannot be guaranteed by the University of California. The other significant noise impacts and mitigation measures identified in the 2003 LRDP EIR are not relevant to the proposed project because the proposed project would not be located near any sensitive receptors and would not emit a substantial amount of noise.
### 2003 LRDP EIR Impacts

<table>
<thead>
<tr>
<th>NOISE</th>
<th>Level of Significance Prior to Mitigation</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.10-2</td>
<td>S</td>
<td>SU</td>
</tr>
<tr>
<td>4.10-5</td>
<td>S</td>
<td>SU</td>
</tr>
</tbody>
</table>

Levels of Significance: LS=Less than Significant, S=Significant, PS=Potentially Significant, SU=Significant and Unavoidable

Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Because these previously adopted mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are considered part of the project description and will not be readopted. Nothing in this Initial Study in any way alters the obligations of the campus to implement 2003 LRDP EIR mitigation measures.

### 2003 LRDP EIR Mitigation Measures

#### RECREATION NOISE

4.10-2(a) For noise-sensitive uses adjacent to Russell Boulevard between Arlington Boulevard and Arthur Street, the existing soundwall (approximately 6.5 feet in height) could be increased slightly in height and extended to include the daycare center to the east.

For noise-sensitive uses adjacent to Russell Boulevard between Arthur Street and SR 113, and from SR 113 to La Rue/Anderson Road and from La Rue Road to Oak Street, soundwalls may be constructed for exterior residential and recreational land uses within approximately 100 feet of the centerline of Russell Boulevard, where construction of such walls would not interfere with driveway access. The campus shall reimburse the City of Davis the campus’ fair share of the cost of a City of Davis’ noise abatement program for reducing interior noise levels in homes along Russell Boulevard that are significantly affected by noise from 2003 LRDP-related traffic growth. The campus’ contribution to the City’s noise abatement program could be used to extend sound walls as described above or for other noise abatement measures such as retrofit of homes. The campus’ fair share shall be determined based on the volume of traffic added to Russell Boulevard by the campus as a result of 2003 LRDP implementation and the percentage that 2003 LRDP-related traffic increases constitute of the average daily traffic on the roadway.

4.10-2(b) For components of the 2003 LRDP having future noise-sensitive land uses such as the Neighborhood and Research Park, building and area layouts shall incorporate noise control as a design feature; including increased setbacks, landscaped berms, and using building placement to shield noise-sensitive exterior areas from direct roadway views.

4.10-5 Implement LRDP Mitigations 4.10-1 and 4.10-2.
### 7.12.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>NOISE</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant Impact with Project-level Mitigation</th>
<th>Impact Adequately Addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
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<tr>
<td>b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
<tr>
<td>c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
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<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?</td>
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</tr>
<tr>
<td>f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?</td>
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</tbody>
</table>

**a,b,d)** The project site is located approximately 4,000 feet (0.8 mile) from the nearest sensitive receptors and would involve limited construction on site. Pile driving, blasting, or other special construction techniques are not anticipated. The 2003 LRDP EIR found that construction of campus facilities pursuant to the 2003 LRDP could expose nearby receptors to excessive groundborne vibration and airborne or groundborne noise (LRDP Impact 4.10-1). Construction of the proposed project, would involve construction activities using conventional construction techniques and equipment that would not generate substantial levels of vibration or groundborne noise. Routine noise levels from conventional construction activities (with the normal number of equipment operating on the site) range from 75 to 86 dB(A) Leq at a distance of 50 feet, from 69 to 80 dB(A) Leq at a distance of 100 feet, from 55 to 66 dB(A) Leq at a distance of 500 feet, and 48 to 60 dB(A) Leq at a distance of 1,000 feet (although noise levels would likely be lower due to additional attenuation from ground effects, air absorption, and shielding from miscellaneous intervening structures). Noise levels at the nearest sensitive receptors (at a distance of approximately 4,000 feet from the source) would therefore be below the significance criteria of 80 dB(A) Leq daytime and evening and 70 dB(A) Leq nighttime. Due to the distance of sensitive receptors from the project site and the minimal amount of construction required, noise impacts would be less than significant.

**c)** Generation of noise on or adjacent to the project site associated with vehicle trips and the mechanical equipment would contribute to ambient noise levels on the west campus. Noise from the project’s mechanical equipment would not adversely affect any sensitive receptors due to their distance from the site. The potential impact would be less than significant.

With respect to the increase in ambient noise levels along on-campus and off-campus roadways, the relatively small number of new vehicle trips (less than 20 trips per day) and truck trips...
(approximately 4 to 5 per day) generated by the proposed project would add a minimal number of vehicles to the area roadways. As the increase would be well within average daily fluctuations in traffic volume at the existing landfill site and along the access road to the site, it would not result in a perceptible increase in noise levels.

The 2003 LRDP EIR found that implementation of the 2003 LRDP would result in increased vehicular traffic on the regional road network, which would substantially increase ambient noise levels at the following locations through 2015-16: Russell Boulevard, just west of Arlington; the west campus neighborhood site adjacent to SR 113; and on Hutchison Drive west of SR 113 (LRDP Impact 4.10-2). The proposed project would contribute to but not exceed the impact analyzed in the LRDP EIR. LRDP Mitigation 4.10-2(a-b) would address this impact by requiring specific noise abatement and noise control programs on campus and in the City of Davis. However, the campus cannot ensure that LRDP Mitigation 4.10-2(a) would be implemented by the City, and it is uncertain whether this measure would effectively reduce noise to acceptable levels. Therefore, the cumulative impact is considered significant and unavoidable. This impact was adequately analyzed in the 2003 LRDP EIR and was fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2003 LRDP. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis. No additional analysis is required.

e) The project site is located approximately 1 mile to the west of University Airport. The 2003 LRDP, including the proposed project, does not propose changes to University Airport operations, nor does the project propose occupied uses within the airport’s 65 CNEL noise contour. Therefore, the project would not expose people to excessive noise levels associated with this public use airport, and the impact is less than significant.

f) The University Airport is a public use airport, not a private airstrip. No other private airport facilities are within the immediate vicinity of the campus. No impact would occur.

**Summary**

The project would not exceed the levels of significance of noise impacts previously addressed in the 2003 LRDP EIR, nor would it introduce any new significant impacts that were not previously addressed. Mitigation Measure 4.10-2(a-b) from the 2003 LRDP EIR is relevant to the proposed project and would reduce the noise impact to the extent feasible. No project-specific mitigation measures related to noise impacts are applicable to the proposed project.
7.13 POPULATION & HOUSING

7.13.1 Background

Section 4.11 of the 2003 LRDP EIR addresses the population and housing effects of campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.11 of the 2003 LRDP EIR.

The on-campus population at UC Davis includes students, faculty/staff, and non-UC Davis affiliates working on campus. The current and projected campus population figures are presented in Section 4.3 of this Tiered Initial Study. As of 2003, approximately 80 percent of the student population and 50 percent of the employee population lived in the Davis area, and approximately 94 percent of students and 90 percent of employees lived within the three-county area of Yolo, Solano, and Sacramento counties. Outside the City of Davis, the predominant residence locations of students and employees are Woodland, West Sacramento, Winters, Dixon, Vacaville, and Fairfield (UC Davis ORMP 2003b).

Vacancy rates in the City of Davis are considered low, and housing costs in the City are generally higher than those elsewhere in the region. Since 1994, the campus has been working toward the goals of maintaining a UC Davis housing supply that can accommodate 25 percent of the on-campus enrolled students and can offer housing to all eligible freshmen. The 2003 LRDP focuses on providing additional on-campus student housing that will accommodate a total of approximately 7,800 students on the core campus (or 26 percent of the peak student enrollment through 2015-16) and an additional 3,000 students in a west campus neighborhood. The campus currently offers one faculty and staff housing area (Aggie Village), which includes 21 single-family units (17 of which have cottages) and 16 duplexes. The 2003 LRDP plans to provide an additional 500 faculty and staff housing units within the west campus neighborhood through 2015-16. The first phase of the West Village on west campus was opened fall of 2011. At completion the West Village will provide housing for 3,000 students, faculty, and staff.

Project Site

The project site is within a portion of the former campus landfill that was used for receiving and weighing waste. No existing or planned housing is located on or near the project site.

7.13.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers an impact related to population and housing significant if growth under the 2003 LRDP would:

- Directly induce substantial population growth in the area by proposing new housing and employment.
- Create a demand for housing that could not be accommodated by local jurisdictions.
- Induce substantial population growth in an area indirectly (for example, through extension of roads or other infrastructure).

Additional standards from the State CEQA Guidelines’ Environmental Checklist (“b” and “c” in the checklist below) were found not applicable to campus growth under the 2003 LRDP.
7.13.3 2003 LRDP EIR Impacts and Mitigation Measures

Impacts of campus growth under the 2003 LRDP through 2015-16 related to population and housing are evaluated in Section 4.11 of the 2003 LRDP EIR. As analyzed in Section 4 of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR. There were no feasible mitigation measures to address the significant LRDP Impact 4.11-1. Therefore, the impact is considered significant and unavoidable. However, the significant population impact identified in the 2003 LRDP EIR is not relevant to the proposed project because the proposed project would add only 3 to 4 additional employees to the campus, which is negligible compared to the total projected population increase under the LRDP.

7.13.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>POPULATION &amp; HOUSING</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>d) Create a demand for housing that cannot be accommodated by local jurisdictions?</td>
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<td>☐</td>
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</tr>
</tbody>
</table>

a) The 2003 LRDP EIR found that implementation of the 2003 LRDP, including the proposed project, would directly induce substantial population growth in the area (LRDP Impact 4.11-1) and that no feasible mitigation was available to mitigate that impact. The proposed project would result in a minor increase in the campus population of approximately three to four persons, which is well within the projections analyzed in the 2003 LRDP EIR, and would therefore contribute to but not exceed the previously evaluated impact. This impact was adequately analyzed in the 2003 LRDP EIR and was fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2003 LRDP. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis. No additional analysis is required.

The 2003 LRDP EIR found that implementation of the 2003 LRDP, including the proposed project, would not induce substantial population growth in the area indirectly through the extension of roads or other infrastructure because any extensions of infrastructure on the campus would not be provided with excess capacity in an area where lack of infrastructure is an obstacle to growth. The proposed project does not include the extension of roads or other infrastructure. The impact related to indirect increase in population would be less than significant.

b) The proposed project would not displace any existing housing. There is currently no housing on site. No impact would occur.

c) The proposed project would not displace any people, as there currently are no facilities or housing on site. No impact would occur.
d) The 2003 LRDP EIR found that future housing in the region is anticipated to adequately accommodate population growth associated with the 2003 LRDP, including the proposed project, as well as other population growth in the region. Therefore, the 2003 LRDP EIR found that campus growth would not create a demand for housing that could not be accommodated by local jurisdictions and the impact would be less than significant.

Summary

The proposed project would not exceed the levels of significance of population and housing impacts previously addressed in the 2003 LRDP EIR, nor would it introduce any new significant impacts that were not previously addressed. No project-specific mitigation measures related to population and housing are required.
7.14 PUBLIC SERVICES

7.14.1 Background

Section 4.12 of the 2003 LRDP EIR addresses the public services effects of campus growth under the 2003 LRDP. In accordance with the State CEQA Guidelines, the analysis of potential impacts on public services in the 2003 LRDP EIR evaluated the environmental effects associated with any physical changes required to meet increases in demand for public services, including police, fire protection, schools, and libraries. Project-level public services impacts were addressed by evaluating the effects of on-campus population growth on public services that directly serve the on-campus population (primarily UC Davis services). Cumulative public services impacts were addressed by evaluating the effects of off-campus population growth on the public services in the Cities of Davis, Dixon, Winters, and Woodland.

The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.13 of the 2003 LRDP EIR.

Campus

UC Davis provides most public services needed on campus, including fire protection, police protection, and library services. The Davis Joint Unified School District serves the City of Davis and portions of Yolo and Solano counties. These services are discussed further below:

- **Fire Protection:** The UC Davis Fire Department provides primary fire response and prevention, natural disaster response, hazardous materials incident response, and emergency medical service to the main campus. The fire department’s goal is to respond to 90 percent of campus emergency calls within 6 minutes (Trauernicht 2010). As of 2010, the UC Davis Fire Department achieves its stated standard of response (Trauernicht 2010).

- **Police:** In 2009–2010, the UC Davis Police Department employed 38 sworn officers to provide 24-hour service to the Davis and Sacramento campuses and facilities owned and leased by UC Davis. Nineteen officers provide law enforcement services at the Davis campus with an estimated daytime population of 40,185 (including UC and non-UC employees, students, and dependents living in on-campus housing). Although the campus does not currently rely on any level-of-service standards, the Police Department has indicated that it would like to reach and maintain 1 sworn officer per 1,000 population on the Davis Campus. The Police Department is currently staffed at a level of approximately 0.5 officers per 1,000 on the Davis campus (Souza 2010).

- **Schools:** In 2001-02 prior to adoption of the 2003 LRDP EIR, a total of approximately 8,677 students were enrolled in the Davis Joint Unified School District’s (DJUSD’s) nine elementary schools, two junior high schools, two high schools, one continuation high school, and one independent study program. The DJUSD estimates student enrollment based on a rate of 0.69 student per single-family residential unit and 0.44 student per multi-family residential unit in its service area. Since 2003, enrollment has decreased slightly with the 2008-09 academic year containing a total enrollment of 8,573 students.

- **Libraries:** UC Davis currently has four main libraries, distributed among the academic centers of the central campus, which serve students, faculty, staff, and the general public, including: Shields Library (the main campus library located centrally on the core campus), the Carlson Health Sciences Library, the Law Library, and the Physical Sciences and Engineering Library.
RENEWABLE ENERGY ANAEROBIC DIGESTER PROJECT

Project Site
The project site is within a disturbed portion of the former UC Davis landfill that was used for receiving and weighing waste. There are no existing or planned public service facilities (fire, police, schools, or libraries) on or adjacent to the site. All public services to the site are provided by UC Davis.

7.14.2 2003 LRDP EIR Standards of Significance
The 2003 LRDP EIR considers a public services impact significant if growth under the 2003 LRDP would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

Effects associated with recreation services are evaluated in Section 7.15, Recreation, below, and effects associated with the capacity of the domestic fire water system to provide adequate fire protection are evaluated in Section 7.17, Utilities, below.

7.14.3 2003 LRDP EIR Impacts and Mitigation Measures
Impacts of campus growth under the 2003 LRDP through 2015-16 on public services are evaluated in Section 4.12 of the 2003 LRDP EIR. As analyzed in Section 4 of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR. However, the significant public services impacts identified in the 2003 LRDP EIR are not relevant to the proposed project because the proposed project is on the site of the former landfill, would be adequately served by existing public services, and would add only 3 to 4 additional employees to the campus and thereby result in a minimal demand for public services.

7.14.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>PUBLIC SERVICES</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant Impact with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the project…</td>
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<tr>
<td>a)</td>
<td>Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</td>
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<tr>
<td>i) Fire protection?</td>
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<tr>
<td>ii) Police protection?</td>
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<tr>
<td>iii) Schools?</td>
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<tr>
<td>iv) Parks?</td>
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<tr>
<td>v) Other public facilities?</td>
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</tr>
</tbody>
</table>
a, i&ii) **UC Davis Fire and Police Protection**

The proposed project would increase the daytime population on the west campus at the former UC Davis landfill on County Road 98 by about three to four persons and add a new facility to the area. Therefore, the project would incrementally contribute to the demand for campus fire and police services that is anticipated under the 2003 LRDP.

In order to continue to meet the UC Davis Fire Department’s standard of responding to 90 percent of campus emergency calls within 6 minutes, the 2003 LRDP EIR found that the campus may need to expand or renovate existing or provide new facilities, supply technologically improved equipment, implement improved management techniques, or hire additional staff for the Department. The 2003 LRDP EIR found that to ensure adequate UC Davis Police Department service for the campus population under the 2003 LRDP, the campus may need to expand existing or provide new facilities, supply technologically improved equipment, or implement improved management techniques for the Department.

While the expansion and construction of police and fire facilities under the 2003 LRDP could contribute to the 2003 LRDP’s effects on air, noise, traffic, agriculture, biological resources, cultural resources, utilities, and other resource areas, with the implementation of mitigation in the 2003 LRDP EIR and due to the relatively small areas that would be disturbed, the construction of these facilities would not individually result in significant environmental impacts. Therefore, the environmental impact associated with constructing new or altered facilities in order to maintain adequate levels of UC Davis fire and police services was determined to be less than significant. The proposed project would make a minor contribution to this less than significant impact of the new facilities.

**Regional Fire and Police Protection**

The 2003 LRDP EIR found that implementation of the 2003 LRDP, in conjunction with regional growth, could generate a cumulative demand for new or expanded police and fire service facilities in the region, the construction of which could result in significant adverse environmental impacts to prime farmland and habitat (LRDP Impact 4.12-6). The proposed project would add three or four additional people to the campus population. The 2003 LRDP EIR found that to the extent that an increase in off-campus population associated with the 2003 LRDP, including the proposed project, could contribute to the demand for new police and fire facilities, in compliance with LRDP Mitigation 4.12-6, the campus would negotiate with respective jurisdictions to determine the University’s fair share of costs for feasible mitigation to reduce associated significant environmental impacts. The campus’ contribution to mitigation for such effects could include implementation of preservation mechanisms for on-campus prime farmland and/or habitat conservation. However, impacts associated with an irreversible loss of prime farmland and habitat could not be mitigated to less than significant levels. Therefore, the cumulative impacts related to police and fire facility construction in the Cities of Davis, Winters, Dixon, and Woodland would be significant and unavoidable. This impact was adequately analyzed in the 2003 LRDP EIR and was fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2003 LRDP. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis. No additional analysis is required.
a, iii) Schools

The proposed project would contribute about three to four persons to the campus population, which would incrementally contribute to the number of school-age persons living in the region. The 2003 LRDP EIR recognized that implementation of the 2003 LRDP, in conjunction with regional growth, would increase the number of school-age children living in the area. This could generate a cumulative demand for new school facilities, the construction of which could result in significant environmental impacts (LRDP Impact 4.12-7). Construction of new schools in the Cities of Davis, Winters, Dixon, and Woodland could result in development of agricultural areas, which could result in the permanent loss of prime farmland and habitat. Other potentially significant environmental impacts were determined to be too speculative at that time. To the extent that the school-age dependents of new campus employees could contribute to the demand for new school facilities in these cities, in compliance with LRDP Mitigation 4.12-7, the campus would negotiate with respective school districts to determine the University’s fair share of costs for feasible mitigation to reduce associated significant environmental impacts. The campus’ contribution to mitigation for such effects could include implementation of preservation mechanisms for on-campus prime farmland and/or habitat conservation. However, impacts associated with an irreversible loss of prime farmland and habitat could not be mitigated to less than significant levels. Therefore, the LRDP EIR determined that the impact related to school construction in the Cities of Davis, Winters, Dixon, and Woodland would be significant and unavoidable. This impact was fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2003 LRDP. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis. No additional analysis is required.

a, iv) Effects associated with parks are evaluated in Section 7.15, Recreation.

a, v) Libraries

The proposed project would add about three to four persons to the campus population, which would incrementally contribute to use of local libraries. UC Davis provides extensive academic library facilities in four general libraries that serve students, faculty, staff, and the general public, as well as in specialized libraries on campus. With its extensive existing libraries and ongoing update processes, UC Davis has adequate facilities to provide sufficient library services to serve the campus and general population’s needs through 2015-16. Therefore, construction of additional library facilities on campus as the result of campus growth under the 2003 LRDP is not anticipated. Furthermore, due to the small scale and infill nature of minor library expansions and renovations that could occur in the Cities of Davis, Dixon, Woodland, and Winters to serve cumulative growth through 2015-16, significant environmental impacts are not anticipated to result. Therefore, project-level and cumulative impacts associated with library services are considered less than significant.

Summary

The proposed project would not exceed the levels of significance of impacts to public services previously addressed in the 2003 LRDP EIR, nor would it introduce any new significant impacts that were not previously addressed. No LRDP EIR mitigation measures or project-specific mitigation measures related to public services are required.
7.15 RECREATION

7.15.1 Background

Section 4.13 of the 2003 LRDP EIR addresses the environmental effects associated with modifying recreational resources to meet campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.13 of the 2003 LRDP EIR.

Campus

UC Davis contains many park-like areas and recreation facilities. Park facilities at UC Davis range in size from small picnic and landscaped areas within campus housing areas to extensively landscaped areas in the academic core of the central campus, such as the Arboretum. Areas such as the Quad, the landscaped areas along A Street and Russell Boulevard, the Putah Creek Riparian Reserve in the west campus, and many areas within the Arboretum are used regularly by members of the UC Davis campus and visitors to the campus.

Recreation facilities on the campus include structures, bike paths, and fields used for physical education, intercollegiate athletics, intramural sports, sports clubs, and general recreation. Recreation structures include Hickey Gym, Recreation Hall, the Recreation Swimming Pool, and Recreation Lodge. In addition, two major campus recreation facilities have been completed since the adoption of the 2003 LRDP: the Activities and Recreation Center and the Schaal Aquatic Center. The general public may purchase privilege cards to use some campus recreation facilities, or may join community or campus organizations that have access to some facilities.

Project Site

The project site is within a disturbed portion of the former UC Davis landfill that was used for receiving and weighing waste. There are no existing or planned recreation facilities on or adjacent to the site.

7.15.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers a recreation impact significant if growth under the 2003 LRDP would:

- Increase the use of existing neighborhood and regional parks or other recreation facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Propose the construction of recreation facilities or require the expansion of recreation facilities, which might have an adverse physical effect on the environment.

7.15.3 2003 LRDP EIR Impacts and Mitigation Measures

Impacts of campus growth under the 2003 LRDP through 2015-16 on recreation facilities are evaluated in Section 4.13 of the 2003 LRDP EIR. As analyzed in Section 4 of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR. A significant recreation impact identified in the 2003 LRDP EIR that is relevant to the proposed project is presented below with its corresponding levels of significance before and after application of mitigation measures identified in the 2003 LRDP EIR. Mitigation measures are included to reduce the magnitude of cumulative impact 4.13-2 but this impact is identified as significant and unavoidable because it cannot be fully mitigated.
Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Because these previously adopted mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are considered part of the project description and will not be readopted. Nothing in this Initial Study in any way alters the obligations of the campus to implement 2003 LRDP EIR mitigation measures.

### 2003 LRDP EIR Mitigation Measures

**RECREATION**

| 4.13-2 | If documented unmitigated significant environmental impacts are caused by the construction of recreation facilities in the Cities of Dixon, Woodland, and/or Winters that are needed in part due to implementation of the 2003 LRDP, UC Davis shall negotiate with the appropriate local jurisdiction to determine the campus’ fair share (as described in Section 4.12.2.3) of the costs to implement any feasible and required environmental mitigation measures so long as the unmitigated impacts have not been otherwise reduced to less than significant levels through regulatory requirements, public funding, or agreements. This mitigation measure shall not apply to any other costs associated with implementation of recreation facilities. |

### Environmental Checklist and Discussion

**RECREATION**

<table>
<thead>
<tr>
<th>Would the project…</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?</td>
<td>☐</td>
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</tr>
</tbody>
</table>

a,b) The proposed project would not include recreational facilities, but would add about 3 to 4 persons to the campus population, which would incrementally contribute to demand for parks and recreation facilities on and off campus.

The 2003 LRDP EIR found that increased population at UC Davis under the 2003 LRDP, including the population growth associated with the proposed project, is expected to result in increased demand for and usage of campus recreation facilities. However, to counteract the effects of increased usage, it is campus practice to increase maintenance levels of recreation facilities in response to increases in demand. In addition, the 2003 LRDP designates approximately 18 acres of land west of SR 113 for future recreation fields. The 2003 LRDP also designates land for greenbelts to the west of SR 113, expansion of the campus Arboretum, expansion of the Putah Creek Riparian Reserve, and enhanced...
formal open space (garden walks and formal courtyards) within the central campus. The construction of new facilities would take place when warranted by increased demand and when financially feasible. The campus practice of increasing maintenance activities and the planned construction of new facilities would prevent the deterioration of existing recreation facilities, resulting in a less than significant impact.

The 2003 LRDP EIR found that implementation of the 2003 LRDP, together with other regional growth, could result in the development of parks and recreation facilities off-campus that could result in significant environmental impacts (Impact 4.13-2). Depending on the site, development of new parks and recreation facilities in the cities of Dixon, Winters, and Woodland could result in impacts such as loss of prime farmland or valuable habitat. However, the environmental impacts were determined to be too speculative at that time. In compliance with LRDP Mitigation 4.13-2, the campus would negotiate with respective jurisdictions to determine the University’s fair share of costs for feasible mitigation to reduce associated significant environmental impacts, if any. Due to the speculative nature of this cumulative impact, it was determined to be significant and unavoidable. This impact was adequately analyzed in the 2003 LRDP EIR and was fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2003 LRDP. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis. No additional analysis is required.

Summary

The proposed project would not exceed the levels of significance of recreation impacts previously addressed in the 2003 LRDP EIR, nor would it introduce any new significant impacts that were not previously addressed. No LRDP EIR mitigation measures or project-specific mitigation measures related to recreation are required.
7.16 TRANSPORTATION/Traffic

7.16.1 Background

Section 4.14 of the 2003 LRDP EIR addresses the transportation, circulation, and parking effects of campus growth under the 2003 LRDP. The following discussion summarizes information presented in the ‘Setting’ subsection of Section 4.14 of the 2003 LRDP EIR. Since the publication of the 2003 LRDP EIR, the checklist questions related to transportation and traffic in Appendix G, Section XV of the State CEQA Guidelines, have been amended. Amended Appendix G no longer considers whether a proposed project would cause a substantial increase in traffic related to existing street capacity and traffic load, and impacts on parking are no longer included on the checklist. The following discussion includes discussion of these items.

Campus

UC Davis is served by six main campus roadways or “gateways” that connect the campus to residential and downtown areas in the City of Davis, and two gateways that provide direct access to regional freeways (I-80 and SR 113). Circulation within the central campus is accommodated primarily by the campus “loop” roadway system, which includes Russell Boulevard, A Street, New and Old Davis Roads, California Avenue, and La Rue Road. Other roadways within the core campus area are restricted to transit and emergency vehicles, bicyclists, and pedestrians. Primary vehicular access to the west campus is provided by Hutchison Drive, to the south campus by Old Davis Road, and to Russell Ranch by Russell Boulevard.

Level of service (LOS) is a general measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned to roadway intersections. These grades represent the comfort and convenience associated with driving from the driver’s perspective. To assess the worst-case traffic conditions, LOS is measured during morning (7:00 to 9:00 AM) and afternoon (4:00 to 6:00 PM) peak commute times. The LOS of campus roadways varies. Monitoring of campus intersections during peak hours in Fall 2001 and Fall 2002 found that the Hutchison Drive/Health Sciences Drive intersection (with LOS E during the PM peak hour) was operating below the campus’ operation standard (standards are identified in the following section) and a traffic signal was subsequently added to the intersection. Since 2003, the Hutchison/Health Sciences Drive intersection was modified from a stop-controlled intersection to a traffic-signal. Recent traffic monitoring in 2008 indicated that the intersection of California and Old Davis Road required a new roundabout, which was completed in August 2011.

Bicycles are a major component of the transportation system at UC Davis and in the City of Davis. UC Davis has an extensive system of bicycle paths, which makes bicycles a popular form of travel on campus. The UC Davis Bicycle Plan (UC Davis 2002) estimates that 15,000 to 18,000 bicycles travel to the campus on a typical weekday during the Fall and Spring sessions when the weather is good.

Parking at UC Davis is provided by a combination of surface lots and parking structures. UC Davis Transportation and Parking Services (TAPS) oversees parking services on campus including selling parking passes, providing traffic control at special events, ticketing violators, and measuring parking utilization throughout campus on a quarterly basis. Approximately 11,500 parking spaces were provided on campus as of Fall 2008.
**Project Site**

The project site is accessible via Hutchison Drive, County Road 98, and Vineyard Lane, which runs parallel to Putah Creek and intersects County Road 98 south of the site. Currently the site is covered with compacted gravel but a portion would be paved as part of the proposed project to accommodate parking, trucks, and equipment.

**7.16.2 2003 LRDP EIR Standards of Significance**

The 2003 LRDP EIR considers a transportation, circulation, and parking impact significant if growth under the 2003 LRDP would:

- Cause an increase in the traffic that may be substantial in relation to the existing roadway capacity of the street system as indicated by LOS standards for congestion at intersections.

The addition of project traffic causing a LOS change from acceptable to unacceptable would have a significant impact. The following LOS thresholds apply to the study intersections.

- LOS D is the minimum acceptable LOS for UC Davis.
- LOS E is the minimum acceptable LOS for the City of Davis. LOS F is acceptable for the City of Davis Core Area.
- LOS E is the minimum acceptable LOS for I-80 and its associated interchanges.
- LOS C is the minimum acceptable LOS for SR 113 and its associated interchanges.

In addition, the project would have a significant impact if the project adds 10 or more vehicles during the AM or PM peak hour to the volume of a study intersection that is expected to operate unacceptably without the project.

For intersections that operate unacceptably without the project, even a small amount of additional traffic could increase the delay. For the 2003 LRDP EIR, future volumes were rounded to the nearest 10; therefore, 10 vehicles is the minimum amount of traffic that, if added to an intersection already operating at an unacceptable level, would result in a significant impact.

Increased intersection congestion would also be a significant impact if it would exceed a LOS standard established by the County congestion management agency (or any affected agency or jurisdiction) for designated roads or highways.

- LOS E is the minimum acceptable LOS for roadways and intersections in Solano County.
- LOS E is the minimum acceptable LOS for I-80 and its associated interchanges between the Solano County limit and Olive Drive.
- LOS E is the minimum acceptable LOS for SR 113 and its associated interchanges within the Davis City limits.
- LOS E is the minimum acceptable LOS for Russell Boulevard between SR 113 and B Street.
- LOS E is the minimum acceptable LOS for Richards Boulevard between First Street and I-80.
- LOS E is the minimum acceptable LOS for First Street between B Street and Richards Boulevard.
- LOS E is the minimum acceptable LOS for B Street between First Street and 5th Street.
• Result in inadequate parking capacity. ¹¹

For parking, a project would be considered to have a significant impact if it is expected to increase the winter utilization rate to over 90 percent on the central campus, Health Sciences District, and/or major facilities of the west and south campus without adequate time (usually 24 months) to implement a parking solution to campus construction standards.

• Conflict with applicable adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

Impacts related to safety risks associated with the UC Davis airport and emergency access are discussed in Section 7.8 Hazards and Hazardous Materials. The 2003 LRDP would make only limited changes to the roadway network and would not create or increase hazards due to design features such as dangerous intersections.

### 7.16.3 2003 LRDP EIR Impacts and Mitigation Measures

Traffic, circulation and parking impacts of campus growth under the 2003 LRDP through 2015-16 on traffic, circulation, and parking are evaluated in Section 4.14 of the 2003 LRDP EIR. The proposed project is within the scope of analysis in the 2003 LRDP EIR and significant and potentially significant traffic, circulation, and parking impacts identified in the 2003 LRDP EIR that are relevant to the proposed project are presented below with their corresponding levels of significance before and after application of mitigation measures identified in the 2003 LRDP EIR. Mitigation measures are included to reduce the magnitude of LRDP project-level impact 4.14-2, but this impact is identified as significant and unavoidable because mitigation falls within other jurisdictions to enforce and monitor and therefore cannot be guaranteed by the University of California.

<table>
<thead>
<tr>
<th>2003 LRDP EIR Impacts</th>
<th>Level of Significance Prior to Mitigation</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.14-1</td>
<td>Implementation of the 2003 LRDP would cause unacceptable intersection operations at on-campus intersections.</td>
<td>S</td>
</tr>
<tr>
<td>4.14-2</td>
<td>Implementation of the 2003 LRDP would cause unacceptable intersection and freeway LOS operations at off-campus facilities, including facilities contained in the Yolo County and Solano County Congestion Management Plans.</td>
<td>S</td>
</tr>
</tbody>
</table>

Levels of Significance: LS=Less than Significant, S=Significant, PS=Potentially Significant, SU=Significant and Unavoidable

Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Since these previously mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are considered part of the project description and will not be readopted. Nothing in this Initial Study in any way alters the obligations of the campus to implement 2003 LRDP EIR mitigation measures.

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¹¹ Parking capacity was addressed in the 2003 LRDP; however, the State CEQA Guidelines have since been amended and inadequate parking is no longer an impact criterion.
2003 LRDP EIR Mitigation Measures
TRANSPORTATION/TRAFFIC

4.14-1(a) UC Davis shall continue to actively pursue Transportation Demand Management strategies to reduce vehicle-trips to and from campus.

4.14-1(b) UC Davis shall continue to monitor AM and PM peak hour traffic operations at critical intersections and roadways on campus.

4.14-1(c) UC Davis shall review individual projects proposed under the 2003 LRDP as they advance through the environmental clearance phase of development to determine if intersection or roadway improvements are needed with the additional traffic generated by the proposed project. If intersection operations are found to degrade to unacceptable levels, UC Davis shall construct physical improvements such as adding traffic signals or roundabouts at affected study intersections.

4.14-2(a) UC Davis shall continue to actively pursue Transportation Demand Management strategies to reduce vehicle-trips to and from campus.

4.14-2(b) UC Davis shall continue to monitor AM and PM peak hour traffic operations at critical intersections and roadways in the campus vicinity at least every three years to identify locations operating below UC Davis, City of Davis, Yolo County, Solano County, or Caltrans LOS thresholds and to identify improvements to restore operations to an acceptable level.

4.14-2(c) UC Davis shall review individual projects proposed under the 2003 LRDP as they advance through the environmental clearance phase of development to determine if intersection or roadway improvements are needed with the additional traffic generated by the proposed project. If intersection operations are found to degrade to unacceptable levels, UC Davis shall contribute its fair share towards roadway improvements at affected study intersections.

7.16.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>TRANSPORTATION/TRAFFIC</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant Impact with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the project…</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?</td>
<td>☐ ☐ ☑ ☐ ☐</td>
<td>☐ ☐ ☑ ☐ ☐</td>
<td>☐ ☐ ☑ ☐ ☐</td>
<td>☐ ☐ ☑ ☐ ☐</td>
<td>☐ ☐ ☑ ☐ ☐</td>
</tr>
<tr>
<td>b) Conflict with an applicable congestion management program, including, but not limited to level of service standards established by the county congestion management agency for designated roads and highways?</td>
<td>☐ ☐ ☑ ☐ ☐</td>
<td>☐ ☐ ☑ ☐ ☐</td>
<td>☐ ☐ ☑ ☐ ☐</td>
<td>☐ ☐ ☑ ☐ ☐</td>
<td>☐ ☐ ☑ ☐ ☐</td>
</tr>
<tr>
<td>c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
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<tr>
<td>d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
</tr>
<tr>
<td>e) Result in inadequate emergency access?</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
<td>☐ ☐ ☐ ☐ ☑</td>
</tr>
</tbody>
</table>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

a, b) The 2003 LRDP EIR found that implementation of the 2003 LRDP, including the proposed project, would cause unacceptable intersection operations at on-campus intersections (LRDP Impact 4.14-1). The analysis found that additional vehicle trips under the 2003 LRDP would cause the LOS at 10 on-campus intersections to drop below acceptable levels. The project would increase truck traffic temporarily during construction of the READ facility. Operation of the facility would entail an increase in peak hour and daily traffic from the three to four staff members and four to five trucks transporting feedstock to the facility. In addition, there would be occasional truck trips associated with the removal of process byproducts for disposal elsewhere and one truck trip every three days associated with the hauling of the bulking agent if on-site composting is selected as the preferred method of disposing the digestate. The facility is located outside of the central campus and the new trips generated by the project would be very low as a proportion of those considered in the LRDP EIR. Furthermore, the small number of daily and peak hour trips added by the project to on-campus roadways and intersections would not degrade the operation of those facilities as none of the intersections and roadways on the west campus are congested at this time. The potential impacts from the proposed project would be less than significant.

The 2003 LRDP EIR also identified that implementation of the 2003 LRDP would cause unacceptable intersection and freeway operations off-campus under 2015 conditions (LRDP Impact 4.14-2). LRDP Mitigation 4.14-2(a-c), included in the proposed project, requires that the campus continue to pursue Transportation Demand Management strategies to reduce vehicle-trips, monitor peak hour traffic operations at critical locations, review individual projects to determine if operations will degrade to unacceptable levels, and contribute fair share costs to roadway improvements if operations degrade.

The feedstock trips would be internal to the campus and would not contribute peak hour traffic to off-campus freeway segments and intersections. Assuming that the three to four employees travel to and from the proposed facility in the AM and PM peak hour, they would add less than two peak hour trips to some of the off-campus freeway segments and intersections. While it is anticipated that the one truck trip every three days associated with the hauling of the bulking agent would occur during off-peak hours, conservatively it is assumed that that it would occur during the peak hour. As a truck considered the equivalent of 2.5 passenger cars, the truck trips combined with two peak hour trips associated with the employees would result in a total of about five peak hour trips. As stated in the 2003 LRDP EIR (page 4.14-40), a project would result in a significant LOS effect if it adds 10 or more vehicle trips to the volume of an intersection (or roadway) that is expected to operate unacceptably without the project. The off-campus roadways and intersections are not congested at this time and the addition of the proposed project’s two to five peak hour trips would not result in a significant impact on off-campus facilities under existing conditions.

Similarly, the proposed project’s contribution to the significant and unavoidable cumulative impact on freeway segments and off-campus intersections under 2015 conditions would not be cumulatively considerable. As the project would add less than two to five peak hour vehicle trips to freeways and intersections operating at unacceptable LOS under 2015 (cumulative) conditions, its contribution to the impact would not be considerable.
c) Impacts related to safety risks associated with the UC Davis airport are discussed in Section 7.8, Hazards and Hazardous Materials, and would be less than significant.

d) The proposed project would not make any changes to the roadway network and would not create or increase hazards due to design features such as dangerous intersections or incompatible uses. The proposed project would not contribute to bicycle, pedestrian, and transit use on the core campus as it is located at the former landfill site on the west campus. No impact would occur.

e) Impacts related to emergency access are discussed in Section 7.8, Hazards and Hazardous Materials, and would be less than significant.

f) The proposed project would add about three to four persons to the campus population, but this additional population would not likely to contribute to the demand for transit services. It is likely that most faculty and staff associated with the project would drive or bicycle to the site because the READ facility is not in close proximity to transit services. This impact would be less than significant.

Summary

The proposed project would not exceed the levels of significance of transportation, circulation, and parking impacts previously addressed in the 2003 LRDP EIR, nor would it introduce any new significant impacts that were not previously addressed. Mitigation Measure 4.14-1(a-c) and Mitigation Measure 4.14-2(a-c) from the 2003 LRDP EIR are relevant to the proposed project and would reduce the significance of transportation and traffic impacts to a less than significant level; no project-level mitigation is required.
7.17 Utilities & Service Systems

7.17.1 Background

Section 4.15 of the 2003 LRDP EIR addresses the effects of campus growth on utility systems under the 2003 LRDP.

Campus

The campus provides the following utility and service systems to campus projects:

- Domestic/Fire Water
- Utility Water
- Agricultural Water
- Storm Drainage
- Wastewater
- Solid Waste
- Chilled Water
- Steam
- Electricity
- Natural Gas
- Telecommunications

**Domestic (Potable) Water and Fire Water:** The campus’ domestic/fire water system obtains water from six deep-aquifer wells to serve the needs of campus buildings, landscape irrigation on the west and south campuses, and heating and cooling systems at the Central Heating and Cooling Plant (CHCP). The system includes approximately 144,000 linear feet of distribution pipelines, a water tower and a ground storage tank with a combined capacity of approximately 500,000 gallons, an underground storage reservoir with a capacity of approximately 1.3 million gallons, and a booster pump station. In 2007-08, peak demand was 3,100 gpm and current usage is approximately 2,300 acre-feet per year.

**Wastewater:** UC Davis operates a campus wastewater conveyance and treatment system that is independent from regional facilities. The campus Wastewater Treatment Plant (WWTP) is located in the south campus, and treated effluent from the plant discharges to Putah Creek. The peak month capacity of the campus WWTP, as regulated under the existing NPDES permit issued by the CVRWQCB, is 2.7 million gallons per day (mgd) average dry weather month. Recent upgrades have raised the capacity to 3.85 mgd average dry weather monthly. In 2007 the maximum monthly discharge was 2.4 mgd.

**Solid Waste:** Until recently UC Davis handled solid waste and recycling diversion at its own Class III landfill ceased receiving waste in August 2011. The closure of the landfill was prompted by the University of California’s sustainability policy goal to be zero waste by 2020. All solid waste from the UC Davis campus is hauled to the Yolo County Central Landfill. In 2007, the Davis campus sent approximately 8,100 tons of solid waste to the former campus landfill per year (approximately 34 tons per working day). In 2007-08, approximately 14,300 tons of materials were diverted for recycling and reuse. The amount of materials diverted represents approximately 60 percent of the total waste generated on the Davis campus.

**Electricity:** The main campus currently receives electricity from the Western Area Power Administration (WAPA) through PG&E transmission lines at the campus substation located south of I-80. The campus electrical system has an available capacity of 64.4 megawatts (MW). Annual electrical usage on campus in 2007-08 was approximately 235 million kilowatt-hours (Kwh) per year.

**Telecommunications:** The majority of all telephone, data, video, and wireless infrastructure and facilities on campus are owned by the campus and operated by the UC Davis Communications Resources Department. The main campus switching facility is located in the Telecommunications Building.
The University of California Policy on Sustainable Practices was adopted by The Regents in 2006 and revised in March 2007, March 2008, September 2009, and August 2011. The policy was developed to standardize campus practices and is a system-wide commitment to minimize the University of California’s impact on the environment and reduce the University’s dependence on non-renewable energy sources. The University of California Policy on Sustainable Practices promotes the principles of energy efficiency and sustainability in the following areas:

- Green Building Design;
- Clean Energy Standard;
- Climate Protection Practices;
- Sustainable Transportation;
- Sustainable Building Operations;
- Recycling and Waste Management;
- Environmentally Preferable Purchasing Practices; and
- Sustainable Foodservices Practices.

Project Site

The proposed project would use campus utilities and service systems including the following:

- The project is expected to require up to approximately 3.5 gpm of domestic water during operations. Domestic water would be obtained from the campus domestic/fire water system. The proposed points of connection for the project would be from a pipeline in the northeast of the project site which extends onto the property to the existing scalehouse. There currently is no wastewater connection on site. However, a landfill gas pipeline is located on site that extends to the southeast corner of the CNPRC, which is less than a mile away. Originally the pipeline sent natural gas from the landfill to the CNPRC. This pipeline would be converted to a sewer force main using primarily trenchless methods. The existing moisture traps along the pipeline would need to be bypassed. On average the facility would produce up to 5,000 gallons of wastewater per day up to a maximum of 15,000 gallons per day of wastewater.

- Storm water from the READ facility would be directed via an existing storm water drainage system to an existing detention pond to the south of the project site.

- The proposed point of connection for electricity would be at the existing electrical line on the northeast corner of the project site, which extends onto the property to the scalehouse. The electrical lines are underground and accessible from a manhole to the northeast of the site. There is a transformer pad on the northeastern corner of the project site. The project would produce 250 to 500 800 Kw to 1,200 Kw which would be carried through the existing electrical connections to the campus for use.

- The site currently has access to telecommunications.
7.17.2 2003 LRDP EIR Standards of Significance

The 2003 LRDP EIR considers a utilities and service systems impact significant if growth under the 2003 LRDP would:

- Exceed the Central Valley Regional Water Quality Control Board’s wastewater treatment requirements.
- Require or result in the construction or expansion of water or wastewater treatment facilities, which would cause significant environmental effects.
- Require or result in the construction or expansion of storm water drainage facilities, which could cause significant environmental effects.
- Result in the need for new or expanded water supply entitlements.
- Exceed available wastewater treatment capacity.
- Be served by a landfill with insufficient permitted capacity to accommodate the project’s solid waste disposal needs.
- Fail to comply with applicable federal, state, and local statutes and regulations related to solid waste.
- Require or result in the construction or expansion of electrical, natural gas, chilled water, or steam facilities, which would cause significant environmental impacts.
- Require or result in the construction or expansion of telecommunication facilities, which would cause significant environmental impacts.

7.17.3 2003 LRDP EIR Impacts and Mitigation Measures

Utilities and service systems impacts of campus growth under the 2003 LRDP through 2015-16 on utilities and service systems are evaluated in Section 4.15 of the 2003 LRDP EIR. As analyzed in Section 4 of this Initial Study, the proposed project is within the scope of analysis in the 2003 LRDP EIR. In addition, Impact 4.15-3, presented below, is considered less than significant prior to mitigation, but mitigation measures were identified in the 2003 LRDP EIR to further reduce the significance of these impacts. Less than significant impacts that do not include mitigation are not presented here.

<table>
<thead>
<tr>
<th>2003 LRDP EIR Impacts</th>
<th>Level of Significance Prior to Mitigation</th>
<th>Level of Significance After Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.15-3</td>
<td>LS</td>
<td>LS</td>
</tr>
</tbody>
</table>

Implementation of the 2003 LRDP would require the expansion of wastewater treatment and conveyance facilities, the construction and operation of which would not result in significant environmental impacts.

Levels of Significance: LS=Less than Significant, S=Significant, PS=Potentially Significant, SU=Significant and Unavoidable

Mitigation measures in the 2003 LRDP EIR that are applicable to the proposed project are presented below. Because these previously adopted mitigation measures are already being carried out as part of implementation of the 2003 LRDP, they are considered part of the project description and will not be readopted. Nothing in this Initial Study in any way alters the obligations of the campus to implement 2003 LRDP EIR mitigation measures.
4.15-3 Once preliminary project design is developed, the campus shall review each project to determine whether existing capacity of the sanitary sewer line at the point of connection is adequate. If the capacity of the sewer line is determined inadequate, the campus will upgrade the system to provide adequate service to the project site prior to occupation or operation.

7.17.4 Environmental Checklist and Discussion

<table>
<thead>
<tr>
<th>Utilities &amp; Service Systems</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact adequately addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the project...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the providers existing commitments?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>f) Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>g) Comply with federal, state, and local statutes and regulations related to solid waste?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>h) Require or result in the construction or expansion of electrical, natural gas, chilled water, or steam facilities, which would cause significant environmental impacts?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>i) Require or result in the construction or expansion of telecommunication facilities, which would cause significant environmental impacts?</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
</tbody>
</table>

a) The proposed project would add three to four persons and a new facility to the campus, which would result in a minor increase in the total amount of wastewater generated on the campus. The permitted peak monthly average capacity of the campus WWTP is currently 2.7 mgd, and growth under the 2003 LRDP is anticipated to increase the volume of discharge to 3.85 mgd through 2015-16. Recently completed upgrades to the plant increased its capacity to 3.85 mgd. The proposed project includes biodigester tanks that would produce liquid effluent that would be treated and sent to the campus.
AWTP. The proposed project would contribute an average of 5,000 gpd and a peak of 15,000 gpd of wastewater to the campus sanitary sewer system. This is well within the capacity of the existing WWTP. As discussed further in item (a, f) in Section 7.9, Hydrology and Water Quality, with continuation of current practices and implementation of 2003 LRDP EIR mitigation measures, the campus anticipates meeting the WWTP’s permit requirements. Therefore, the impact associated with possible exceedances of WWTP requirements would be less than significant.

b) Domestic Water Facilities

The proposed point of connection for the project would be from the north corner of the project site. The 2003 LRDP EIR identified that campus development under the 2003 LRDP would require the expansion of campus domestic/fire water extraction and conveyance systems, the construction of which would not cause significant environmental impacts (LRDP Impact 4.15-1). However, there is a domestic water line on the project site. As such, domestic water utility extensions would not be necessary for the proposed project and the impact would be less than significant.

Utility Water Facilities

Utility water is not available in the area of the campus where the project is located. Domestic water would be used during biodigester processes and no extensions of utility water lines would be necessary, and there would be no impact related to utility water facilities.

Wastewater Facilities

There is currently no wastewater connection on site. However, a natural gas pipeline that extends to the southeast corner of the CNPRC would be converted to carry wastewater to the existing campus sanitary sewer system. These improvements would be made either from within the pipe or in areas that have already been disturbed during its original installation; no direct impacts to sensitive resources would occur in association with that work. Therefore, this impact would be less than significant. LRDP Mitigation 4.15-3, included in the proposed project, would further reduce the significance of this impact by ensuring the campus practice of reviewing projects to determine if there is adequate capacity to provide sanitary sewer service, and to upgrade the system as necessary. The impact associated with sanitary sewer system improvements would be less than significant.

The 2003 LRDP EIR recognized that added population would contribute to the cumulative demand for wastewater treatment facilities in the region and could result in significant environmental impacts (LRDP Impact 4.15-10). The proposed project would add three to four persons to the campus, which is too small a number to affect the total population of the nearby communities. Furthermore, these employees may already be residing in the area communities before commencing work at this facility. The impact from the proposed project on cumulative demand for wastewater treatment facilities would be less than significant.

c) Storm water from the READ facility would be directed via an existing storm water drainage system to an existing detention pond to the south of the project site. The project would not add substantial impervious surfaces and would add a minimal amount of additional storm run-off to the storm water detention pond. Therefore, expansion of storm drainage conveyance or detention facilities is not required and the impact associated with storm drain improvements would be less than significant.

d) The project’s demand for domestic, fire, and utility water would be served by the on-campus groundwater wells screened in the deep aquifer. Impacts associated with the project’s demand for water from the deep and shallow/intermediate aquifers are addressed in item (b) in Section 7.9,
Hydrology and Water Quality. To date, campus use of water from the deep aquifer has decreased in recent years and the project contribution to deep-water demand would be below the baseline level analyzed in the LRDP EIR. Section 7.9 provides additional detail regarding this effect. The impact would be less than significant.

e) The campus’ WWTP would provide wastewater treatment for the proposed project. As discussed in item (b), above, there is adequate capacity to serve the proposed project and LRDP Mitigation 4.15-3, included in the proposed project, would ensure the campus practice of reviewing projects to determine if there is adequate capacity to provide wastewater treatment services. Therefore, the impact associated with sanitary sewer system improvements would be less than significant.

f) The waste disposal needs of the proposed project would be served by the Yolo County Central Landfill and would be limited to a minor amount of solid waste from the employees and visitors. The READ facility would reduce solid waste produced by the campus as a whole by using organic waste to produce electricity. The University of California campuses, including UC Davis, are in the process of developing zero waste plans. The Yolo County Central Landfill is permitted until 2081 (CalRecycle 2012). Therefore, the Yolo County Central Landfill would have adequate capacity to serve the proposed project and the impact would be less than significant.

g) The proposed project would not generate any atypical solid waste. The proposed project would comply with all applicable statutes and regulations related to solid waste and would not adversely affect the landfill closure process currently underway at the former UC Davis landfill. The proposed project would divert waste from the regional landfill and other end of life facilities in order to generate clean energy. Therefore, no impact would occur.

h) The 2003 LRDP EIR identified that growth under the 2003 LRDP would require the expansion of the campus electrical system. The proposed project would use existing electrical lines that are on site to distribute the power produced on site and for the initial demand of 850 Amps. The impact to the existing electrical system from the proposed project would be less than significant.

i) The project would connect to the existing telecommunications network that exists on site. No additional telecommunications facilities would be required. No impact would occur.

Summary

The proposed project would not exceed the levels of significance of utilities and service systems impacts previously addressed in the 2003 LRDP EIR, nor would it introduce any new significant impacts that were not previously addressed. Mitigation Measures 4.15-3 and Mitigation Measure 4.15-6(a-b) from the 2003 LRDP EIR are relevant to the proposed project and would reduce the significance of utilities and services system impacts to a less than significant level; no project-level mitigation is required.
### Mandatory Findings of Significance

<table>
<thead>
<tr>
<th>Would the project…</th>
<th>Potentially Significant Impact</th>
<th>Less than Significant with Project-level Mitigation</th>
<th>Impact Adequately Addressed in 2003 LRDP EIR</th>
<th>Less than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?</td>
<td>☑</td>
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<td>b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?</td>
<td>☑</td>
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<td>c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?</td>
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a) The proposed project would not significantly affect fish or wildlife habitat, nor would it eliminate examples of California history or prehistory. No additional analysis is required.

b, c) The proposed project would not contribute to significant unavoidable impacts identified in the 2003 LRDP EIR related to: aesthetics, agricultural resources, air quality, biological resources, cultural resources, population and housing, public services, recreation, and utilities and service systems. It would incrementally contribute to, but would not exceed, significant and unavoidable impacts related to: air quality, cultural resources, hydrology and water quality, noise, population and housing, public services, recreation, transportation/circulation, and utilities and service systems. These impacts were adequately analyzed in the 2003 LRDP EIR and fully addressed in the Findings and Statement of Overriding Considerations adopted by The Regents in connection with its approval of the 2003 LRDP. No conditions have changed and no new information has become available since certification of the 2003 LRDP EIR that would alter this previous analysis.
8  FISH & GAME DETERMINATION

Based on the information presented in this Tiered Initial Study, the project does not have a potential to adversely affect wildlife or the habitat upon which wildlife depend. Therefore, a filing fee will not be paid.

___  Certificate of Fee Exemption

X    Pay Fee
9 REFERENCES


UC Davis. 2002. UC Davis Bicycle Plan.

UC Davis. 1997, October. UC Davis Water Management Plan.

UC Davis Agricultural Services. 2003. UC Davis Irrigation Database (from Irrigation Services Billing) for crops and aquaculture.

UC Davis ORMP. 2003b. Fall 2002 UC Davis Travel Behavior Survey.


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